

**ENCOURAGING THE ACQUISITION OF
DRAWING SKILLS IN GAME DESIGN:
A CASE STUDY**

LEILA MAANI

A thesis submitted to
The University of Gloucestershire
in accordance with the requirements of the degree of
Doctor of Philosophy
in the Faculty of Media, Arts and Technology

January 2014

Abstract

Undergraduate, Interactive Games Design (IGD) courses offered by technical universities in the UK recruit students who are not required to have art or design backgrounds. However, they need to be able to represent their creative ideas. Observations at the University of Gloucestershire have shown that many students find difficulties in expressing their ideas in a visual manner as they do not have adequate drawing skills and eventually some focus on coding and some withdraw.

This thesis investigates the links between game design and drawing skills, examining concepts of creativity, learning, design communication and education. To establish the basis of this problem, it was necessary to gain an insight into students' and tutors' viewpoints and interpretation of this course. Using an interpretive philosophical framework, a mixed method approach was chosen to allow for greater opportunity to understand the phenomenon. Within an action research paradigm, the research was carried out in an evolutionary manner. The extent of the problem was established by eliciting tutors' insight from other institutions both arts and technical based. A case study was set out to study two cohorts of students. This identified the problems reported by students and the impact of these on students' attitude and motivation. The nature and necessity of drawing skills for sketching storyboards were explored by gaining views of students, tutors and industry professionals. The effect of the tutor-led Art interventions at UoG was investigated. The research identified criteria to assess the quality of storyboard communications and finally a framework for an e-learning object to develop storyboard communication skills was specified.

This study revealed that obtaining visual skills is fundamental in order to be able to draw or use rapid prototyping techniques for storyboarding. This needs to be addressed in a specified module or several sessions. It appeared that the design of an art intervention (tutor-based or e-learning object) for IGD students, needs to address the issues of confidence and teamwork alongside with the learning materials in a constructive and gamified style and as interactive as possible in a structured goal-based manner. It would also benefit from Active learning teaching style.

Keywords: Computer Games Design. Drawing. Sketching. Storyboarding. Design Communication. E-learning. Framework. Confidence

Statement of original authorship

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas. Any views expressed in the thesis are those of the author and in no way represent those of the University.

Signed Date 17 January 2014

To Majid

For his love, support and encouragement throughout this journey

Table of contents

| | |
|--|-----|
| Abstract | |
| Statement of original authorship | |
| Table of contents..... | v |
| List of tables | ix |
| List of figures | x |
| Acknowledgments | xii |
| 1 Overview..... | 1 |
| 1.1 Background to the Research | 1 |
| 1.2 Research Problem and Questions | 2 |
| 1.3 Outline of the Thesis | 4 |
| 2 Literature Review | 7 |
| 2.1 Introduction | 7 |
| 2.2 Balancing Art and Technology | 7 |
| 2.3 Theories on Brain Functions..... | 11 |
| 2.4 Drawing Skills | 13 |
| 2.5 Learning | 18 |
| 2.6 Conclusions | 26 |
| 3 Methodology and the Procedure of the Data Gathering..... | 27 |
| 3.1 Introduction | 27 |
| 3.2 Research Paradigm | 27 |
| 3.3 Strategy of Inquiry..... | 29 |
| 3.4 Methodology | 29 |
| 3.5 Data Collection..... | 31 |
| 3.6 Data Analysis | 33 |
| 3.7 Triangulation | 33 |
| 3.8 Strengths and Limitations of the Methodology..... | 34 |
| 3.9 Procedure for Data Gathering | 34 |

| | | |
|------|--|-----|
| 3.10 | Plan for Data Analysis | 37 |
| 3.11 | Conclusions | 39 |
| 4 | Data Analysis and Discussions-Part1 | 40 |
| | Establishing the Extent of the Problem | 40 |
| 4.1 | Introduction | 40 |
| 4.2 | Methodological Approach | 40 |
| 4.3 | Procedure | 41 |
| 4.4 | Results | 52 |
| 4.5 | Conclusions from the Analysis of the Results | 54 |
| 5 | Data Analysis and Discussions-Part2..... | 56 |
| | Students' Perceptions of Storyboarding | 56 |
| 5.1 | Introduction | 56 |
| 5.2 | Methodological Approach | 56 |
| 5.3 | Procedure | 62 |
| 5.4 | Results | 76 |
| 5.5 | Conclusions from the Analysis of the Results | 84 |
| 6 | Data Analysis and Discussions-Part3..... | 87 |
| | Experts' Perceptions of Storyboarding..... | 87 |
| 6.1 | Introduction | 87 |
| 6.2 | Methodological Approach | 87 |
| 6.3 | Procedure | 88 |
| 6.4 | Results | 107 |
| 6.5 | Conclusions from the Analysis of the Results | 109 |
| 7 | Framework for Design of an E-Learning Object | 112 |
| 7.1 | Introduction | 112 |
| 7.2 | Identifying Main Categories to Design an E-Learning Object. | 112 |
| 7.3 | General Aspects of an Intervention Design | 115 |
| 7.4 | A Framework for an E-Learning Object to Develop Storyboard Communication Skills | 116 |

| | | |
|-----|---|-----|
| 7.5 | Conclusions | 123 |
| 8 | Conclusions and Further Work | 124 |
| 8.1 | Research Background | 124 |
| 8.2 | Research Problem and Question | 124 |
| 8.3 | Limitations | 125 |
| 8.4 | Evaluation Criteria | 126 |
| 8.5 | Ethical Considerations | 128 |
| 8.6 | Contribution to Knowledge | 128 |
| 8.7 | Suggestions for Further Work..... | 137 |
| | References | 139 |
| | Appendix A: Consent Form for Initial Interviews..... | 155 |
| | Appendix B: Interview Guide for Initial Student Participants Interview . | 157 |
| | Appendix C: Consent Form for Observing Drawing Sessions | 159 |
| | Appendix D: Consent Form for Observing Final Presentation Sessions | 161 |
| | Appendix E: 2010 End Semester Survey Monkey Questionnaire and Email Communications | 163 |
| | Appendix E2: 2010 End Semester Survey Monkey Questionnaire Results | 168 |
| | Appendix F: 2011 End Semester Questionnaire | 172 |
| | Appendix F2: 2011 End Semester Questionnaire Results | 174 |
| | Appendix G: Discussion Guide for Longitudinal Studies | 176 |
| | Appendix H: Email Communication to the Experts..... | 179 |
| | Appendix I: Discussion Guide for Initial Interview with Experts Including 2010-11 Taster Sheet | 181 |
| | Appendix J: Discussion Guide for Final Interview with the Experts | 193 |
| | Appendix K: Animatics Samples to Analyse with the Experts | 195 |
| | Appendix L: Samples of Drawings and Final Presentations 2011-12 Students | 204 |
| | Appendix M: Simplified Transcription Symbols | 215 |

| | |
|--|-----|
| Appendix N: 2010-11 Students' First Interview Transcription | 217 |
| Appendix O: 2011-12 Students' First Interview Transcription | 319 |
| Appendix P: LinkedIn Discussion: "Hand sketching, does anyone else do it?" | 357 |
| Appendix Q: LinkedIn Discussion: "Are you using a sketchbook for your UI sketches?" | 367 |
| Appendix R: LinkedIn Discussion: "The Importance of Sketching" | 389 |
| Appendix T1: Summary of Interview Transcription with Experts – Expert 1 | 394 |
| Appendix T2: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 2..... | 407 |
| Appendix T3: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 3..... | 425 |
| Appendix T4: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 7 and Expert 8..... | 434 |
| Appendix T5: Summary of Interview Transcription with Experts – Expert 6 | 454 |
| Appendix T6: Interview Transcription with Experts on Animatics – Expert 5..... | 459 |
| Appendix T7: Summary of Interview Transcription with Experts on Animatics – Expert 2 | 477 |
| Appendix T8: Interview Transcription with Experts on Animatics – Expert 3..... | 490 |
| Appendix W: Summary of the Results Based on Emergent Themes ... | 524 |
| Appendix X: Background Study on Games Design | 541 |
| Appendix Y: Background Study on the Notions of Intelligence and Creativity..... | 544 |
| Appendix Z: Summary of Longitudinal Interview | 550 |

List of tables

| | |
|--|-----|
| Table 4.1: Experts' Backgrounds..... | 42 |
| Table 4.2: Summary of Experts' (Tutor's) Views on Establishment of the Problem | 52 |
| Table 5.1: Summary of Students' Views in the Initial Interview | 77 |
| Table 5.2: Summary of Students' Views at the End of 1 st Semester | 78 |
| Table 5.3: Summary of Students' Views in the Longitudinal Interview | 80 |
| Table 5.4: Summary of Business Students' Views in the Longitudinal Interview | 81 |
| Table 6.1: Influence of 2011 Art Intervention Workshop on Character Design | 90 |
| Table 6.2: Summary of Experts' Views on Storyboarding Assessment Criteria and Effectiveness of Art Workshop..... | 109 |
| Table 7.1: Emergent Themes from Different Stages of Data Analysis | 113 |
| Table 7.2: The Framework for an E-Learning Object to Develop Storyboarding Skills | 117 |
| Table 7.3: An Example of the Framework for Developing and Presenting Ideas..... | 118 |
| Table 7.4: 6*6 Vision Pathway Rule Exercise as a Learning Unit for Visual Skills | 119 |
| Table 7.5: Line Quality Exercise as a Learning Unit for Drawing/ Storyboarding Skills | 120 |
| Table 7.6: 'Learn How to See' Exercise as a Learning Unit for Drawing/ Storyboarding Skills | 121 |
| Table 7.7: Character Drawing Technique as a Learning Unit for Drawing/ Storyboarding Skills | 122 |
| Table 7.8: Storyboarding Technique as a Learning Unit for Rapid Prototyping Skills..... | 123 |

List of figures

| | |
|---|----|
| Figure 2.1: A Tree Diagram of Graphic Productions | 16 |
| Figure 2.2: Miller's Pyramid of Learning | 19 |
| Figure 3.1: Basic Representation of the Framework | 37 |
| Figure 3.2: Data Analysis Plan | 38 |
| Figure 4.1: Student's Drawing Sample 1 | 43 |
| Figure 4.2: Student's Drawing Sample 2 | 43 |
| Figure 4.3: Word Cloud of Professionals' Views on Hand Sketching | 48 |
| Figure 4.4: Word Cloud of Professionals' Views on Using Hand Sketching in Meetings and Presentations | 49 |
| Figure 4.5: Word Cloud of Professionals' Views on Digital Wireframes and Mock-up Tools | 51 |
| Figure 5.1: Upside-down Drawing Sample 1 (2010 Art Intervention) | 58 |
| Figure 5.2: Upside-down Drawing Sample 2 (2010 Art Intervention) | 58 |
| Figure 5.3: Visualisation of a Scene of a Story Sample 1 (2010 Art Intervention) | 59 |
| Figure 5.4: Visualisation of a Scene of a Story Sample 2 (2010 Art Intervention) | 59 |
| Figure 5.5: Text Description Sample | 71 |
| Figure 5.6: Mindmap Sample | 71 |
| Figure 5.7: Diagram Sample 1 | 72 |
| Figure 5.8: Diagram Sample 2 | 72 |
| Figure 5.9: Diagram Sample 3 | 73 |
| Figure 5.10: Triangulation of Students' Views on 'Necessity of Drawing Skills' | 82 |
| Figure 5.11: Triangulation of Students' Views on 'Teamwork' | 83 |
| Figure 5.12: Triangulation of Students' Views on 'Effectiveness of Art Workshop' | 83 |
| Figure 5.13: Triangulation of Students' Views on 'Interpretations of Needs' | 84 |
| Figure 6.1: Storyboarding Sketch 1 | 95 |
| Figure 6.2: Storyboarding Sketch 2 | 95 |
| Figure 6.3: Character Design Sample 1 | 96 |
| Figure 6.4: Character Design Sample 2 | 97 |
| Figure 6.5: Storyboarding Sample 1 | 98 |
| Figure 6.6: Storyboarding Sample 2 | 99 |

| | |
|---|-----|
| Figure 6.7: Storyboarding Sample 3..... | 99 |
| Figure 6.8: Storyboarding Sample 4..... | 100 |
| Figure 6.9: Level Chart Sample | 101 |
| Figure 6.10: Game Layout Sample..... | 101 |
| Figure 6.11: Animatic Sample 1..... | 103 |
| Figure 6.12: Animatic Sample 2..... | 104 |
| Figure 7.1: Key Emergent Themes Leading to the E-Learning Object Design Categories..... | 114 |
| Figure 7.2: The Relationships of the E-Learning Object Design Categories | 114 |
| Figure 8.1: Research Objectives | 129 |
| Figure 8.2: Objective 1- Identifying the Problem | 130 |
| Figure 8.3: Objective 2- Drawing Skills for Storyboarding (Nature and Necessity)..... | 131 |
| Figure 8.4: Objective 3- Quality Assessment Criteria for Storyboards | 132 |
| Figure 8.5: Objective 4- Effect of Drawing Tutorial Intervention | 133 |
| Figure 8.6: Process and Worksheets: Total Learning Process for Website Production and Worksheets Used in Each Process..... | 134 |
| Figure 8.7: Image-Plot: A Mapping of Content-image and Visual-image by Using Adjectives for Website | 134 |
| Figure 8.8: Objective 5- Framework for an E-Learning Object | 136 |

Acknowledgments

This research would not have been possible without the participation of Interactive Games Design students at the University of Gloucestershire (UoG) in 2010 and 2011. I am especially thankful to them. I would also like to express my gratitude to tutors from Arts and Technical departments of UoG and other Universities, who generously shared their experiences and insights in this study. In particular, I would like to thank my advisors Dr. Nina Reeves and Dr. Vicky Bush for making this study possible through their time and expertise. Finally, my husband and my extended family have my heartfelt gratitude for their support and patience during the completion of this research and my degree.

1 Overview

1.1 Background to the Research

Games have a long history in human culture from ancient times to the present day. They are defined as a problem solving activity approached with a playful attitude (Schell, 2010b). The continuing growth of the Internet, along with advancing technology related to video games development, have fostered more life-like and complex games in terms of graphics and sound effects (Brown, 2008a; Gee, 2007) together with different genre possibilities like action games, simulation games, role-playing games, educational games and many others. As a result, video games have become essential aspects of the social lives of many people (Brown, 2008a; Gee, 2007; McGonigal, 2010).

It has been suggested that video games are the most advanced form of art thus far in human history because they synthesize text, image, sound, video and the active participation of the audience into a unified, aesthetic experience (Brown, 2008a). It has also been suggested that games teach users to think faster, more critically and more creatively. Most agree that games can influence thinking and actions, and in this sense games can persuade and teach and hence the study of how to create such games has become mainstream in Higher Education (Brown, 2008a; Perry, 2008; McGonigal, 2010).

It seems that understanding game design requires an appreciation of a complex web of creativity, psychology, art, technology and business. This subject is now gaining academic credibility with the aim of educating professionals for the game industry. It is therefore important to study how the design skills are acquired and what this will require during the educational process. Games are developing to provide an immersive experience with visual, audio and kinetic aspects (Gärdenfors, 2002; Minkus, 2006).

Ideas cannot always be expressed easily through text and the visual expression of ideas will in many cases, not only be remembered more easily but also trigger further ideas in the creative process (Corner, 2006).

Therefore a game's 'look' in the mind's eye is often very different from the way it looks when it is drawn on paper (Schell, 2010b). It is generally believed that creating sketches that are simple, rough and useful, as well as being fluent in the language of Graphic Design, is a valuable skill that must be practised by a games designer and if not mastered, it is advisable to find an artistic partner so that the designer's somewhat nebulous idea may become a concrete vision (Schell, 2010b).

This study will focus on the visual aspects of Game Design. It reviews the literature of the psychology and taxonomy of drawing (Massironi, 2002) and examines the theories on brain functions (Edwards, 2008; McGilchrist, 2009). It also considers the psychology and styles of learning and notions of e-learning, self-learning and gamification (Schell, 2010a; Richardson, 2011; Andersen, 2011a; Anderson, 2008 and Zichermann, 2011). Previous solutions to similar interdisciplinary matters in the domains of web design (Ariga and Watanabe, 2008), Engineering (Yang and Cham, 2007) and Medical (Naghshineh, Hafler, Miller, Blanco, Lipsitz, Dubroff, Khoshbin and Katz, 2008) will be reviewed. The motivations behind this study are rooted in a problem observed at the University of Gloucestershire (UoG) which will be described in the next section.

1.2 Research Problem and Questions

The BSc Interactive Games Design (IGD) course offered by the School of Computing and Technology of UoG is designed to produce graduates who have the knowledge of both the technical and aesthetic aspects of creating interactive games (UoG, 2010). Students need to represent their creative ideas to fellow team members, managers, budget holders and to the audience for the games. Unlike students in Arts and Design Departments, students accepted on this course are not required to have art or design backgrounds. Observations by the course team and student module evaluations have shown that although many students have creative ideas about the environments and characters of the games that they want to design, they find difficulties in expressing these in a visual manner as they do not appear to have the drawing skills. Some of these students try to focus on coding and some eventually get frustrated and withdraw from the course citing difficulties with course content. This problem has been a key

driver for this study and has been recognised in other institutions where the technical and aesthetic aspects of technology are taught (Ariga and Watanabe, 2008).

In order to clarify the aims of this research a set of questions were identified. These questions are according to IGD undergraduate students who do not have an art background and are studying in a technical computing environment:

1. To what extent do the students experience difficulties with drawing for storyboard communication?
2. What are the nature and necessity of drawing skills for sketching storyboards?
3. How is the quality of storyboards assessed?
4. What is the effect of a drawing tutorial intervention?
5. Is it possible to design an e-learning tool to support drawing in this context?

Regarding these research questions the objectives of this study were set as follows:

1. Identify the problems experienced by students with drawing for storyboard communication and establish their impact on student attitude and motivation.
2. Explore the nature and necessity of drawing skills for sketching storyboards.
3. Identify criteria to assess the quality of storyboards.
4. Investigate the effect of a drawing tutorial intervention:
 - I. Establish student participants' initial level of artistic confidence and competence.
 - II. Investigate the effect of a drawing tutorial intervention by assessing students' assignment outcomes at the end of the semester.
5. Design a framework for an electronic learning object for developing storyboard communication skills.

Initially, the research needed to establish the extent of the problem both from the perspective of the tutors and their institutions and also in the perceptions of people working in the industry. This is intended to help

explore the nature and necessity of drawing skills for sketching storyboards and also ascertaining whether they experience the same problems as observed at UoG. This would address the objectives 1 and 2.

In order to address the objectives 3 and 4, the case study sets out to follow two groups of students, from the start of their course in Level 4, in academic years 2010 and 2011. This involved:

1. Establishing their base-line storyboarding skills.
2. Observing their engagement with an art/sketching workshop or pedagogic intervention to collect their sketching at the end of the session.
3. Collecting storyboards and level design diagrams, designed by students for their games in a 5 minute PowerPoint presentation.
4. Sending an electronic questionnaire to students, using Survey Monkey, to acquire 2010 cohort ideas on the issue of storyboarding skills at the end of the semester.
5. Collecting 2011 cohort ideas on the subject of confidence and its effect on delivering visual ideas via a questionnaire at the end of the semester.
6. Creating a taster sheet of before and after storyboards and collecting views of a panel of experts, both inside and outside the University on the work to develop a set of criteria by which to assess the drawing communication skills.
7. Continuing the study for the 2010 cohort into Level 5 where they take a module "Animations for Games" and collecting the animatics produced for this for further assessment by the panel and interviewing them on their ideas about the impact of having drawing skills on their projects.

The aim was to develop an understanding of the students' attitudes and motivations with respect to storyboarding in order to address the objective 5 of this study, to design a framework for an e-learning object to develop storyboard communication skills.

1.3 Outline of the Thesis

This study is mainly concerned with the relationship between Games Design and sketching and storyboarding skills.

Chapter 2 reviews the literature related to a variety of aspects of this relationship. It begins discussing the need for balance between artistic and technical sides of interdisciplinary subjects in the Games Design industry. A few examples of solutions in other domains are introduced to show how this subject is dealt with in other areas. It makes an overview of drawing skills and theories on brain functions. Psychology and styles of learning are discussed and the notions of e-learning and self-learning are reviewed and finally the relationship between learning and gamification are investigated.

Chapter 3 begins with focussing on the research paradigm and philosophical issues in order to investigate the theoretical foundations of this study. Then the theories on data sampling, collection and analysis are reviewed. After that, the strengths and limitations of the methodology used for this study are analysed. . Procedure for data gathering and plan for data analysis are described at the end of this chapter.

The data analysis and discussions are categorised into Chapters 4, 5 and 6. These chapters are structured with an introduction, methodological approach, procedure, results and a conclusion. Establishing the extent of the problem is the focus of Chapter 4. In this chapter, the process of contacting the tutors at other Universities along with investigating their viewpoints is explained. Also perceptions of people working in the industry are identified by analysing communications in relevant LinkedIn discussion groups.

Chapter 5 presents the analysis and discussion on the second stage of the research design which is the case study mentioned above. It looks through the students' initial interview and analyses their views based on the themes emerged from their answers to the questions asked in the interview.

Chapter 5 also discusses the findings from the questionnaire responses at the end of the academic year and finally considers the longitudinal part of the study for the 2010 cohort.

Chapter 6 focuses on identifying criteria to assess the quality of storyboards and investigate the effectiveness of the Art intervention workshops from experts' point of view. It is structured mainly based on the themes emerged from experts' ideas collected in the interviews. It

highlights the techniques used in Art schools and establishes the criteria to assess storyboarding/ animatics according to experts' views and finally discusses the impact of the students' backgrounds and motivations on their ability to communicate their ideas.

Chapter 7 provides a foundation to address the final objective of this research based on the common themes that emerged during different phases of the study. It outlines the general aspects of an intervention design and introduces a framework for an e-learning object to develop storyboard communication skills for IGD students accompanied with some examples for each learning unit.

Chapter 8 concludes with summarising the research findings and holistic approach to achieving the aims of this research and recommendations for further studies.

This first chapter has laid the foundations for the thesis. The next chapter describes attempts to get insight into the nature of the problem. Therefore it will review the ideas of other authors and researchers who have given a theoretical perspective underpinning this research.

2 Literature Review

2.1 Introduction

In the previous chapter the background to the research was explained briefly. The research problem and questions were introduced and the outline of the thesis was presented. This chapter pursues the theoretical foundations to the focus of this study, which is the relationship between Games Design and sketching and storyboarding skills. In order to establish the foundation for this relationship, different aspects are considered. The need for balance between the artistic and technical sides of interdisciplinary subjects in the Game Design industry is highlighted and a few examples of solutions in other, related, domains are introduced to show the techniques used by others to deal with this subject within their fields. Theories on brain functions are introduced. Different aspects of drawing skills are discussed and styles of learning, notions of e-learning and self-learning are reviewed. An extensive background study on the history of games and notions of intelligence, creativity and education are also presented in Appendices X and Y.

2.2 Balancing Art and Technology

It is argued that visual arts and technology are mutually dependent upon one another. Printmaking and photography are excellent examples to show that many of yesterday's technology is today's fine art (Harris, 2007).

According to Harris (2007), the arts need technology to grow, flourish, and meet the changing aesthetic tastes and needs of an increasingly global society. On the other hand, technology needs arts to envision possibilities, to make it more palatable, more humane and to raise questions about the effects of technological advances on our values, morals, ethics and natural environment. However, the tight integration of art and technology in modern interdisciplinary domains like computer and video games has led to challenging design problems. The artists are simultaneously empowered by and restrained by technology, and the engineers are similarly empowered and restrained by art (Schell, 2010a; Harris, 2007).

In this section some examples of the solutions employed by various domains to address the problems in interdisciplinary areas are summarised and the importance of balance between art and technology and the need for technical artists are discussed.

2.2.1 Solutions to Similar Interdisciplinary Matters

In Higher Education some departments have introduced interdisciplinary courses such as 'visual communication in computer graphics and art' and 'illustrative visualization and information visualization'. By the intersections of principles and concepts such as computer science, art, architecture and communications it is believed that the science of visual analytics and interactive visualization would be developed. This science, as an integrative discipline is suggested to be indispensable for confronting key real world application (The Charlotte Visualization Centre, 2007).

Due to advancement of technology and its vast applications in different domains such as architecture, medicine, game design, museums and exhibitions, these areas find lack of communication skills between disciplines in some stages. Below are some examples of approaches to this issue in some domains.

2.2.1.1 A Problem-Solving Approach in the Web-Design Sector

In the web-design domain, Japanese non-design students were helped to prepare visualisations of web pages by researchers developing a learning process using worksheets called 'image plots' with standard design templates as teaching materials (Ariga and Watanabe, 2008). The effectiveness of the teaching materials was evaluated by using a questionnaire instrument. Using these worksheets raised students' consciousness of visual expression and gave them a starting point for their designs.

2.2.1.2 A Study on Engineering Design

Sketching ability can be evaluated by different criteria. A study in the engineering sector has evaluated this ability based on three distinct aspects relevant to engineering design: visual recall, rendering, and novel

visualization. By focusing on sketching in engineering design this study considered the role of a designer's sketching ability and examined the potential link between this skill and measures of engineering design performance. The results suggested that sketching skill is not comprehensive nor is it solely task based. Rather, a designer's sketching ability lies between these two poles. This study's findings suggest an important interplay between a designer's ability to sketch and their ability to visualize in their heads or through prototypes. Results also suggested that designers who are given sketch instruction tended to be more willing to express their ideas via drawing (Yang and Cham, 2007). This study clearly emphasises the 'repetition', 'practice' and haptic aspects of sketching skill.

2.2.1.3 Visualisation of A Scenario by <6><6> Vision Pathways Rule

It is argued that humans are fundamentally visual creatures since over 75% of the sensory processing going on in the brain is visual processing. In his studies, Roam (2009) indicates that the brain seems to process information using at least six 'pathways'. For instance when seeing a person, that information is processed using at least the pathways of: 'who is that person?'; 'where is that person?' and 'when am I seeing that person?' to start. By continuing thinking about that person, other pathways like the 'why is that person there?' and 'how did that person get there?' may also be used, along with many other permutations.

It is suggested that using these pathways can improve problem solving. It is also believed that any problem can be clarified, if not outright solved, through pictures. To help translate a problem into a useful image, Roam (2009) introduces a translation formula called Six by Six Rules in which it is advised to draw a certain image regarding each pathway question such as drawing a portrait for 'who or what?' question; a map for 'where?'; a chart for 'how much?'; a time line for 'when?'; a flowchart for 'how?'; and a multivariable plot or graph when the question is 'why?'.

2.2.1.4 Formal Art Observation Training Improves Medical Students' Visual Diagnostic Skills

In a background observation in a medical school it was evident that medical students have inadequate physical examination skills. In their study,

Naghshineh *et al.* (2008) argue that teaching “visual literacy” to be one method of enhancing inspection skills which is the ability to reason physiology and pathophysiology from careful and unbiased observation. Improving students’ visual acumen through structured observation of artworks, understanding of fine arts concepts and applying these skills to patient care were objectives of their study. An intervention consisting of eight paired sessions of art observation exercises with didactics that integrated fine arts’ concepts with physical diagnoses topics and an elective life drawing session was designed for training the eye to improve the art of physical diagnosis. This interdisciplinary course improved participants’ capacity to make accurate observations of art and physical findings and had increased sophistication in their descriptions of artistic and clinical imagery (Naghshineh *et al.*, 2008).

2.2.2 Game Design and Communication of Ideas

The game design industry is the host to some very challenging design problems. There is a need for technical artists within the games design team who have the eye of an artist and the mind of a computer programmer. Industry experts believe that it is such individuals who can build bridges between the art team and the engineering team by being able to speak both of their languages fluently and help to build a product that makes the artists feel in command of the technology and the engineers feel in command of the art (Schell, 2010b).

Since educating professionals for the game industry has become an aim in academia, it is important to study the mechanics of acquiring the design skills during the educational process.

It is suggested that ideas are remembered more easily if they are expressed in visual manner. This also helps generate other ideas (Corner, 2006). In this regard, ideas about games design would look different when sketched on paper compare to their non-visualised description (Schell, 2010a). Therefore it is suggested that acquiring sketching skills to produce simple and useful drawings is a valuable skill that must be practised by a games designer. Otherwise, it is advisable to find an artistic partner to visualise their ideas for them (Schell, 2010a).

In February 2011 “Next Gen” was published as the resulting analysis and action plan of an independent review of skills for the UK’s video games and visual effects (VFX) sectors. This work involved the largest ever survey of games and VFX companies as well as educators (Livingstone and Hope, 2011). This was welcomed by Government as an important contribution to the evidence base for the skills needed by the UK’s video games and VFX industries. Amongst the recommendations were “encouraging art-tech cross over and work-based learning through school clubs” and “support better research-oriented university collaboration in video games and visual effects” (Department for Culture, Media and Sport, 2011).

Games Design students in technical universities need to be able to communicate their ideas by storyboarding as individuals and in teams. Since not all of them have an Art background, it is valuable to investigate methods to enable them to visualise their ideas. Therefore it is useful to review the nature and mechanics of acquiring drawing skills. In this regard, the theories on how the human brain functions and how some activities like drawing become automatic to some will be discussed first.

2.3 Theories on Brain Functions

The physical division of the brain into two hemispheres is a biological fact suggested by some to allow different views or perspectives on the world as well as different priorities and values. It was long believed that the left hemisphere mode analyses, abstracts, counts, makes time, verbalizes and makes rational statements based on logic and the right hemisphere mode is intuitive, subjective, holistic, time-free, rapid, complex, spatial and perceptual. Nineteenth century scientists named the left hemisphere ‘major’ and named the right hemisphere ‘minor’ (Edwards, 2008). In more recent studies McGilchrist (2009) argues that the differences lie not in the skills each hemisphere possesses but in the way in which each uses them, and to what end. By defining different types of intelligence and actively insisting on uniqueness of each person in terms of using brain, other studies have bypassed the issue of dominance of the brain hemispheres. They address the deficiencies in the educational systems resulting by ignoring the right mode (Gardner, 2012; Robinson, 2009).

Attempts have been undertaken to understand the visual brain as a system defined, not by its essential properties, but by its past ecological interactions with the world. Seckel (2004), by using numerous eye tricks, has revealed the perceptual illusions that fool the brain in an entertaining way. This reveals the way the brain processes visual information, or fails to do so. In this view, the brain evolved to see only what proved useful to see, to continually redefine normality (Lotto, 2009). In this sense, the brain frequently does the expecting and the deciding, without a person's conscious awareness, and then alters or rearranges - or even simply disregards - the raw data of vision that hits the retina. It is argued that learning perception through drawing seems to change this process and to allow a different, more direct kind of seeing (Edwards, 2008).

2.3.1 Brain Functions and Gameplay

In Games Studies, the reason for spending countless hours and expense exploring virtual worlds for imaginary treasures is suggested to be related to how the rewards within a game engage the brain and keep people questing for more (Chatfield, 2010b). It is believed that the brain gets rewards from gameplay in seven ways (Chatfield, 2010b; Schell, 2010a):

1. Experience bars measuring progress
2. Multiple long and short term aims
3. Reward for effort
4. Rapid, frequent and clear feedback
5. An element of uncertainty
6. Windows of enhanced attention and
7. Psychological, neurological engagement with other people.

Some studies suggest that daily simple mathematical calculations that can help boost brain power, improve memory, and stave off the mental effects of ageing are similarly effective for brain function as regular exercise helps slow the deterioration of body muscles and can even help those suffering from Alzheimer's disease (Kawashima, 2008). This idea attracted the attention of Nintendo and the time and money invested in Wii Fit is a clear example. With its new digital balance board controller and range of activities from jogging and snowboard through to meditation it has broad appeal as both a brain and body trainer.

2.3.2 Automated Skills

Each person has many skills that they use every day but do not ever think about. Examples of these skills are those that individuals are born with like breathing, blinking and swallowing as well as other skills that need to be learnt, but, once learnt are never forgotten like riding a bicycle or swimming. Guthrie (1952) defines a skill as the ability to bring about some end result with maximum certainty and minimum outlay of energy or time. Since individuals are limited to perform one complex task at a time, they may have to divert all of their attention toward a new task (Boutcher, 1992).

As a result of learning, repetition, and practice, the mind is not occupied with the low-level details required to do a task, allowing it to become an automatic response pattern or habit. Examples of automaticity are common activities such as walking, speaking, bicycle-riding, assembly-line work, driving a car, playing a melody on a musical instrument. After an activity is sufficiently practised, it is possible to focus the mind on other activities or thoughts while undertaking an automatic activity (LaBerge and Samuels, 1974).

The theories on how human brain functions and involves with certain activities such as playing games and transfers some activities to automated skills were reviewed in this section. In the following section the theories on the nature and mechanics of acquiring drawing skills will be discussed.

2.4 Drawing Skills

Images have overcome previous limits to their reproduction due to technological advances which results in losing their essential uniqueness and becoming endlessly repeatable. With the advent of film and animation they have acquired the ability to represent movement, therefore losing their two dimensional 'flatness'. They have become interactive by means of three dimensional virtual reality and games. However, drawing as a skill is still in constant use, remaining impervious to the onslaughts of high tech competitors. After thousands of years it shows no signs of diminishing in importance, perhaps because it is so adaptable and varied, being almost free of technical constraints, and working in harmony with human perceptual and cognitive activities (Massironi, 2002).

There are different approaches towards drawing in an educational context (Abba, 2007). While some believe that drawing is a natural talent for some people, others believe that drawing and sketching can be taught as a skill like other global skills such as reading and driving and become automatic as described in Section 2.3.2 (Pariser, 1979; Edwards, 2008; Cheung, 2011; White, 2011).

Based on the foundation created in the previous section on brain functions this section will discuss three major subjects in the area of communication of ideas which are obtaining visual skills, sketching skills and using other techniques in the area of storyboarding in Games Design.

2.4.1 Visual Skills

It is suggested that the problem of not being able to draw may be the lack of proper seeing and perception of the object (Nagata, 1999). As it was discussed in previous section, the visual brain tends to see what it expects or decides to see, which is often not a conscious process. The eyes gather visual information by constantly scanning the environment, and perhaps much of what is seen is changed, interpreted or conceptualised in ways that depend on a person's training, mind-set and past experience. By drawing, the brain's editing is somehow put on hold, thereby permitting one to see more fully and perhaps more realistically, which means by drawing one learns to see (Edwards, 2008; Maslen and Southern, 2011; Schell, 2010b).

2.4.2 Sketching Skills

According to Massironi (2002), 'drawing' and 'graphic communication' refer to any set of marks produced with any suitable instrument for the purpose of communication without words and interaction of knowledge. Figure 2.1 (Massironi, 2002) represents an outline of some of the taxonomy of drawings which can help one form a synthetic image of all the connections between the disciplines that have used drawings in a systematic way. The scheme underlying Figure 2.1 stems from the assumption that all possible images can be divided into two large classes: representational and abstract. The figure represents this continuum by means of the long

horizontal lines. Each node defines a set of graphic productions. The left-right direction loosely corresponds to time.

In Games Design industry different levels of drawing skills are used. This ranges from simple but fluent sketches and storyboards to communicate ideas to the high quality concept art designs. In this regard the diagram in Figure 1 can be used as a guideline for identifying the category of the needed drawing skills type.

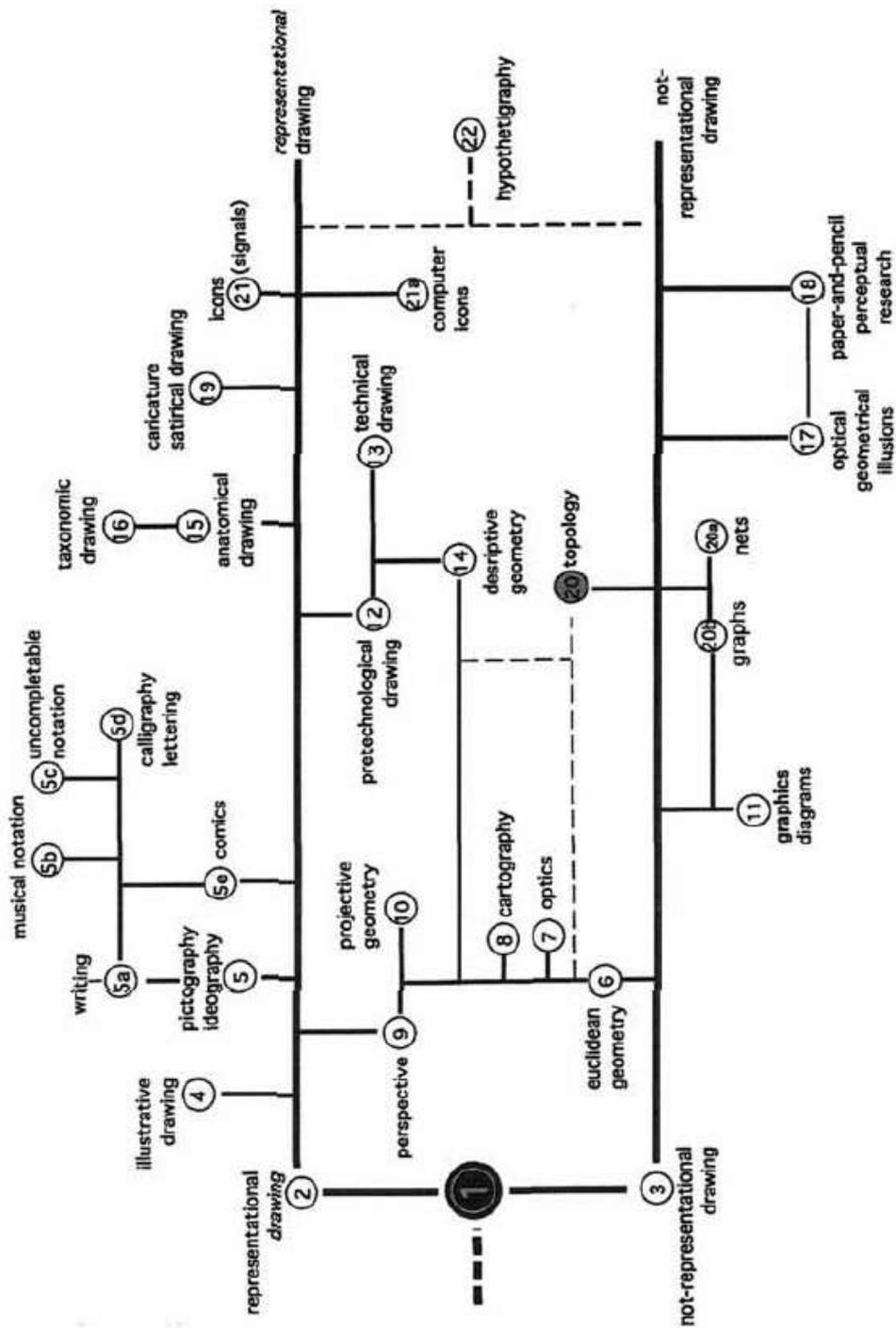


Figure 2.1: A Tree Diagram of Graphic Productions

Older studies which suggest that human cognitive capacity is divided into two main parts referred to as left brain and right brain (Decosterd, 2008; Edwards, 2008) argue that the ability to draw may depend on the possibility of accessing the brain's right hemisphere at a conscious level. In

contradiction, Dietrich and Kanso (2010) found no conclusive support for the hemisphere laterality of creativity in their meta-review of 72 experiments. Also, newer neuroscience research provides new models for understanding “vision” that challenge Edwards' assumptions about right brain vision and common conventions of "realistic" drawing (Schiferl, 2008).

From Edwards' point of view, global (automated) skills like reading, driving, and walking are made up of component skills that become integrated into a whole skill. Viewing drawing as similar to other global skills, it is divided into five basic component skills of the perceptions of edges, spaces, relationships, lights and shadows and the perception of the whole or gestalt (Edwards, 2008). In this regard, some techniques have been developed to help individuals with this access such as drawing while the image is upside down (Bogen, 1975; Edwards, 2008).

Regardless of the changes in theoretical foundations in comprehending brain functions, Edwards' techniques in teaching drawings skills have been successful (Schwartz, 1989; Armstrong, 2009). Therefore this interpretation can reasonably be used in Games Design courses as a training guideline where the students with no Art background need to acquire drawing skills in a short time and a structured manner.

2.4.3 Other Techniques

Visually Illiterate Person is a term describing people with lack of drawing skill and it is believed that the problem is more to do with poor visual awareness. Some techniques to overcome this issue are: having an ideas file for keeping impressive designs for inspiration; describing the reasons for liking a design in words, and sketching a little improvement when coming across a poorly designed piece to activate more ideas by putting pencil to paper (Greenberg, Carpendale, Marquardt and Buxton, 2012; Williams, 2008). To move people into higher level of visual literacy, a study suggests doodling. While many people interpret doodling as something of little value, substance or import, it is argued to be the only tool to use auditory, visual, kinaesthetic, reading/writing plus emotion all at the same time and keeps a person focussed (Brown, 2011).

2.4.4 Drawing Skills for Storyboarding in Games Design

Storyboarding is telling a story by visually illustrating an interaction sequence and decisions over time. The element of time is captured as a series of discrete images that visually narrate what is going on scene by scene. The basic elements of sketch to present a storyboard are drawing, annotations, arrows and notes. This process can be helped by using office supplies to create editable sketches, templates, photo traces and hybrid sketches (combining sketches with photos) (Greenberg *et al.*, 2012).

Based on this definition and according to the above sections, Games Design students' ability to communicate their ideas via storyboarding varies depending on their visual skills, drawing skills and their capabilities to learn and employ other techniques.

2.5 Learning

It has been suggested that people have their own individual way to learn and to solve problems in day-to-day situations. Learning can be through lectures, practice, trial and error, discussion with others, reading, role play, getting appropriate feedback, experiment, being taught, watching others or learning from mistakes. These personal cognitive strategies, acquired in a long socialization process are called 'learning styles' and may differ depending on gender, age or culture (Barmeyer, 2005).

It is argued that learning is effective when it is important to the person and it uses a method that suits that person, building on knowledge that they already have (Marshal and Rowland, 1983). Some studies suggest that formal education tends to have a preoccupation with achievement and successful achievement signals the end of a process of learning. However, personal development is an ongoing process associated with lifelong learning (McGettrick, 2002).

This section begins by exploring the psychology of learning followed by a discussion of appropriate learning styles for storyboarding. Notions of e-learning and self-learning are investigated and the relationship between learning and gamification are explored.

2.5.1 Psychology of Learning

In Miller's pyramid of learning model (Figure 2.2) the acme of knowledge is being able to do or achieve something, such as, in this case, the ability to communicate ideas in a visual format (Norcini, 2008).

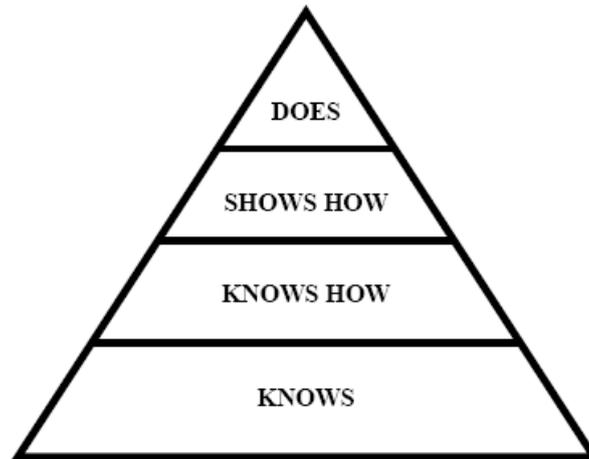


Figure 2.2: Miller's Pyramid of Learning

At the core of the psychology of learning is the motivation to learn (Jonassen and Land, 2012). It is argued by several authors that curiosity is a fundamental factor in motivation since curious students are more likely to learn things on their own and more likely to retain what they learnt because they have taken ownership of the material (Murray, 2008; Schell, 2010a). However, Smith (2011) suggests that experimental evidence from students of architecture indicates that there is no significant relationship between curiosity and academic achievement but that curiosity levels are affected more by active experiences such as travel and relationships. Others have suggested that there is a need to develop new ways to study curiosity, interest and engagement in learning environments which involve more complex uses of media which may include the use of game-play (Arnone, Small, Chauncey and McKenna, 2011).

Considering the psychology of learning is important in addressing the problems that Games Design students face in communicating their ideas in the course design or in adding any pedagogic intervention as they do in UoG. According to McGettrick (2002), learning power comes as a double helix, one of which carries knowledge, skills and understanding

(achievement) and the other takes attitude, values, feelings, dispositions and motivations (personal development). Referring to his study, learning power has seven dimensions as follows which could be useful criteria in designing training materials in addressing Games Design students' problem:

1. Changing and learning (as opposed to being stationary and static)
2. Critical curiosity (as opposed to accepting passivity)
3. Meaning making (as opposed to data accumulation)
4. Creativity (as opposed to being rule-bound)
5. Learning relationships (as opposed to isolation and /or dependence)
6. Strategic awareness (as opposed to being robotic)
7. Resilience (as opposed to fragility and dependence)

Since students recruited for Games Design can come from any educational background, it is also important to consider the mechanics of student- tutor relationship which has a direct impact in quality of education. According to Pawlak and Bergquist (2012) four models of student- tutor relationship can be observed from a Higher Education point of view: the pedagogy model in which knowledge or skills are poured by an instructor with superior knowledge, skills or experience (more suitable for younger students); andragogy model which stresses on the unique and challenging needs of the adult learner for a different kind of educational experience that is more engaging, more flexible and, in particular, more appreciative of the existing knowledge base and experience of the adult learning; transformation model which is based on the assumption that mature adults go through major transformations in their life such as marriage, career advancement, major illness or loss of job assuming that the transformation will enable the mature learner to be wiser, more compassionate, more thoughtful and more socially intelligent; and the fourth model (appreciation) which assumes that the mature learner is a person with as much experience, wisdom and insight and may actually be an expert in the field being studied.

Although Games Design students can come from different age ranges, the majority of them are younger but may not need the pedagogy model. In this regard, they are considered as adult learners with the andragogy model suitable for them.

2.5.2 Styles of Learning

It is argued that the 'student approaches to learning' perspective is contextually driven and open to other interpretations. Also students' approaches to studying depend as much on their conceptions of learning as on contextual factors and finally students' conceptions of learning seem to be relatively stable, even across an entire degree programme. This suggests that conceptions of learning fit the traditional notion of learning styles (Richardson, 2011). In this regard the traditional models for learning styles are reviewed in this section.

According to Kolb, the learning cycle involves four processes that must be present for learning to occur. These four combinations of perceiving and processing determine four learning styles that make up a learning cycle: diverging (concrete, reflective) emphasizes the innovative and imaginative approach to doing things; assimilating (abstract, reflective) pulls a number of different observations and thoughts into an integrated whole; converging (abstract, active) emphasizes the practical application of ideas and solving problems; and accommodating (concrete, active) uses trial and error rather than thought and reflection (Kolb, 1984).

In an adaptation made to Kolb's experiential model the styles are directly aligned to the stages in the cycle and named Activist, Reflector, Theorist and Pragmatist. These are assumed to be acquired preferences that are adaptable rather than being fixed personality characteristics. The Honey and Mumford 'Learning Styles Questionnaire (LSQ)' (Honey and Mumford, 2006) is a self-development tool inviting participants to complete a checklist of work-related behaviours. For Games Design students, knowing their learning style could help them realise if they need to adapt and develop more activist/ pragmatist styles in case their learning style is more towards reflector/ theorist so they can function better in this course and later in Games industry.

Another common and widely-used categorizations of learning styles is Fleming's VARK (Visual, Auditory, Read/Write and Kinesthetic) model (Leite, Svinicki and Shi, 2009; Hawk and Shah, 2007). According to this model visual learners prefer to think in pictures, auditory learners learn best through listening, kinesthetic learners prefer to learn via experience like

moving, touching and doing (LDPride.net, 2012). This might suggest that visual Games Design students have a better chance of success in this course and Games Design industry. However, according to a study by Hauptman and Cohen (2011) on a group of students who had difficulty learning 3D geometry it is shown that virtual environment decreases the gap in performance results between the visual and kinaesthetic students. Therefore for those who are more kinaesthetic, using virtual environments can help.

Barmeyer (2005) suggests that due to cultural socialization and mental programming, learning styles are culture-bound cognitive schemes. It is suggested that cross-cultural training could be more efficient if the culturally bound learning styles were taken into consideration. Since Universities are mostly multicultural environments with various national and international students and in Games Design working in teams is a key element, considering cross-cultural factor and giving students techniques regarding this issue could be very effective.

From an educational point of view, two models of teaching can be categorized as: didacticism in which teacher is to convey instruction and information as well as pleasure and entertainment (portrayed as 'transmission of facts' and hence 'boring'); and constructivism in which learning is an active, social process (knowledge should be discovered as an integrated whole, teachers are regarded as facilitators and the learner is engaged and challenged) (Prensky, 2001). Recent developments in learning technology such as hypermedia which aim is to improve the delivery of learning and teaching materials through cognitive style (CS) shows that CS relates to users' information processing habits, representing individual user's typical modes of perceiving, thinking, remembering and problem solving. Studies show that background information has effects on students' CS and students' preference of learning dimensions must be taken into consideration in order to enrich students' quality of education by means of motivating students' acquisition of subject matter through individualize instruction when designing, developing, and delivering educational resources (Lee, Cheng, Rai and Depickere, 2005; Shirani and Yamata, 2010). This suggest that for Games Design students who do not have artistic background and face difficulties in communication of their

ideas, the teaching material needs to be tailored to their specific needs considering their learning styles.

2.5.3 E-Learning and Self-Learning

Some learning futurists believe that although many of the forecasts for the future of education seem to be gloomy, there are alternative paths to choose (Andersen, 2011a; Anderson, 2008).

This research aims to investigate the possibility of the design of an e-learning object to help Games Design students acquiring some level of drawing/ storyboarding skills to communicate their ideas. Therefore, shedding light on the subject of e-learning can provide valuable insight regarding this matter.

According to Zinn (1990) becoming aware of the philosophical orientations of teaching and using technology is important in providing a basis for how to choose and use e-learning because as with any educational system, online learning is fundamentally a human endeavour, with technology available to support the agreed-upon principles and goals, rather than driving the learning in a didactic, instructional manner. Rovai and Barnum (2003) summarize the debate over 'media and learning' with the observation that course design and pedagogy are always more important than media. However, because online access to training using various media is an established social and economic reality globally (Anderson, 2008) whether one deplores or applauds this fact, it is still true that people increasingly go online for a widening array of purposes, including learning. Anderson (2008) argues that for educators, web participation could range from simply putting class notes and lecture materials online, to integrating dynamic online quizzing systems, to preparing classes for upcoming tests and examinations, all the way to enabling learners to participate in highly interactive, true-to-life simulations and games. The example of such application is 'Coursera' as an innovative model for online learning which supports the vital aspect of the classroom such as tests and assignments that reinforce learning along with providing online course materials (Koller, 2012a; Koller, 2012b). Another study on e-learning demonstrated that learning occurs when e-learning systems make deliberate efforts to design

educational experiences that fit the needs, goals, talents, and interests of their learners (Klašnja-Milićević, Vesin, Ivanović, and Budimac, 2011). Along with their research Klašnja-Milićević *et.al* (2011) propose 'Protus' as a recommendation model of a programming tutoring system, which can automatically adapt to the interests and knowledge levels of learners such as patterns of learning style and learners' habits through testing the learning styles of learners and mining their server logs. According to Anderson (2008), to be effective for the next generation, online learning has to include mobile learning, e-gaming, online communities, and learning management systems that engage each user.

The ability to enrol continuously and to pace one's own learning, and yet still create opportunities and advantages to working cooperatively in learning communities with other students are the freedom offered by e-learning (Anderson, 2008; Andersen, 2011a; Andersen, 2011c). However, Anderen (2011b) claims that self-learning is a hard job even at the level of PhD studies and therefore classes are still essential in terms of igniting students' creativity by actually talking with them rather than spending time filling their minds with content by lecturing at them (Koller, 2012a). In this regard having an e-learning object to address the specific needs of Games Design students combined with the conventional classrooms sounds a promising solution.

2.5.4 Learning and Gamification

It is argued that games might promote learning (Anderson, 2008; Schell, 2010b). Prensky (2001) reasons that games are a form of fun and play which give players enjoyment and intense and passionate involvement. They have rules that provide structure and have goals to give motivation. Games are interactive, that give the player the opportunity of 'doing'. They have outcomes and feedback that provides learning. Games have representation and story which gives emotion and flow and by having win states, conflict, competition, challenge, opposition they give players ego gratification. Games also have problem solving which sparks creativity and they have interaction which gives players social groups.

It is also suggested that today's video games are making children smarter and better problem-solvers (Zichermann, 2011). A game player is not only playing with joystick but also using voice chat, text chat, operating one or more characters, managing short-term objectives and managing long-term objectives, which are an impressive set of multitasking skills (Zichermann, 2011). It is therefore suggested that everyone should embrace gamification and apply games to a wide variety of purposes such as advertising, marketing and brand management, since it is the act of learning that causes grey matter creation in brain not performing and the activity itself (Linder and Zichermann, 2010).

Other studies on the other hand suggest that although the strengths of gamification within educational contexts can be complementary, they are not necessarily so. While gamification may motivate students to engage in the classroom, give teachers better tools to guide, reward students, get students to bring their full concentration to the pursuit of learning and make education a joyful experience, it might on the other hand absorb teacher resources and teach students that they should learn only when provided with entertaining, fun, external rewards.

On the other hand since playfulness requires freedom to experiment, to fail, to explore multiple identities and to control one's own investment and experience (Klopfer, Osterweil and Salen, 2009; Schell, 2010b), by making play mandatory, gamification might create rule-based experiences that feel just like school. Therefore gamification projects must be designed carefully so they address the real challenges of learning (Lee and Hammer, 2011).

From a serious games designer's point of view integrating learning with entertainment is a challenge. For this purpose a study has investigated that the generation of curiosity using the foreshadowing/back story technique is promising. To implement this technique, a Game Discourse Analysis (GDA) has been proposed which distinguishes between information flow and game discourse. The results suggested that the GDA-supported foreshadowing/back story yielded more curiosity, but did not provide learning (Wouters, Oostendorp, Boonekamp and Spek, 2011).

The idea of gamification in the context of learning and its advantages and constraints described above can have a useful indication to addressing the aim of this research which is focused on finding possibilities on designing an e-learning object perhaps in a gamified manner to address Games Design students' deficiencies in communication of ideas via storyboarding.

2.6 Conclusions

This study is mainly concerned about the relationship between games design and the sketching and storyboarding skills. This chapter has reviewed the literature related to a variety of aspects of this relationship. It began by discussing the need for balance between art and technical sides of interdisciplinary subjects in Game Design industry. A few examples of solutions in other domains were introduced to show how this subject is dealt with in other areas. Then it made an overview of the theories on brain functions and different aspects of drawing skills. Psychology and styles of learning were discussed and the notions of e-learning and self-learning were reviewed and finally the relationship between learning and gamification was investigated.

In this chapter the ideas of other authors, academics and researchers gave the theoretical perspective that can guide the thinking about exactly what it is that this research has investigated. The nature of the problem is now known. How this is been investigated will be discussed in the next chapter.

3 Methodology and the Procedure of the Data Gathering

3.1 Introduction

The BSc Interactive Games Design (IGD) course offered by technical universities is designed to produce graduates who have the knowledge of both the technical and aesthetic aspects of creating interactive games (UoG, 2010). In general, students seem to have difficulty in expressing their creative ideas in a visual manner as they do not appear to have the drawing skills. In order to establish the basis of this problem, it is necessary to gain an insight into students' and tutors' viewpoints and interpretation of this course. This view underpins the study reported in this thesis. Thus, a mixed method is chosen to investigate, particularly interpretive, as it appeared that this approach would allow for greater opportunity to understand the phenomenon and all its complexities.

This chapter outlines the methodology in detail. It begins by examining the research paradigm and the philosophical issues. The research context, aims and objectives are discussed as 'Strategy of Inquiry' afterwards. Research design in the form of sub studies in the action research paradigm are also introduced in this section. This is continued by reviewing theories and techniques regarding methodology, data sampling, collection and analysis. Then the issue of triangulation is discussed. Strengths and limitations of the methodology used for this study are explained. The procedure of research design and process of data gathering within the phases of the research are discussed and finally, the plan for data analysis is introduced.

3.2 Research Paradigm

According to Kuhn (1996), an undergoing argument about the link between philosophy and research tends to be polarised between what are referred to as 'paradigms'. In order to offer a coherent and cohesive explanation for the decisions that have been made (Plowright, 2011) in this research, this section explains the theoretical structure or the paradigms and how each paradigm relates to the philosophy (ontology and epistemology aspects).

Two major philosophical doctrines in the social science inquiry are positivism and interpretive (post-positivism) (Hirschheim, 1985).

From a positivist point of view, reality is single, tangible, and fragmentable; the knower and the known are independent (dualism); generalization is time and context free; causality among social objects is mechanistic; and the physical and social reality is independent of those who observe it (Lincoln and Guba, 2000). For positivists, social reality is stable and patterned so it can be known through vigorous investigation. Therefore, an ontological assumption of positivism is that 'an objective reality exists' and an epistemological position of positivism is that 'what can be learned about the social world exists independently of the researcher' (Bailey, 2007).

On the other hand, in an interpretive approach it is believed that the knower and the known are interactive and inseparable; only time-and context-bound working hypotheses are possible; all entities are in a state of mutual simultaneous shaping, so that it is impossible to distinguish causes from effects; and social reality is constructed by the individuals who participate in it (Lincoln and Guba, 2000). Therefore, they study people in their natural surroundings (Connole, Smith and Wiseman, 1995). From an interpretive perspective, realities are multiple, constructed, and holistic. Therefore, an ontological assumption of the interpretive paradigm is that 'there is no objective reality' and an epistemological belief of the interpretive paradigm is that 'what is learnt in research does not exist independently of the researcher' (Bailey, 2007).

According to the definition of paradigms explained above, the theoretical structure of this research fits into an interpretive paradigm (Bailey, 2007; Silverman 2010), because the students' challenge in communicating their ideas is a subjective matter and the social reality of this research is not independent of the researcher and individuals who participated in the study.

In order to define the methodology for this research, the context of the study along with research questions and objectives are first needed to be identified which will be done in the following section.

3.3 Strategy of Inquiry

As explained in Section 1.2, some of BSc, IGD students at UoG withdraw from the course due to the deficiency in their drawing skills in communicating their ideas visually. The Retention Statistics suggest that 15% of students who registered at Level 4 in 05/06 withdrew from the Field during the first year of study at the University. This problem has been a key driver for this study. Studies have revealed the growing criticism among games communities on the apparent lack of graduates capable of meeting the industry's employment needs (IP, 2012; Livingstone and Hope, 2011). Therefore, research on students' needs in Higher Education and investigating possible solutions can have an impact from the perspective of the national context.

In order to clarify the aims of this research, a set of questions were identified (Section 1.2) which led to establishing five objectives summarised as:

1. Identifying the problems experienced by students
2. Exploring the nature and necessity of drawing skills
3. Identifying criteria to assess the quality of storyboards
4. Investigating the effect of a drawing tutorial intervention
5. Designing a framework for an e-learning object to develop storyboard communication skills

3.4 Methodology

The methodology of a study deals with how the knowledge is gained (Silverman, 2010). Tashakkori and Teddlie (2003) define quantitative, qualitative and mixed methods research as the three main methodological approaches used in the social and behavioural sciences.

Quantitative researchers are interested in addressing the 'who (how many)' and 'what (how much)' questions in a positivist paradigm in an explanatory way using methodologies such as experiment and survey (Bailey, 2007; Creswell and Plano Clark, 2011).

Qualitative research problems are usually shaped based on an interpretive paradigm, interested in addressing the 'how' and 'why' questions in an exploratory manner, using methodologies such as case study and action research (Bailey, 2007; Silverman, 2010). According to Punch (1998) the idea of case study is to study one or a few cases in details using whatever methods appropriate with general objective of developing as full understanding of that case as possible. This is while there might be a variety of specific purposes and research questions.

Research problems suited for mixed methods are those in which one data source may be insufficient, results need to be explained, exploratory findings need to be generalized, a second method is needed to enhance a primary method, a theoretical stance needs to be employed, and an overall research objective can be best addressed with multiple phases, or projects (Creswell and Plano Clark, 2011; Denzin, 1978). It is argued that one challenge in defining mixed method research may be determining the 'boundaries' of what constitutes this form of inquiry. In this sense a mixed method study is one in which the researcher collects both quantitative and qualitative data (Cobb, 1998).

Regarding the research context and objectives explained above the methodology of this study is mixed method since the objectives of this research are intended to be achieved in a multiphase manner; different data sources will be used to clarify the research problem, and both qualitative data and quantitative data will be gathered and analysed to achieve this study (Creswell and Plano Clark, 2011; Denzin, 1978; Cobb, 1998). This study will be conducted within an action research paradigm where the participants (students, tutors and professionals) will be involved in a collaborative process in an evolutionary manner with the latter parts depending to some extent for their detail on the results of the earlier parts (Coghlan and Brannick, 2005). These phases are establishing the extent of the problem; a case study, an inquiry into experts' views and specifying a learning object. The details of the research design will be discussed in Section 3.9.

3.5 Data Collection

According to Creswell and Plano Clark (2011), in mixed methods research, the data collection procedure consists of several key components such as sampling, collecting data, recording the data and administrating the data collection.

3.5.1 Sampling

According to Becker (1998), sampling is a major issue for any kind of research since every scientific enterprise tries to find out something that will apply to everything of a certain kind by studying a few examples, the results of the study being generalizable to all members of that class of 'stuff' (Silverman, 2010).

Two main types of sampling are probability sampling and purposeful (non-probability) sampling (Baily, 2007; Oliver, 2008). Probability sampling involves making a random selection of participants, which enables the researcher to choose a representative sample taken from a population. This means that the researcher can generalise the findings to a wider population. This type of sampling is primarily associated with quantitative work (Bailey, 2007). In purposeful sampling, on the other hand, participants do not necessarily represent a wider population but have information that will contribute directly to answering the research question. Mostly being used by field researchers, the number of cases selected by this type of sampling is often small and the key is to select cases for systematic study that are information rich (Bailey, 2007; Patton, 1990; Plowright, 2011).

This research has been involved with sampling in different phases. Three groups of people participated in the study, students, tutors (experts) and designers/ technicians (professionals).

3.5.1.1 Students

It is proposed to conduct a case study by following two groups of students from the start of their course in Level 4 during the academic years 2010 and 2011. For the 2010 cohort, the study will continue longitudinally into Level 5. The students participating in the study will be chosen by a

purposeful sampling method because they have the relevant knowledge and experience to contribute directly to answering the research questions 1, 2 and 4 (Section 1.2).

3.5.1.2 Games Design Tutors (Experts)

For establishing the extent of the problem and also defining a set of criteria to assess storyboarding qualities, tutors from a purposeful sample of Higher Education institutions offering Games courses will be interviewed.

3.5.1.3 Designers and Technicians (Professionals)

To establish the extent of the problem, the views of designers and technicians exploring the nature and necessity of storyboarding in three online LinkedIn discussions will be collected and analysed. The sampling method for this phase of research is purposeful since the participants are professionals in the area of subjects of discussions and capable of addressing research objectives 1 and 2.

3.5.2 Data Collection, Record and Administration

3.5.2.1 Qualitative Data

According to Bailey (2007), semi-structured interviews have predetermined questions and an interview guide that is closely followed. Students and experts will be interviewed in various phases of this study using a semi-structured interview technique. All interviews will be recorded and later transcribed for analysis.

Data will also be collected from the discussion groups on LinkedIn to expand another part of qualitative data of this study. The participant responses will be anonymised and the data organised into tables. These answers may be treated like data collected from semi-structured interviews for analysis.

3.5.2.2 Quantitative Data

One electronic questionnaire, using Survey Monkey, and one non-electronic questionnaire will be used in two phases of the study to query students' views.

3.6 Data Analysis

According to Bailey (2007), qualitative data analysis is a process where the researcher makes sense of the data by breaking it down, studying its components, investigating its importance and interpreting its meaning. Description is an analytical technique in which the researcher highlights important items, omits the irrelevant ones and decides on the level of detail to present to the reader in a selective way. Other strategies for analysing qualitative data are typology, taxonomy, visual representation and themes. Themes are recurring patterns, topics, viewpoints, events, concepts (Bailey, 2007). Interpretation of data is the process by which the researcher builds on and extends what is learnt during data analysis which emphasise on what is important about the research and why others should care (Creswell, 1998; Wolcott, 1994).

According to the theory on qualitative data analysis described above, and in order to analyse interviews in this research, data will be transcribed and categorised in tables and the recurring viewpoints will be extracted as emergent themes. Data will be described based on the themes and then interpreted. The same process of extracting the recurring views (emergent themes), description and interpretation of the data will be applied to the data collected from LinkedIn discussion groups.

Questionnaires to be used in this research will include both multiple-choice questions and open-ended questions. The data from open-ended questions are intended to be analysed as qualitative data as explained above. Quantitative data will be analysed using statistical tests and procedures.

3.7 Triangulation

Triangulation or greater validity, completeness, process, different research questions, explanation, credibility, context, expansion and diversity of views

are amongst the reasons for mixing methods (Greene, Caracelli, and Graham, 1989; Bryman, 2006; Bailey, 2007). In this study attempts will be made in using triangulation to ensure the quality of research by employing a mixed method approach. As described above, multiple methods for data collection will be used and data from multiple sources of information will be collected and analysed.

3.8 Strengths and Limitations of the Methodology

According to Creswell and Plano Clark (2011), a mixed method provides strengths that offset the weakness of both quantitative and qualitative research. It also provides more evidence for studying a research problem than either quantitative or qualitative and is practical in the sense that the researcher is free to use all methods possible to address the research problem. On the other hand, using this method needs enough time and resources to collect and analyse both types of data, which is challenging.

Popper suggests that the observation of a single black swan would be sufficient to falsify the generalization that all swans are white (Silverman, 2010). As a consequence, falsification is one of the most rigorous tests to which a scientific proposition can be subjected. The case study is well suited for identifying 'black swans' (Silverman, 2010). In this regard, using a case study is a strong method to establish the existence of the problem. However, finding a good population of students might be a challenge. Considering the issues regarding the possibility of the social distance between the researcher and students encourages the researcher to use an online survey at the end of the first semester instead of an interview. However, this type of methodology might have the risk of getting a limited population response. In this regard using triangulation is an attempt to mitigate the effects of this possible risk.

3.9 Procedure for Data Gathering

This section explains the procedure of research design and process of data gathering in detail within the phases listed below:

1. Establishing the extent of the problem
2. A case study of two groups of students at the start of Level 4

3. Experts' views of the quality of storyboards and the effectiveness of the Art intervention workshops at UoG
4. Specifying an e-Learning object

And finally the plan for data analysis will be introduced.

3.9.1 Establishing the Extent of the Problem

Initially the research needs to establish the extent of the problem from the perspectives of the tutors, the institutions and the students. This aims to address the problems experienced by students with drawing for storyboard communication and establish their impact on student attitude and motivation. It would also illuminate the nature and necessity of drawing skills for sketching storyboards. The detail is explained extensively in Section 4.2.

3.9.2 A Case Study

In order to understand the impact of drawing skills for storyboarding and investigate the effect of a drawing tutorial intervention, a case study will be set out to follow two groups of students as described in Section 3.5.1.1. This will include an initial interview at the beginning of the course, collection of students' initial sketches, collection of students' sketches at the Art intervention workshop, collection of their final presentation, acquiring students' ideas via questionnaire at the end of first semester and continuing the study to Level 5 for 2010 cohort. The process of this part of the study is explained in detail in Section 5.2.

3.9.3 Experts' Views

In order to identify criteria to assess the quality of storyboards and evaluate the effectiveness of the Art intervention workshops at UoG, experts from within UoG and other universities will be contacted for an interview. The details are explained in Section 6.2.

3.9.4 E-Learning Object Specification

As part of the action research approach, this evolutionary approach to research will involve responding to the results from the first study (Coghlan

and Brannick, 2005). Therefore, the findings from the data analysis in the first three phases of this study (establishing the extent of the problem, a case study and experts' views) should provide a confirmable foundation to the final phase of the research which is design of a framework for an electronic learning object to develop storyboard communication skills.

According to Anderson (2008) learning objects are discrete units, consisting of discrete lessons, learning units, or courses in the form of animations, videos, simulations, educational games, and multimedia texts in a reusable principal which could subsequently be made available in online databases, with efficient access by learners. Online learning and e-learning terminology are used interchangeably in this context (Anderson, 2008; Moore, Dickson-Deane and Galyen, 2011). Ring and Mathieux (2002) suggest that online learning should have high authenticity (i.e., students should learn in the context of the workplace), high interactivity, and high collaboration. The key components that should be considered when designing online learning materials according to Anderson (2008) are:

- Learner Preparation: A variety of pre-learning activities to prepare learners for the details of the lesson, and to connect and motivate them to learn online lessons.
- Learner Activities: A variety of learning activities to help students achieve the lesson's learning outcome and to cater for their individual needs such as reading textual materials, listening to audio materials, and viewing visuals or video materials. With appropriate application exercises embedded throughout the online lesson to establish the relevance of the materials.
- Learner Interaction: A variety of interactions with the interface to access the online materials (the interface should not overload learners' short-term memory and should make it as easy as possible for learners to sense the information, interact with the content to acquire the information needed and to form the knowledge base, interaction between the learner and other learners, between the learner and the instructor, and between the learner and experts to collaborate, participate in shared cognition, form social networks, and establish social presence.
- Finally, online learning will be increasingly diverse in response to different learning cultures, styles, and motivations.

According to Soanes and Stevenson (2005), a framework can be described as a basic structure that underlines a system, concept or text. Plowright (2011) asserts that in a framework, there is no 'content', only 'structure'. Therefore a framework represents processes and activities in an abstract and generalised way. In the context of this study, a framework can be seen as a model that describes the process of designing and planning the e-learning object which will be proposed in this study. This framework is aimed at supporting the integration of different elements suggested above, together with the findings from data analysis with inspirations from the literature and works provided by other researches some of which were addressed in Sections 2.5.3 and 2.5.4. In this regard the basic model or framework for designing the e-learning object that will be proposed in this study may be based on the diagram which is presented in Figure 3.1.

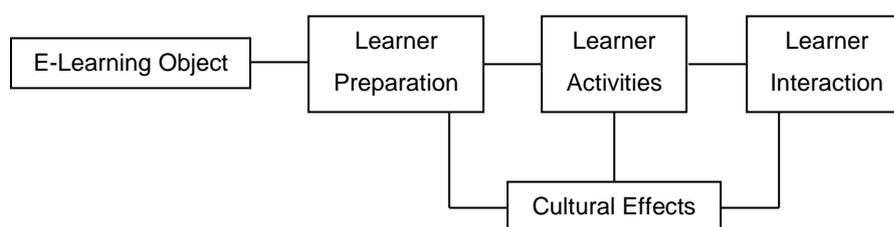


Figure 3.1: Basic Representation of the Framework

3.10 Plan for Data Analysis

The data analysis for this mixed methods research was explained in Section 3.6. The analysis, description and interpretations of each phase of this study are presented in three parts listed below and explained in Chapters 4, 5 and 6 respectively:

1. Data Analysis and Discussions-Part 1: Establishing the Extent of the Problem
2. Data Analysis and Discussions-Part 2: Students' Perceptions of Storyboarding
3. Data Analysis and Discussions-Part 3: Experts' Perceptions of Storyboarding

The plan for data analysis is presented in Figure 3.2.

Research Phases

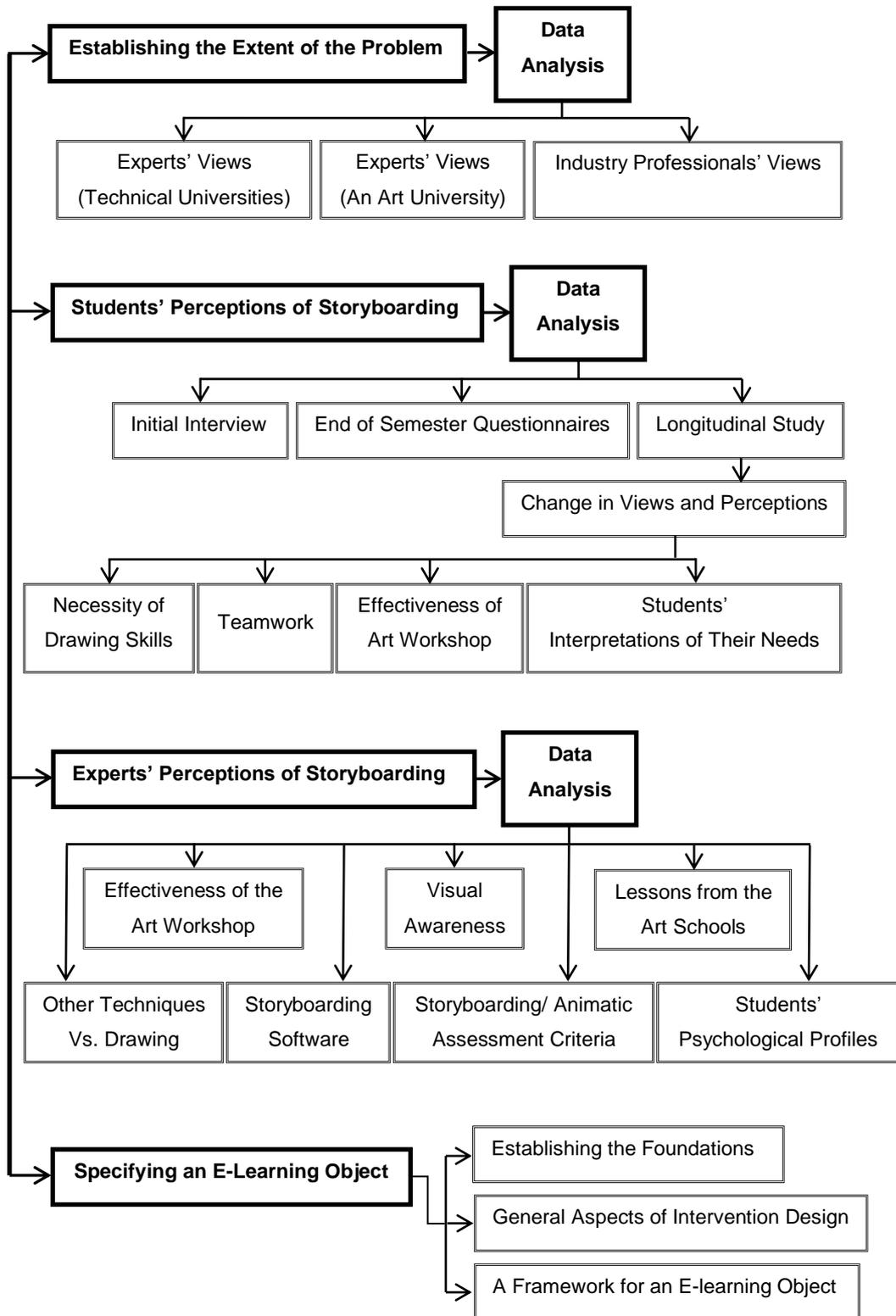


Figure 3.2: Data Analysis Plan

3.11 Conclusions

In order to investigate the theoretical foundations of this study, this chapter began with introducing the research paradigms and the philosophical issues. The theories on methodology, data sampling, collection and analysis were reviewed. The strategy of inquiry was described. The research design was explained. The strengths and limitations of the methodology used for this study were mentioned. After establishing the process of decision making on the methodology of the research this chapter reported the step by step approach of this study by introducing the procedure of the research design and data gathering. It described the strategy that will be taken to establish the extent of the problem. The case study that will set out to follow two groups of students was explained. It described how the experts from different universities will be approached and the agenda of interviews were reviewed. It introduced the development of learning object specifications and finally illustrated the plan for data analysis. In the next chapter the detailed discussion and analysis of part 1 of this study will be covered.

4 Data Analysis and Discussions-Part1

Establishing the Extent of the Problem

4.1 Introduction

The research design and data gathering procedure in respect to the first phase of this study, to establish the extent of the problem and also to ascertain if tutors in other universities observed the same problem as at UoG, were introduced in Section 3.9.

This chapter begins with the methodological approach. It will be followed by the analysis and discussion of tutors' (coded as 'experts') views from other institutions. This will be followed by discussion and analysis of views of designers and technicians (coded as 'professionals') exploring the nature and necessity of storyboarding in three online LinkedIn discussions. The results will be presented next and finally the relevance of the results to this research will be discussed as conclusions. This chapter addresses Objectives 1 and 2 of this study (Section 1.2). Attempts have been made to present accurate representation of this part of study to maintain credibility and supporting the findings by the data gathered to ensure confirmability (Bailey, 2007).

4.2 Methodological Approach

Several Higher Education institutions offering Games courses in Computing Departments were contacted to find the Course Leaders or tutors in charge of the relevant modules to ask for an interview (Appendix H). This was to ascertain whether they experience the same problems as observed at UoG. Most of them replied and showed interest but only tutors from three Universities agreed to have an in depth interview as the result of this communication process. This will be explained in more detail in Section 6.2.

The question 'Hand sketching, does anyone else do it?' was an on-going discussion of the User Experience group of User Interface (UI) designers and technicians exploring the nature and necessity of storyboarding (LinkedIn User Experience Group Discussion, 2010) (Appendix P). Sixteen members participated in this study which is referred to as 'Discussion 1' in

this study. 'Are you using a sketchbook for your UI sketches?' (LinkedIn User Experience Group Discussion, 2012) was another discussion (Appendix Q). Although the subject of this discussion is more focused on the preference of the medium of sketching, the shared viewpoints provided valuable insight into the focus of this research. Sixty seven members participated in this discussion which is addressed as 'Discussion 2' in this study. 'Discussion 3' (Appendix R) initially started to discuss the article entitled 'Why It is Important to Sketch before You Wireframe' (Anthony, 2012). Ten members participated in this discussion which was titled 'The Importance of Sketching' on UXPRO discussion group (LinkedIn User Experience Professional Network Group Discussion, 2012). The participants' views were collected and analysed. The aim of this study was a triangulation of viewpoints by eliciting knowledge from experienced professionals.

The names of participants in each discussion were coded and their views in response to the main question of the discussion were saved and organised in tables (Appendices P, Q and R). The recurring viewpoints have been extracted as emergent themes ready to be analysed (Section 3.6).

4.3 Procedure

4.3.1 Other Institutions

Analysis of experts' views both from technical and Art Universities is the focus of this section. These views are shaped around central emergent themes that are coded as 'nature of the course', 'students background', 'problem', 'response', 'drawing skills level' and 'teamwork'. These codes are presented in interview transcriptions tables in the relevant appendices (Appendices T2, T3 and T4).

4.3.1.1 Experts' Backgrounds

Expert 1, Expert 4, Expert 5 and Expert 6 from different departments within UoG participated in this study by attending a semi-structured interview. From several Higher Education institutions contacted, as mentioned in Section 4.2, Expert 2, Expert 3, Expert 7 and Expert 8 from three different universities agreed to have an interview. Expert 9 shared some ideas in

reply to the initial email. To maintain their anonymity, their names are coded and their institutions are not named. Table 4.1 shows these experts' backgrounds and the departments they teach in:

| | Arts-based Department | Technology-based Department |
|-----------------|----------------------------------|---|
| Expert 1 | Arts background | |
| Expert 2 | | Working experience in the Games Design industry |
| Expert 3 | | Arts background |
| Expert 4 | | Arts Design and Programming background |
| Expert 5 | | Games Design and Programming background |
| Expert 6 | Arts background | |
| Expert 7 | Arts background | |
| Expert 8 | Arts background | |
| Expert 9 | | Working experience in the Games Design industry |

Table 4.1: Experts' Backgrounds

4.3.1.2 Views of Experts from Technical Universities

The admission requirement for students applying for Games Design courses in other technical Universities was basic UCAS points with no requirement on having art background; that is similar to UoG, and therefore some students started the course with no drawing skills (Expert 2 and Expert 3). According to Expert 2 (Appendix T2) and Expert 3 (Appendix T3), students' difficulties in communicating ideas by sketching/ storyboarding, due to lack of drawing skills, were observed in these technical Universities too. Experts had various views on the impact of lacking drawing skills for some students without Art background. Expert 5 opined that acquiring drawing skills for most of the students who do not have art background and cannot draw, is probably too late.. Expert 4 described this as "Art cannot happen over a semester". So students can explain their ideas as functional as possible as a storyboard and then a designer or a 3D animator can produce something out of it (Expert 5). Expert 3 opined that students need to be able to break down the problem

into different areas such as hand-eye coordination. Figure 4.1 is an example of one student's drawing at the start of the course and Figure 4.2 is the same student's visual representation at the end of first semester. According to Expert 2 and Expert 3, this student's graphical skills specially limited in using one point perspective did not improve after a semester and therefore s/he could not benefit in communicating ideas fluently through drawing skills.

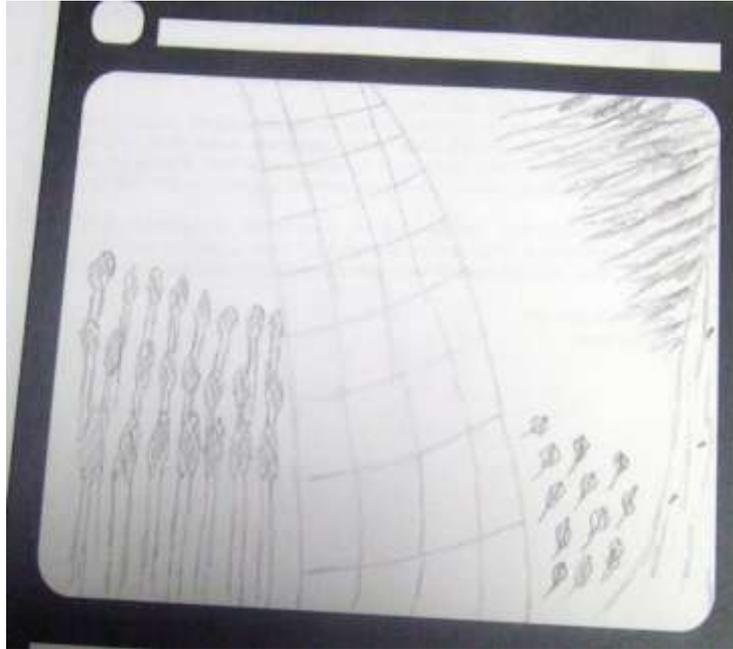


Figure 4.1: Student's Drawing Sample 1

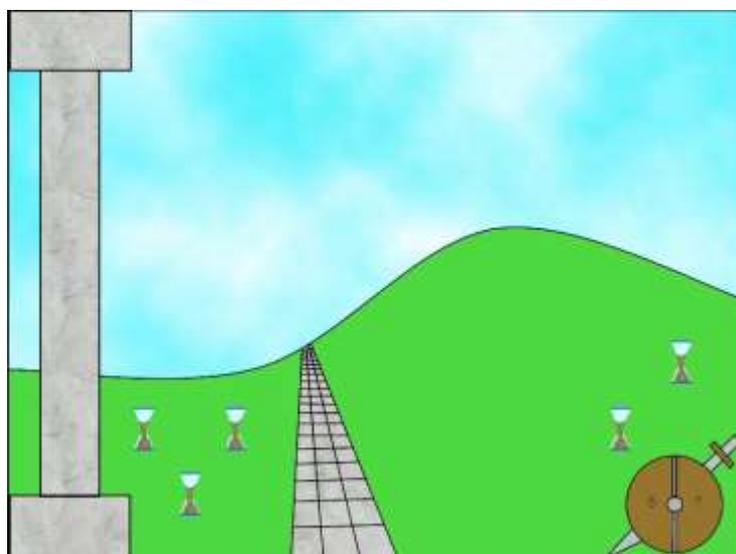


Figure 4.2: Student's Drawing Sample 2

The strategies employed to address this problem were different at UoG and at the technical Universities Expert 2 and Expert 3 came from, as described below.

The IGD course team at UoG offers students a mid-semester, two hour Art intervention workshop providing a set of basic skills in order to encourage the development of storyboarding expertise. This is described in Section 5.2.3. Apart from this workshop, students are involved in storyboarding in different modules during IGD course. However, there is no module specific to storyboarding or communication of ideas.

In the University Expert 2 came from, there are a BA degree in “Graphics for Games” and a BSc degree in “Interactive Systems and Video Games Design” and although both courses have a lot of crossovers, students are split into creative and technical groups. BA students do the drawing for three semesters and the BSc students do the programming. Expert 2 said this mode of study was chosen because it was felt that improvements in drawing skills happen over a long time and this approach would embed the concepts within the system.

Expert 2 described that IGD students were allowed to take a ‘Concept and Idea Development’ module without pre-requisite as another strategy to help them developing their skills for coming up with the new ideas and getting them across in the form of concept art and revisualisation. In this module the students were given freedom to explore their ideas, generating and communicating skills in whatever way they preferred such as using paper, going for complete digital painting, mocking it up in 3D or using a Photoshop collage of digital photography.

For Expert 3, the BSc course team were involved in teaching many technical issues such as modelling and building. Therefore, getting the students to do idea-generating and communicating via storyboarding was a difficult and on-going issue for the team. They saw this as a struggle. They tried to incorporate design elements and communication skills in two modules of animation, both with storyboarding. Expert 3 said their animation module was joint with film but IGD students were really struggling

because they were not able to get through a process of idea-generating and communicating.

In order to help students getting around their drawing/ storyboarding deficiencies, Expert 3 and the course team encourage students to do storyboards in 3DStudio by using biped primitives for posing their characters, setting up the cameras and rendering out views to deal more with compositional issues as opposed to focussing on their problems with drawing. Expert 3 emphasised that the main element of storyboards is telling the story and the quality of storyboards does not need to be exceptionally high to put that across.

Expert 2 and Expert 3 said students need to be able to communicate ideas so they can function within a team and the ultimate goal of the IGD course is to enable students to find a job in Games Design industry. The skills they need for this are discussed extensively in Chapter 6.

4.3.1.3 Views of Experts from an Art University

Expert 7 and Expert 8 (Appendix T4) were colleagues in an Art and Design Institution (Section 4.3.1.1). In their 'Animation for Games' course they were focused on art and design to create assets for games. For this course, they recruited students with an arts background and portfolio-interviewed them. Their students were not encouraged to use technology for their designs until they become fluent in storyboarding with hand drawing. These tutors were not familiar with the problem observed at the UoG. Expert 7 suggested this problem is mainly because they did both art and programming in technical departments. Expert 8 opined that most universities do not have this problem when they do a BA because the whole differentiation between BA and BSc is that BSc students are aware that it is a technical course (*sic*). However, they expressed awareness of the interdisciplinary nature of Games Design which was the reason that they worked with the Department of Engineering where they have a Games Design course. In this collaboration, their second year students worked with the programmers to develop a prototype for a game. Expert 7 said "the communication was interesting and just like the real world they did not understand each other." This cross faculty collaboration was said to be

effective in helping their students to identify the kind of problems that programmers face and the programmers know what the artists could deliver.

As artists, Expert 7 and Expert 8 expressed the opinion that the students going to technical Universities who are skilful in drawing are at a greater advantage compared to those who have to learn drawing alongside other things. They said, however, that those who cannot draw can take photos and work on them as a quicker way and the idea of storyboarding is not about how pretty they are and students might be using stick figures just to show what they mean.

4.3.2 Online Discussions

In an attempt to have a triangulation of viewpoints eliciting knowledge from experienced professionals and ascertain how the User Interface Design industry views sketching skills, three discussions on the LinkedIn discussion groups were considered to collect designers' and technicians' views who participated in these discussions. The research process is described in Section 4.2. Analysis of their views is presented in this section. The recurring views which are extracted as emergent themes are coded as 'hand sketching', 'meetings and presentation', 'drawing skills level' and 'digital tools'. These codes are presented in discussion tables in the relevant appendices (Appendices P, Q and R). In order to visualise the description, the ideas shared and attributions assigned to each theme are presented as a word cloud (Lohmann, Ziegler and Tetzlaff, 2009) under each subsections below. The colour codes referring to the discussion groups are orange for 'Discussion 1', blue for 'Discussion 2', red for 'Discussion 3' and black for general views recurring in more than one discussion.

4.3.2.1 Communication of Ideas by Hand Sketching (Pen and Paper/ Whiteboard)

Some participants in Discussion 2 said they could not start their thinking process without basic sketching and half the participants in discussion 1 said that they started their projects with hand sketching.

According to participants' views in all three discussions, hand sketching gives feedback, helps the design process by making the designer slow down, think whilst working and therefore helps generate new ideas. It is efficient, easy, fast, flexible, cheap, and portable and allows (*sic*) to work 'out of the box'. It is invaluable to the design process in its reliability and has positive impact on the depth of exploration.

According to Discussion 2 and Discussion 3, sketching is useful in understanding how ideas take shape in the User Interface and allows the direction of the project to be sorted out by drawing rough ideas before moving to digital media. It empowers the design team members in visual thinking and helps quickly work through initial concepts at a higher level. Therefore, hand sketching was suggested to be incorporated throughout the design cycle as well as the concept stage since it is a quick and efficient way to explore alternative design routes during iterations. In Discussion 3 it was argued that although the power and importance of sketching before switching to digital tools is being discussed in teams, it has been overlooked with the excuse of lack of time.

In Discussion 3 it was suggested that everyone has sketching skills. However, sketching physical layouts aimlessly, hoping to discover a good design by accident is not possible and sketching for explorations need to be more deliberate, more focused on effective interaction, achieving user goals and fulfilling scenarios.

The word cloud represented in Figure 4.3 shows professionals' views about 'hand sketching'.

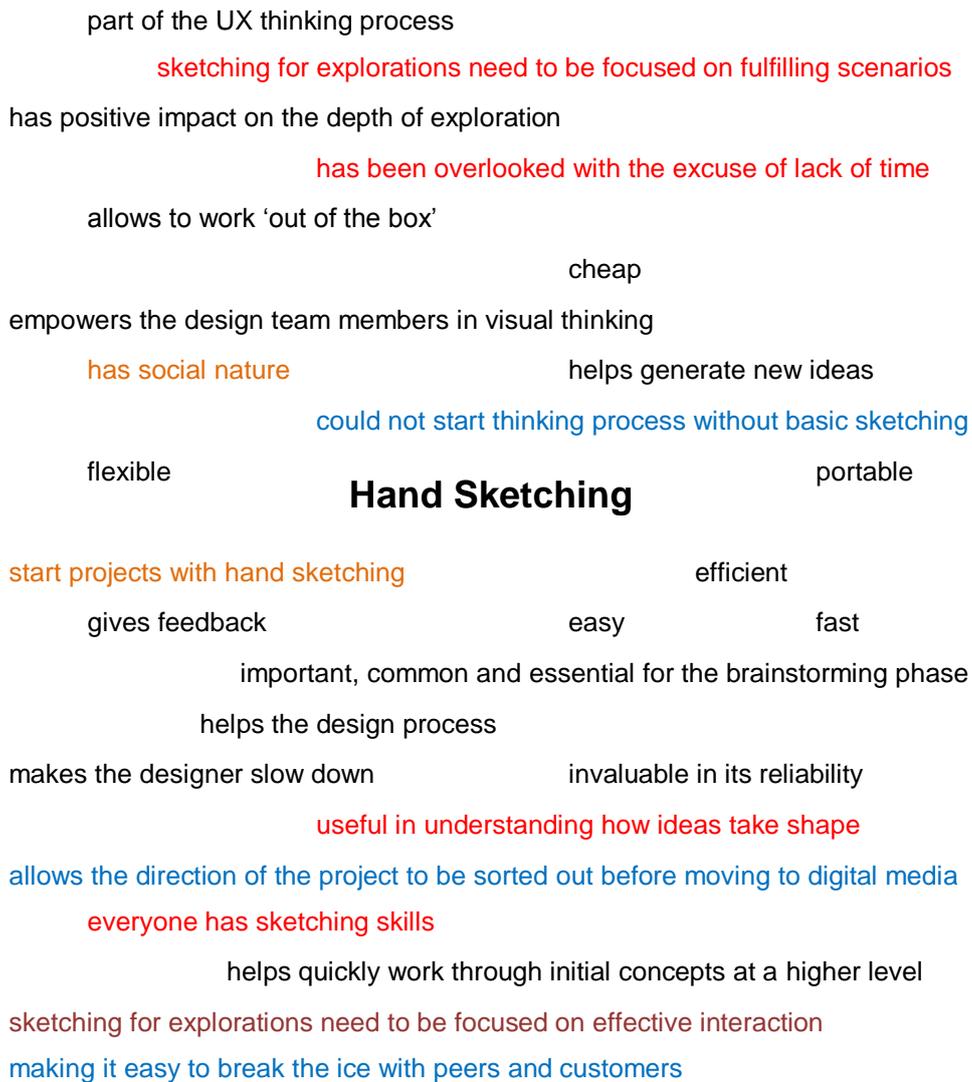


Figure 4.3: Word Cloud of Professionals' Views on Hand Sketching

4.3.2.2 Meetings and Presentations

According to Discussion 1 and Discussion 2, hand sketching has social nature, making it easy to break the ice with peers and customers. Paper prototyping was encountered as part of the UX thinking process and seen as important, common and essential for the brainstorming phase. Six out of 16 participants in Discussion 1 used sketching within meetings. However, only four of them used it for presentations to a larger group, clients or other external audience. Although some participants found sketching as a collaborative effort making clients feel included and have equal ownership of the development of the concept only 15% (ten out of 67) of participants in Discussion 2 encountered using sketches with positive effects on the

generation and refinement of ideas with clients, stakeholders and colleagues. Therefore some preferred to keep doing sketch work in front of clients to a bare minimum because they perceived that their clients were not creative types and also handing a final design in the form of a hand drawn sketch to the client would not be well received because quality matters to clients.

The word cloud represented in Figure 4.4 shows professionals' views about using hand sketching in meetings and presentations.

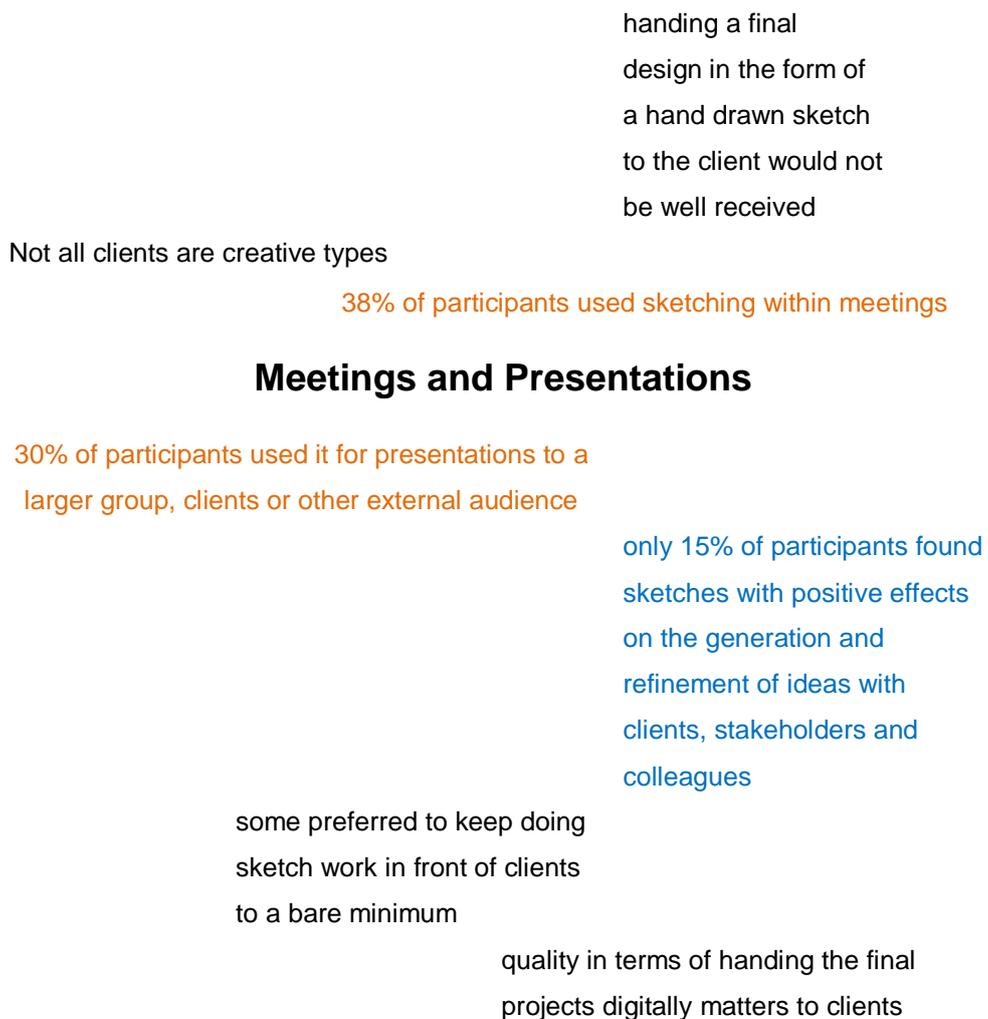


Figure 4.4: Word Cloud of Professionals' Views on Using Hand Sketching in Meetings and Presentations

4.3.2.3 Level of drawing skills

According to participants' views in Discussion 1 and Discussion 3, one does not have to be able to draw particularly well to get ideas across to someone and looking 'pretty' is said to be insignificant in early work flow and process.

4.3.2.4 Digital wireframes and mock-up tools

The application of software tools such as Balsamiq, Axure wire framing and Denim as alternatives to hard copy sketching with pen and paper was discussed in all three discussions. According to participants' views in Discussion 2, the choice of medium (pen and paper or digital tools) is a personal preference. However, only 28% (19 out of 67) of participants used digital devices to do their sketches and 3% (two out of 67) of participants used both paper sketch and digital devices to get their ideas out or start their thought process.

In Discussion 2 and Discussion 3 it was proposed that using a mock-up tool is efficient only at the stage of adding details and not at the stage of brainstorming new ideas and approaches. It was suggested to move onto digital once the idea is fleshed out. According to participants' views in Discussion 1 and Discussion 2, at the stage of transition to higher fidelity, digital wireframes and mock-up tools can help with mixing and matching and slowly moving to a final drawing, adding digital annotations and being able to edit sketches. Digital tools also make it possible to build up a library of different sketch elements to quickly reference, edit, rehash and discard over time. Depending on the strength of the software used it is also possible to email or share the designed sketches and therefore team members can give comments, edit the files and rearrange elements in collaboration.

In Discussion 2 and Discussion 3 it was proposed that documenting the results as deliverables (wireframes or visual mock-ups) should be a smaller portion of the time spent in design because using digital devices engage

the designer more in problem solving with a limited set of tools rather than focusing in researching, thinking, creativity and visualizing the idea. Sophisticated software was argued not to be able to hide bad thinking. Figure 4.5 presents the professionals' views on this issue.

Can help adding digital annotations and being able to edit sketches

move onto digital
once the idea is
fleshed out

documenting the results with them should be a
smaller portion of the time spent in design

can help with mixing and matching and slowly
moving to a final drawing

are efficient only at the stage of adding details and not at
the stage of brainstorming new ideas

Sophisticated software is not able to hide bad thinking

28% of participants used digital devices to do their sketches

Digital Wireframes and Mock-up Tools

the choice of medium
(pen and paper or
digital tools) is a
personal preference

3% of participants used both
paper sketch and digital devices
to get their ideas out or start
their thought process

make it possible to build up a library of different sketch elements to
quickly reference, edit, rehash and discard over time

team members can give comments,
edit the files and rearrange elements
in collaboration depending on the
strength of the software used

engage the designer more in problem solving with
a limited set of tools rather than focusing in
researching, thinking, creativity and visualizing the
idea

Figure 4.5: Word Cloud of Professionals' Views on Digital Wireframes and Mock-up Tools

4.4 Results

The summary of experts' views according to establishing the extent of the problem based on the emergent themes is presented in Table 4.2.

| Experts' Views | Experts' Views (Technical Universities) | Experts' Views (An Arts University) |
|-----------------------------|---|---|
| Emergent Themes | | |
| Nature of the course | Recognised as interdisciplinary | Recognised as interdisciplinary |
| Students background | Did not need Arts as prerequisite | Recruited with Arts background |
| Problem | Observed the same problem as in UoG | Did not observe the same problem as in UoG |
| Response | <ul style="list-style-type: none"> Divided into two groups: Art and Programming Cover storyboarding within other relevant modules (Animation) | N/A |
| Drawing skills level | <ul style="list-style-type: none"> Storyboarding is about communicating ideas. It is not necessary to have super high pretty looking storyboards. | <ul style="list-style-type: none"> Storyboarding is about communicating ideas. It is not necessary to have super high pretty looking storyboards. |
| Teamwork | Emphasis on the importance of being able to communicate ideas for working in teams both in university and later in industry. | Emphasis on the importance of being able to communicate ideas for working in teams both in university and later in industry. |

Table 4.2: Summary of Experts' (Tutor's) Views on Establishment of the Problem

According to the knowledge elicited from experienced professionals in the User Interface Design industry whether of games or other applications, various attributions are needed to be successful in this area. Some of these attributes are as follows:

- idea generating
- portability
- ability to draw free-hand but with support for fast development of ideas and exploring alternative design roots
- ability to update, share and collaborate in teams
- quality of presentation to clients and stakeholders

Pen and paper was encountered as the important, common and essential tool for idea generating, focusing on, thinking, creativity, visualizing the idea and the brainstorming phase. It is an effective tool throughout the design cycle as well as the concept stage to explore alternative design routes. These professionals stated that everyone can draw and one does not need to be able to draw particularly well to get ideas across and looking 'pretty' in the early work flow and process is insignificant.

At the stage of adding details and documenting the results as deliverables to clients, hand sketching is perceived not be practical or well received. Using digital wireframes and mock-tools such as Balsamiq, Axure wire framing and Denim is effective at this stage for giving a quality look to the end result and also helps mixing and matching and editing sketches, building up a library of different sketch elements to quickly reference, edit and help team collaboration fast by email and sharing facilities.

The requirement for spending larger portion of time on researching, thinking, creativity, idea generating and visualizing the idea was emphasised and it was suggested to avoid overlooking hand sketching with the excuse of lack of time in this phase of design since poor thinking cannot be hidden by using software. Therefore the graduates of courses such as BSc Interactive Games Design will be expected to demonstrate a certain level of skill in drawing and storyboarding to communicate their ideas as well as being able to recognise when to use which tool. In this regard, Games Design courses need to encourage students to be skilful in generating and developing their ideas by drawing/ storyboarding tools before they switch to digital tools such as iPad apps.

4.5 Conclusions from the Analysis of the Results

In this chapter views of the tutors and also the perceptions of designers and technicians working in the industry were discussed and analysed towards establishing the extent of the problem being addressed in this research. Summaries of findings and interpretations of them were presented in Section 4.3. It was ascertained that the problem observed at UoG regarding IGD students' difficulties in communicating their ideas due to lack of drawing/ storyboarding skills was also experienced in the other two technical universities considered here.

Both tutors in other universities and professionals working in industry asserted that storyboarding is about communicating ideas and one does not need be able to draw particularly well to get ideas across. They identified "communicating ideas" as an essential factor in teamwork both in university and later in industry. Therefore this skill needs to be addressed in IGD course design. However, there was no evidence to show that the problem is being addressed in any module tailored specifically for idea generating and communicating by storyboarding. This might be due to economic exigencies stemming from the drive of University managements. However, students going to technical Universities who are skilful in drawing were encountered to be at a greater advantage compared to those who lack this skill.

Designers from industry perceived hand sketching by pen and paper important and essential to focus on idea generating and visualisation at the design stage. Using software was recommended at the stage of adding details and documenting the results as deliverables to clients and stakeholders. Therefore IGD students need to develop both skills (hand sketching and using software) and be aware of using each at the appropriate stage of Games Design.

This part of the study was conducted based on a triangulation of views of experienced tutors and UI professionals. The reasonable number of participants, having no bias in collecting data, presenting the data accurately, supporting the findings with data and having triangulation of views makes this part of the study credible and confirmable. The

consistency among the core elements of this part of the research such as research questions, data collection and analysis (Bailey, 2007) also makes this part of the study dependable.

At this point, the extent of the problem in this study has been established and the nature and necessity of drawing skills for sketching storyboards has been explored. This addresses Objective 1 and Objective 2 of this study (Section 1.2). In the next chapter students' perception of storyboarding will be discussed and analysed in detail.

5 Data Analysis and Discussions-Part2

Students' Perceptions of Storyboarding

5.1 Introduction

The research design and data gathering procedures in regard to developing an understanding of the students' attitudes and motivations with respect to storyboarding and investigating the effect of a drawing tutorial intervention, were introduced in Section 3.9.

This chapter begins with the methodological approach. It will be followed by the analysis of students' views in the initial interview, the findings from the questionnaires' responses and the longitudinal part of the study for the 2010 cohort. Result Section constitutes the summaries of each part of this phase of the research, explaining the interpretation and relevance to this study based on the emergent themes. The conclusions will be followed at the end. This chapter addresses Objective 2 and first part of Objective 4 of this study (Section 1.2). Presenting representation of this part of study in a precise manner helps achieving credibility and to ensure confirmability the findings are supported by the data gathered (Bailey, 2007).

5.2 Methodological Approach

In order to identify criteria to assess the quality of storyboards and investigate the effect of a drawing tutorial intervention, a case study was set out to follow two groups of students from the start of their course in Level 4 in academic entry years 2010 and 2011.

5.2.1 Initial Interview

Initially, it was considered that the students' educational experience and attitudes to drawing which was gained before university may have some bearing on both their abilities and attitudes. To elicit these baseline attitudes and skills, the students were interviewed at the beginning of their initial module 'Introduction to Games Design'. This comprised 14 participants in 2010 and 10 participants in 2011. The research process was explained so that they felt involved in the process. This was done by giving

them a consent form explaining the research and ensuring their anonymity and their right to withdraw from the research (Appendix A). The interview questions were mainly focused around their educational background, reasons for choosing the course, artistic abilities, viewpoints on the necessity of drawing skills, expectations from the course and future plan. To obtain more information for possible insights during the stage of data analysis, their ideas about active learning and their game preferences were also collected (Appendix B). The interviews took place in a quiet room and the length of each interview varied due to students' different personalities and eagerness to participate and brainstorm the subject of the questions.

All interviews were recorded, transcribed and categorised in tables. The recurring viewpoints have been extracted as emergent themes to be analysed (Appendices N and O).

5.2.2 Collection of Initial Sketches

The students taking 'Introduction to Games Design' module are encouraged to have sketchbooks to collect and sketch their ideas. With their consent (Appendix C), the initial drawings and storyboards of 25 students in 2010 and 40 students in 2011 were photographed from their sketch books which show their initial drawing skills when they joined the course and before attending any Art intervention workshop at the University. The sketches collected in this stage were later discussed with experts in comparison with students' other sketches to evaluate the quality of storyboarding skills. Samples of these drawings can be found in Appendix I (2010 cohort) and Appendix L (2011 cohort).

5.2.3 Art Workshop/ Intervention

The next part of the case study involved observing students' engagement with an art/sketching workshop or pedagogic intervention to collect their sketching at the end of the session. The course team arranged a mid-semester art workshop providing a set of basic skills for students in order to encourage the development of storyboarding expertise through active learning. This involved a tutor led workshop where ideas about sketching were explored and simple, mechanical exercises were practised. Apart

from the consistency of the main idea of this intervention, the method of conducting it was slightly different depending on the tutor in each year. In 2010, the intervention comprised a couple of drawing techniques such as upside-down drawing (Figures 5.1 and 5.2), with a focus on activating the right brain (Edwards, 2008) and a more open-ended imaginative task completed in response to a narrative story to mimic the design of a game cut scene (Figures 5.3 and 5.4). In 2011, the tutor focused on 2D character design (Table 6.1), and the session was focused on the practicality of drawings for their application in animation. The session also introduced software in order to create simple animation as a direct result of the sketching. Students' drawings at workshops both in 2010 and 2011 were photographed at the end of the sessions.



Figure 5.1: Upside-down Drawing Sample 1 (2010 Art Intervention)



Figure 05.2: Upside-down Drawing Sample 2 (2010 Art Intervention)



Figure 5.3: Visualisation of a Scene of a Story Sample 1 (2010 Art Intervention)



Figure 5.4: Visualisation of a Scene of a Story Sample 2 (2010 Art Intervention)

5.2.4 Final Presentation

At the end of the 'Introduction to Games Design' module, students present the storyboards and level design diagrams they have designed for their games in a 5 minute PowerPoint presentation. The presentations were collected, all with students' consent (Appendix D), in order to be reviewed with experts, 24 in 2010 and 42 in 2011. Samples of slides of these

presentations can be found in Appendix I (2010 cohort) and Appendix L (2011 cohort).

5.2.5 2010 End of Semester Questionnaire

Initially it was decided to interview the students at the end of the semester to review their viewpoints discussed in the first interview after experiencing the course for one semester. However, due to difficulties with access to students, it was decided to send an electronic questionnaire, using Survey Monkey, to acquire their ideas (Appendix E).

In order to achieve high reliability (Chomeya, 2010), a Likert scale 6 points was chosen in the design of the questionnaire. In order to get more insight some open-ended questions were also added.

At the time of preparing the questionnaire, the research was at the stage of devising criteria for evaluating storyboarding quality and considering the specifications of an e-learning object for storyboarding. Therefore it was an opportunity to seek students' views on the elements of criteria through this questionnaire. Considering this, the first 10 questions were specific to their views on sketching skills and the rest of the closed questions were focused on their ideas on the issue of storyboarding criteria.

5.2.6 2011 End of Semester Questionnaire

Despite attempts to encourage 2010 students to participate in the end of semester electronic survey described above, this method achieved few responses with only seven participants (Appendix E2). This was due to the risk of low response number in electronic surveys (Kongsved, Basnov, Holm-Christensen and Hjollund, 2007; Matsuo, McIntyre, Tomazic and Katz, 2004). Therefore at the end of the first semester in 2011 a pen and paper based questionnaire was designed and 28 students participated in a non-electronic questionnaire survey (Appendix F2). This approach is consonant with the action research aspect of the methodology outline in Section 3.4 where the results from one iteration feed forward into the next iteration of the research.

The focus of the 2011 survey was on the subject of confidence and its effect on delivering visual ideas (Appendix F). Since in a Likert scale 6 points the level of difficulty in decision making when answering questions is higher than a Likert scale of 5 points (Chomeya, 2010), the 2011 questionnaire was designed based on a 5 point Likert scale to provide students with a 'neutral' option in answering.

5.2.7 Longitudinal Study

For the 2010 cohort, the study continued into Level 5. In order to follow students' views on the impact of drawing skills for storyboarding after experiencing the course for nearly three semesters, this part of the research involved qualitative interviews with some of them (Appendix G). The interviews took place in the module 'User Interaction Studies' where they worked in pairs and their project involved storyboarding. This comprised 11 participants (Appendix Z). Two students from 'Business IT' course also participated in the interview. This was an opportunity for triangulation of their ideas with IGD students' views. A summary of their interviews is organised in a separate table at the end of Appendix Z and at the end of Section 5.4.3. In the interview, the story behind the study and research process was reviewed for students at the beginning so that they felt involved in the process. This was done by giving them a consent form explaining the research and ensuring their anonymity and their right to withdraw from the research (Appendix A). The interview questions (Appendix G) were mainly focused on their views on the necessity of drawings skills in IGD course, effectiveness of the Art workshop (Section 5.2.3), possibility of using e-learning software versus a tutor-led storyboarding workshop and the attribution of such software, relationship between creativity and drawing skills, relationship between communication of ideas and confidence (fear of drawing), the effectiveness of using other techniques rather than drawings to communicate ideas, most challenging part of the design and the role of learning style in communication of ideas by storyboarding.

All interviews were recorded and categorised in tables (Appendix Z). The recurring viewpoints have been extracted as emergent themes to be described and interpreted in the stage of data analysis.

5.3 Procedure

5.3.1 Students' Initial Interview

Analysis of the students' views are based on the central themes emerged from interviews. These themes are coded as 'students background', 'course choice', 'university choice', 'expectations', 'future plan', 'perception of artistic skills', 'necessity of drawing skills', 'active learning' and 'game preferences'. These codes are presented in interview transcriptions tables in Appendices N and O (Appendix M represents the simplified transcription symbols).

5.3.1.1 Students' Background and Expectations from IGD Course

The overall 24 participants in 2010 and 2011 came from various educational backgrounds. Some were from Games Design or related backgrounds such as Web Design, IT and Animation. From this group, some had courses involved drawings or storyboarding and some did not. Some came with combination of A-Levels or BTECs in different subjects including, Maths, Psychology, Food, English Literature, Chemistry and Ethics. Some had Art subjects either in their A-Levels or in GCSE. One student came from a non-UK high school. While some were recruited straight after their college course, there were others who had taken a 'gap year' and a few were mature students joining Higher Education after a couple of years of various job experiences from being a postman to a music producer.

Based on their previous educational background or work experience, the majority of the students were fascinated by the practical nature of the IGD course at UoG and the career prospects. For those who chose UoG as their final choice, the most effective factor was that IGD course at this University does not require the Art Foundation Course as a prerequisite.

The ultimate expectation of students joining IGD course was to build up skills that enable them to get a job in the industry. Most expected to get familiar with both creative and technical sides of Games Design. The teaching material to be covered in this course was expected to be

transferable so they can apply them to their future career. They expected to gain experience in actual games making and team work.

Recommendations that the students offered at the end of their interview suggests to have sketching or art-based tutorials at the beginning of IGD course so that everyone gets a basic understanding of art and sketching and therefore they can transfer those skills over to modules like 'Introduction to Games Design'. Also it was suggested that the course team specifies more time for concept work for story and character development.

5.3.1.2 Students' Perceptions of Their Artistic Abilities

Students described their artistic abilities with various subjective and sometimes ambiguous expressions. While some consider themselves to be confident and good in drawing with stickman figures, others evaluated themselves as poor at drawings because they could not draw still life. They perceived this subject to be linked to other areas such as communication of ideas, creativity, confidence and teamwork. Some considered themselves creative despite lack of drawing skills. Only 4 participants said that they were comfortable with rough sketching and very few expressed confidence in drawing skills. Among those who considered themselves as 'not good drawers (*sic*)', some said that they could put their ideas into bullet points or mind maps and some felt better with writing. This led to investigating the students' understanding of the necessity of having drawing skills which is covered next.

5.3.1.3 Necessity of Drawing Skills

Students had different levels of information about the relationship between IGD course and drawing/storyboarding skills. They had contradictory views on the importance of this skill. The idea of using software and technology such as 'Tracing' tool in Flash, to help with drawing was raised and comparison between hand drawing and digital drawings was mentioned. The ultimate aim of drawing to communicate ideas was recognised by some especially at the stage of communication with clients. What was encountered as necessity from the students' perspective was to come up with the initial ideas and the ability to visualize concepts such as characters and game level environments. Being able to communicate those ideas by

rough sketching using stick figures and annotation was considered to be adequate. Being highly skilled in drawing was not considered to be absolutely necessary or essential, though it is effective, useful and helpful. The necessity of drawing skills in Games Design was said to be dependent on what part of the industry one is trying to get into. It was believed that having this skill is necessary for concept artists but not for programmers. For those who cannot draw it was suggested that they should communicate their ideas through writing and describing or using diagrams or a mind maps. The idea of relying on more skilful team members such as concept artists to visualize their ideas for them was also raised as part of their conception of effective teamwork in production process.

5.3.1.4 Active Learning

The majority of students liked the active learning method of teaching and enjoyed the practicality of it as well as its characteristics in making them think fast and challenging their learning limits. The social elements of this method in terms of the opportunity of group work were appreciated by some. Active learning was encountered to be helpful for starting ideas and being creative. Although it was indicated that some people might find this style hard due to their personality, only one student did not prefer it and found it pressuring.

Two students shared their experience doing art subjects previously. They described the style of delivering art subjects as an indication of vague projects whereas at UoG they found the projects more structured with a goal of achieving an actual finished product. It was explained that people still can express themselves within structure. They explained that having a focus makes learning and doing projects easier while having too much freedom makes students daunted and worried due to having open-ended projects.

5.3.1.5 Game Preferences

In order to understand the important features of games from the students' perspective, 10 out of 14 participants in 2010 were asked about their game preferences. While 4 participants explicitly said that they played and

enjoyed various games, there were some with more specific preferences with respect to game type or genre.

A list of attributes were named to be necessary for a good game by different participants such as the story of the game, clear objectives, the appearance, the controls, 'good' (*sic*) tasks, a lot of actions, competitive edge, a wide variety of weapons, creativity in the character design, good character skills, good surroundings, making the player think and not having repeated 'stuff' (*sic*). It was also suggested that a game has to make the player think about the characters and about how and why everything is happening.

Overall, a range of games was named by students that they played: racing games, sport games, first player shooting games, adventure games, action games, war games, puzzle games and role playing games (RPG). However, there was contradiction in their game preferences and choices. Some preferred playing single player games and playing online games said to be much faster and much more difficult, especially for puzzle games.

5.3.2 End of Semester Questionnaires

The quantitative part of this mixed method research involved two surveys at the end of first semester in 2010 (Appendix E) and 2011(Appendix F). The ideas behind the design of these questionnaires consonant with the Action research aspect of the methodology of this study were explained in Section 5.2.5 and Section 5.2.6.

Despite the attempt to encourage students to participate in 2010 survey, only 7 students participated in the survey and their replies to questions did not stand for strongly expressed ideas. In 2011 although a reasonable number of 28 students took part, most answers were neutral or close to neutral (Appendices E2 and F2). Therefore, unfortunately it is hard to pull out significant results from the quantitative part of this study. However it is still possible to make qualitative remarks about this data which is presented in the next two sections.

5.3.2.1 2010 End of Semester Questionnaire

The results of 2010 survey monkey questionnaire suggest that at the end of first semester students decided neither on the most important element to a successful game nor on comparing the impact of good story versus good graphic in the success of a game. They also stayed neutral in identifying if games designers with poor drawing skills can rely on other team members to transfer their ideas.

From the drawing aspects proposed as necessary for storyboarding such as 'perspective', 'positive/ negative spaces', 'human proportions and gestures' and techniques like 'movement between frames' they only recognised knowing 'perspective' and 'movement between frames' techniques to be somewhat necessary and remained indecisive about the other elements.

Although they did not necessarily feel happier in using computer-based sketching tools and identified sketching on paper to be the best option, they recognised software and technologies to be helpful in overcoming poor drawing skills. They considered other techniques to convey the story of their games such as text description and mind maps too.

From their perspective being able to sketch roughly was adequate for storyboarding in Games Design. To some extent they were confident in their drawing skills for storyboarding and they felt a progress in this skill since starting the IGD course.

They found the Art workshop at the beginning of the course encouraging for the development of storyboarding expertise.

According to the answers to the open-ended questions at the end of 2010 questionnaire the most difficult parts of storyboarding are:

- Conveying ideas effectively and being able to break them down into smaller parts
- Drawing character faces and expressions
- Having to rework the whole idea of the game brief to suit the limitations of the project
- Drawing sprites for character animation

- Team work experience with people who did not do their part of work
- Finding drawing as a timely activity due to not being fluent in this skill

5.3.2.2 2011 End of Semester Questionnaire

The results of 2011 questionnaire suggest that at the end of first semester students did not decide if having drawing skills is a necessity for IGD students but were agreed that to some extent being able to sketch roughly is adequate for storyboarding in Games Design. They felt some extent of progress in this skill since starting the course.

They were to some extent agreed that software and technologies are helpful in overcoming poor drawing skills and positive effects of some tools such as 'Tracing' in Adobe Flash on their confidence in communicating ideas. They also considered using other tools such as mind maps and text descriptions to convey the story of their games.

They found the Art workshop somewhat encouraging for the development of storyboarding expertise.

According to neutral responses there is no evidence suggesting any result on the impact of confidence in communicating ideas by sketching but it was recognised that active learning method might help students to overcome their confidence problems more easily.

5.3.3 Longitudinal Study

The interview questions (Appendix G) and the subjects of discussions were introduced in Section 5.2.7. Analysis of the students' views is based on the emergent themes from interviews. These themes are coded as 'necessity of drawing skills', 'effectiveness of Art workshop', 'software vs. tutor-led storyboarding session', 'software attributes', 'other techniques', 'visual awareness', 'confidence', 'creativity', 'most challenging part' and 'learning style'. These codes are presented in interview summary tables in Appendix Z.

5.3.3.1 Necessity of Drawing/ Storyboarding Skills

Having drawing skills was seen as a visual aid which helps students to make, expand and communicate ideas in a quick and efficient way and also motivates them in starting and structuring their projects.

It was indicated that storyboarding plays the role of documentation of one's thought process in individual projects while for team work it would need to be accurately put across so everyone is completely aware of the process. The need for it was emphasised for team work. However, some make storyboards during or even retrospectively, after implementing their projects. This was said to be due to the nature of the project. For instance, for Animation and Games Design projects with so many different layers it is necessary to put start, middle and end by storyboarding but for some projects like 3D assignments a few sketches would be adequate and for website designing a general layout is enough.

It was implied that not everyone actually does storyboarding for the projects on paper. To start projects straight on computer is a preference for some, both to evaluate the limitations of the programs and also makes it easier for designs to be emailed to team members. The choice of storyboarding technique (written, hand drawn or made by software) was suggested to be a personal preference.

5.3.3.2 Effectiveness of the Art Workshop

Five students shared their views on the effectiveness of the 2010 Art workshop (Section 5.2.3). Three out of five students did not remember the workshop at all, either because of its insignificance or simply not attending the workshop since it was optional. Therefore, it is impossible to draw out any result on effectiveness of this workshop based on students' experience.

All of the participants opined their general views on the effectiveness of such workshops. It was indicated that although the point of the workshop could be seen, one or two workshops would not help and no one can learn it all at once. It was suggested that since not everyone is artistic, having weekly art or storyboarding sessions might be more beneficial, even for those who prefer programming side of Games Design. It was suggested to

devote the first 4 weeks of the first game design module, 'Introduction to Games Design', to storyboarding, its importance and the key points needed to get across in storyboards. It was suggested to emphasise that storyboarding does not necessarily need to be artistic. The idea of the possibility of using software which could help learning about storyboarding along with the workshops was raised. This led to investigating the students' views on application of such software and how it might compare to a tutor-led session.

5.3.3.3 Software versus Tutor-Led Storyboarding Session

Majority of students opined that software could not replace a tutor-led workshop and considered using software beneficial as long as it is blended with well-designed, tutor-led sessions. The reasons for considering the actual art sessions as the centre point were the need for interaction, feedback and approval on plans and the idea that in the workshop the subject can be explained deeper and tutor examples would help clarify self-learnt issues through software. Tutorial with a teacher was also said to be easier because the students could choose ideas for their projects at the session while with software they are forced to read things from a book without knowing when the related material comes and therefore it is boring.

It was indicated that students do not really have storyboarding tutor-led sessions and they are expected to do the storyboarding themselves. Therefore, with software they can invest some self-learning so when the tutor elucidates the material with a few simple samples in different modules regarding storyboarding, it will click properly. It was however implied that storyboarding through software involves spending time on learning the mechanics of the software instead of concentrating on the flow of ideas for storyboarding.

This investigation on students' views helps the final aim of this study in proposing a framework for design of an e-learning object to develop storyboarding skills. That was the reason to expand this discussion to gather the attributions needed for such software from students' point of view which is described next.

5.3.3.4 Attributes of Software for Learning Storyboarding

From the students' collective perspective, e-learning software to help developing storyboarding skills needs to have the following attributions:

- Providing basic templates that users can modify to make it relevant to their project and also allowing users to create their own templates
- Having some key point as to where to start
- Providing some pre-drawn icons
- Including basic drawing techniques for storyboarding (one of the big reasons that students do not do storyboards is because they feel that they cannot draw)
- Providing drawing tools
- Helping the user to structure storyboards
- Providing mind map tools
- Having video clips and recorded audio as well as visual tools
- Being easy to use, similar to existing software and not very technical so everyone can use it
- Having friendly user interface so the user would not need to read about it
- Being more "how to" type of software rather than theory-based

5.3.3.5 Other Techniques versus Drawing

Students indicated that using other techniques such as diagrams, mind maps, tracing tool in Flash and other tools in other software to communicate their ideas instead of drawing works to some extent. For instance having mind maps and diagrams helps to see the flow of the levels and layout of projects. Figures 5.5, 5.6, 5.7, 5.8 and 5.9 are samples of students' work toward their assignment in 'Introduction to Games Design' module.

Key Stage 2 Curriculum Notes
ENGLISH
 Writing
 ① Broader Vocabulary
 ② Use punctuation appropriately
 ③ Word Classes (Adjective, Noun etc.)
 ④ Spelling
 i) Analyse words into syllables
 ii) Use spelling conventions
 iii) Check spelling using a dictionary

MATHS
 Number and Algebra
 ① Number Sequences
 ② Fractions, percentages and ratios
 ③ Decimal ($\times 100$, $\div 100$)
 ④ Times-tables up to 10×10
 ⑤ Double and halve any 2 digit number
 ⑥ Number pairs i.e. $32 + 68 = 100$
 ⑦ Real life problems

Figure 5.5: Text Description Sample



Figure 5.6: Mindmap Sample

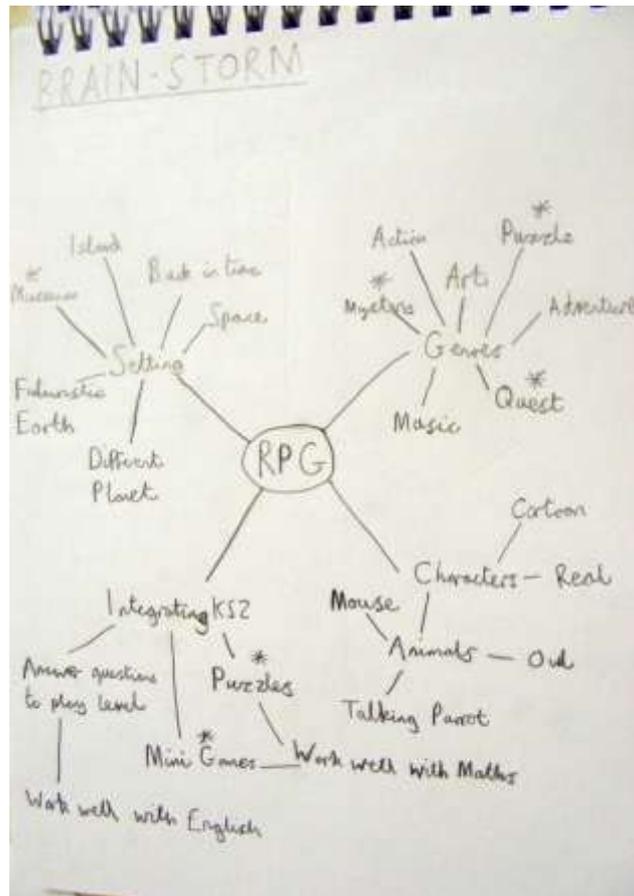


Figure 5.7: Diagram Sample 1

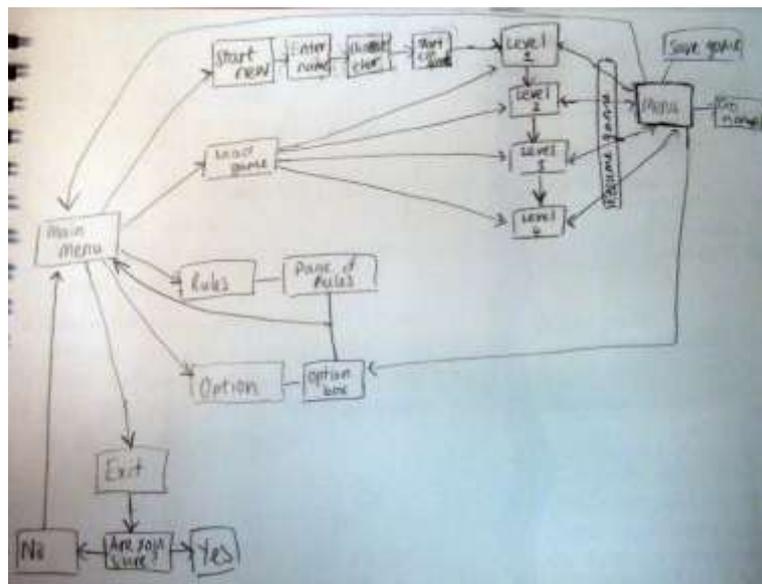


Figure 05.8: Diagram Sample 2

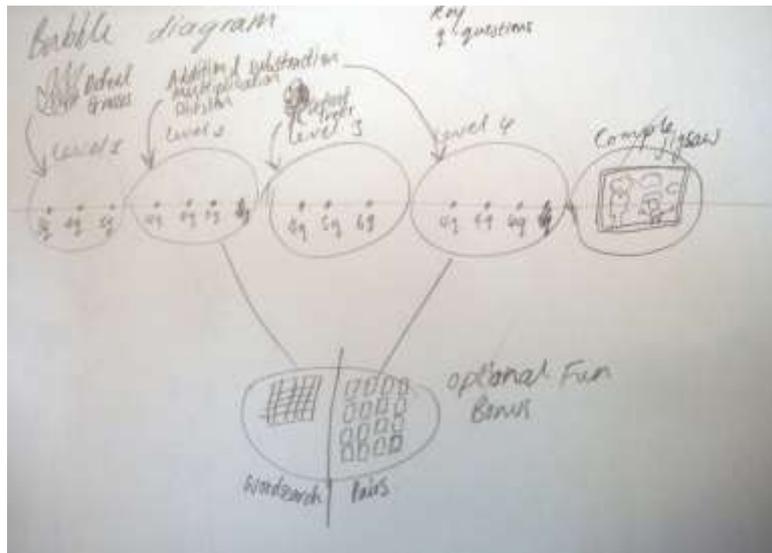


Figure 5.9: Diagram Sample 3

The main reason for those who preferred to sketch on paper was that they were good and confident drawers. From their perspective drawing on paper was much quicker compared with using software and they used software such as Flash in later stages to get digital representation of their scanned sketches to play with new ideas. On the other hand, the reason for those who found other techniques very useful and much quicker was that they were not good drawers. It was implied that software with readymade objects such as stick figures are even more preferable.

Regarding the quality of storyboarding no one suggested that it would degrade it to do it on screen. It was implied that sketches done by artistically minded ones, either on paper or on the screen would look good anyway because they know about drawing techniques such as shadowing and the details they need to put in.

Some suggested that although using software makes the process quite time-consuming, it is probably a good idea to use computer software for the quality purpose. They opined that rough storyboarding on paper is not encountered as a visual product and therefore the final product needs to be represented as a digital one.

The range of issues students took into account for evaluation of the method of storyboarding based on their skills leads to the next section to investigate if this relates to the issue of confidence which is described next.

5.3.3.6 Communication of Ideas and Confidence (Fear of Drawing)

The majority of participants perceived communication of ideas by drawing/storyboarding and confidence as related issues. However, students experienced the fear when going out of their comfort zone which is using software for skilful hand drawers and hand sketching for students with poor drawing skills. This suggests that confidence is not an abstract issue and is directly related to the strengths and weaknesses of students. Ideally if one can obtain hand drawing skills the preference is to do storyboarding on paper rather than on computer but since this would come with a lot of practice, to boost students' confidence in a realistic manner introducing techniques like facilities in Flash and not just focusing on the drawing is beneficial.

Also the confidence issue might be as a result of lack of knowledge about if the drawings can meet certain level of industry standards or whether they are consistent with other team members' drawing styles. However this type of lack of confidence also depends on students' personalities. Some are more sensitive to other people's judgments and some care more about the quality of communication and making sure their drawings are understandable while some seemed not to be bothered with either.

Seeing storyboarding as evidence for students' thought processes, time and effort and originality in their ideas for a project made some reject the idea of relationship between storyboarding and confidence. From this perspective lack of storyboarding in a project is not due to fear of drawing but due to negligence and perhaps copying ideas from other resources like the Internet.

5.3.3.7 Communication of Ideas and Creativity

It was opined that creativity is the needed element in the first place to make designers see what they are going to do and creative people can transfer their ideas across better.

Drawing either on paper or computer was said to help creativity at early stages of starting the projects, and gives insight of what to do, but starting on paper could be more creative than on computer due to software limitations. However, it was suggested that creativity could be anything and not necessarily communicated by drawing. For instance not being able to draw cannot stop creative people from making good 3D models one student explained.

A more technical student indicated that a technical minded person knows the limitations of the programs and the possibility of implementing ideas, whereas if one literally uses pencil and paper, it is design and creativity without limitations. On the other hand a more artist student opined that an artist creates things but needs the technical team says if it is actually possible to be done in the code; also they can give the ideas about other possibilities so it will look like better in the game.

5.3.3.8 Most Challenging Part to Design: Characters, Objects or Environment?

Nine students were asked which part they have found most challenging when visualising their game elements; characters, objects or environment. Drawing environments was voted to be the easiest element of a game to represent by the majority of participants. It is mainly because there are limited varieties of environments to visualise for games and also there are many work-around techniques to represent them. Also it is not the visual focus of the game for the players. Objects might become the most challenging part of design not because they require skills to be visualised but mostly due to being neglected until the late stages of design. According to eight participants, the most challenging part is the character design. Characters are the unique aspect and focus of each game and demands high skills for representations of their personality and details. This is

confirmed by the evidence from a participant's experience in their 3D module.

5.3.3.9 Learning Style and Storyboarding

It was indicated that there are visual learners who are still not confident with drawing. Therefore being a visual learner does not mean that one is able to visualise. Majority of students said that there is a point between learning style and storyboarding issue. Some explained that people with visual skills can actually see the story when drawing storyboards and therefore they can imagine everything more quickly. Some opined that people are either practical who tries things first or thinkers who do a descent research before doing anything. They argued that these characteristics depend on learning style.

5.4 Results

5.4.1 Summary of Results from Students' Initial Interview

According to the findings described above, students' background status and their ideas about the issues asked were generally similar for 2010 and 2011 participants. This indicates that the intakes were homogenous and therefore represent a sample of typical students recruited at UoG. This suggests a promising foundation for the trustworthiness of this study (Section 9.4). At the beginning of the course, very few respondents expressed confidence in drawing skills. The summary of students' views in the initial interview is represented in Table 5.1.

| Students' Views Based on Emergent Themes (Initial Interview) | |
|---|---|
| Perception of artistic skills | <ul style="list-style-type: none"> • Artistic skills are linked to other areas such as communication of ideas, creativity, confidence and teamwork. • One can be creative despite lack of drawing skills. |
| Necessity of drawing skills | <ul style="list-style-type: none"> • It is necessary to be able to come up with ideas and visualise them. • Communication of those ideas by rough sketching using stick figures and annotation is adequate. • The aim of drawing is to communicate ideas especially with clients. • Being highly skilled in drawing is effective, useful and helpful but not necessary or essential. • Having drawing skills is necessary for concept artists but not for programmers. • Non-drawers can communicate their ideas through writing and describing or using diagrams or mind maps. • A more skilful team member will visualize non-drawers' ideas for them. |
| Active learning | <ul style="list-style-type: none"> • Active learning is a fascinating method due to its practicality, social elements and its attributions to encourage creativity and thinking fast. • Active learning is a suitable method of teaching to help students do the course in the pragmatic manner. • Having structure in delivering the courses as well as defining the assignments towards reaching a real finished product is effective in students' learning and progress. |
| Expectations from the course | <ul style="list-style-type: none"> • To build up transferrable skills to be able get a job in the industry. • To get familiar with both creative and technical sides of Games Design. • To gain experience in actual games making and team work. • To have sketching or art-based tutorials at the beginning of IGD course. • To specify more time for concept work for story and character development. |

Table 5.1: Summary of Students' Views in the Initial Interview

Although asking students about their game preferences helped a better understanding about the typical students' views, no specifically relevant

points emerged contributing to the design of the e-learning object which is the final aim of this study.

5.4.2 Summary of Results from End of Semester

Questionnaires

After one semester, students expressed their views on their needs and addressed their difficulties in a more realistic manner compare to the initial interview which is due to their educational experience for one semester. To some extent they were confident in their drawing skills for storyboarding and they felt a progress in this skill since starting the IGD course. The summary of students' views at the end of first semester is represented in Table 5.2.

| Students' Views Based on Emergent Themes (End of Semester Questionnaires) | |
|--|---|
| Effective tools in communication of ideas | A combination of techniques are effective in communication of ideas are such as: <ul style="list-style-type: none"> • Rough sketching • Mind maps • Text description • Software tools such as 'Tracing' tool in Flash |
| Necessity of drawing skills | <ul style="list-style-type: none"> • Being able to sketch roughly is adequate for storyboarding in Games Design. |
| Storyboard assessment criteria (2010) | <ul style="list-style-type: none"> • Perspective • Techniques of movement between frames |
| Impact of Art intervention | Positive |
| Confidence (2011) | Active learning method might help students overcome their confidence problems more easily. |
| Challenges | <ul style="list-style-type: none"> • Conveying ideas effectively • Visualisation of character faces and expressions • Team work • Drawing |

Table 5.2: Summary of Students' Views at the End of 1st Semester

5.4.3 Summary of Results from Longitudinal Study

According to the findings from longitudinal interview 2010 IGD students after studying for three semesters and experiencing the course and

storyboarding requirements in various modules, they expressed a much more mature understanding, compared with the initial interview, of the nature of IGD course design and industry and also a more realistic view of students' capabilities in terms of communication of ideas by drawing/storyboarding. The summary of students' views in the longitudinal interview is presented in Table 5.3.

| Students' Views Based on Emergent Themes (Longitudinal Interview) | |
|--|--|
| Necessity of drawing skills | <ul style="list-style-type: none"> • Drawing/ storyboarding is an important skill to make, expand and communicate ideas in a quick and efficient way to start and structure projects. |
| Teamwork | <ul style="list-style-type: none"> • Drawing/ storyboarding skills has an important role in team work. • The role of technical minded members is in knowing the limitations of the programs and the possibilities of implementing ideas. • The role of artistic minded members is in designing and being creative without limitations. • These different capabilities are interdependent in teamwork. |
| Effectiveness of Art workshop | <ul style="list-style-type: none"> • Such workshops are effective only in making students think about what they are required to do in IGD course. • To address the storyboarding problem properly it is necessary to have weekly art/storyboarding sessions or at least devoting the first 4 weeks of the initial module to storyboarding. • The material needed to be addressed in these sessions are: <ul style="list-style-type: none"> • The key points needed to get across in storyboards, • Indications of the importance of storyboarding, • Getting the idea across that storyboarding does not necessarily need to have artistic merit and • Emphasis on enhancing students' visual awareness to enable students visualise their ideas in the first place. |
| Software vs. tutor-led storyboarding session | <ul style="list-style-type: none"> • Learning how to storyboard through software can only happen if it is combined in a blended learning manner with well-designed tutor-led sessions. • Any kind of software for this purpose needs to avoid book simulation with linear structure and should be as interactive as possible. • The reasons for considering the tutor-led sessions as the centre point are the need for interaction, feedback, approval on plans, deeper explanation of the subject and clarifying examples. • With software one can invest self-learning to be elucidated later by tutors in different modules. |
| Other | <ul style="list-style-type: none"> • Introducing techniques like facilities in Flash and not just focusing on |

| | |
|------------------------------|--|
| techniques | <p>the drawing is beneficial.</p> <ul style="list-style-type: none"> • Mind maps are helpful tools to visualize the flow of the levels and layout of a project. • How to storyboarding depends on the nature of the project. • Presenting the final product digitally is a necessity to show quality. • Storyboarding through software might distract the designer to concentrate on the flow of ideas. • To start projects straight on computer is a preference for some to evaluate the limitations of the programs. |
| Visual awareness | <ul style="list-style-type: none"> • Visual awareness is an essential factor in communicating ideas by storyboarding either on paper or on computer. |
| Confidence | <ul style="list-style-type: none"> • The choice of storyboarding techniques (written, hand drawn or made by software) is a personal matter. • The choice of storyboarding techniques is sketching on paper for skilful drawers and using software for those with poor drawing skills. This would make a comfort zone which could affect students' confidence in communicating their ideas. • Students' personality type and sensitivity to other people's judgments impact their level of confidence in communication of ideas. • Confidence issue might also be as a result of lack of knowledge about the level of standards required in the industry. |
| Creativity | <ul style="list-style-type: none"> • Creativity is an essential element for communication of ideas in Games Design. • Although communication of ideas by drawing is not the only way of being creative, it is a helpful tool at the early stages of design to enhance creativity. |
| Most challenging part | <ul style="list-style-type: none"> • Due to unique aspect and focus of each game, character design demands high skills for representations of characters' personality and details. • Character Design is the most challenging part of design. |
| Learning style | <ul style="list-style-type: none"> • Although being a visual person does not necessarily mean being able to visualise ideas, it is more possible to imagine the story and scenes more quickly for a visual person. • Students with visual learning style in the VARK system might have a better chance of communicating ideas in IGD field. |

Table 5.3: Summary of Students' Views in the Longitudinal Interview

Section 5.3.3.4 lists the attributions for an effective software design explained above which gives insight into design of a framework for design of an e-learning object to develop storyboarding skills which is final aim of this research.

Table 5.4 represents the summary of views of two students from ‘Business IT’ course indicated in Section 5.2.7. In one of their modules, to practice visualisation of ideas, students have to draw what they read and then implement it in the class to make them understand what has been drawn including the measuring techniques (demographic drawing). They indicated the use of applications for mind maps in their field of study.

| Business Students’ Views Based on Emergent Themes (Longitudinal Interview) | |
|---|--|
| Necessity of drawing skills | <ul style="list-style-type: none"> • Storyboarding motivates students to find out they can do the project. • Storyboarding helps to have structure when creating a project. • Storyboards help to know what to do next. |
| Software vs. tutor-led storyboarding session | <ul style="list-style-type: none"> • It is still good to have workshop alongside software to explain the subject deeper. |
| Software attributes | <ul style="list-style-type: none"> • Having basic modifiable templates. |
| Other techniques | <ul style="list-style-type: none"> • It would be useful and there are loads of applications for mind maps. |

Table 5.4: Summary of Business Students’ Views in the Longitudinal Interview

Business students’ views represented in Table 5.4 showed that their perspectives are in line with IGD students’ ideas which help triangulation.

5.4.4 Change in Views and Evolution of Perceptions

The changes in students’ views on the common themes of enquiry in this study such as ‘necessity of drawing skills’, ‘effectiveness of Art workshop’, ‘teamwork’ and also their perceptions of their needs are the focus of this section. The comparison between students’ views on a theme at different stages of their studies would help identifying the key elements from students’ perspective based on realistic interpretations rooted in their educational experience. As it is shown in diagrams of triangulation of views in this section (Figures 5.10, 5.11, 5.12 and 5.13), students’ perspective of the nature of the course got more mature towards the longitudinal interview.

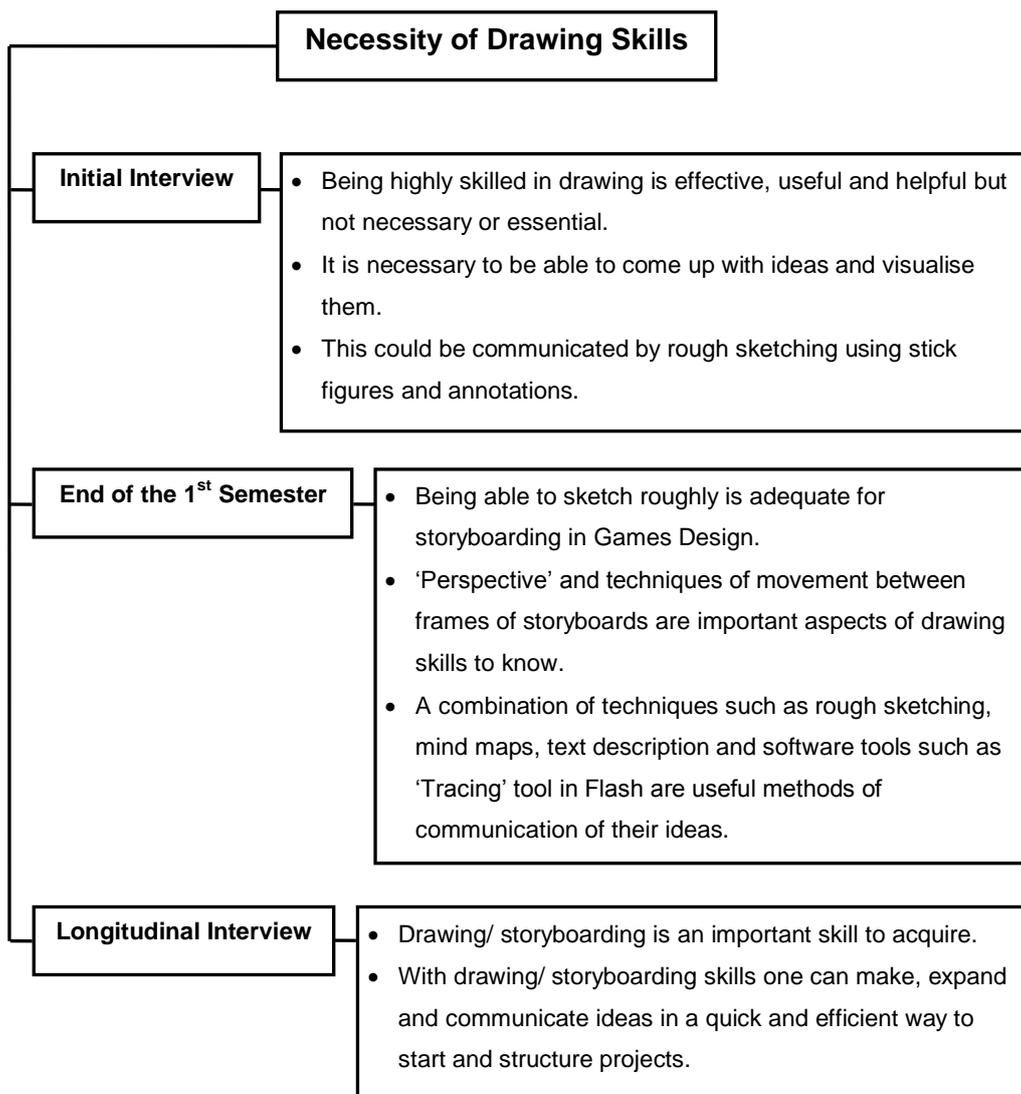


Figure 5.10: Triangulation of Students' Views on 'Necessity of Drawing Skills'

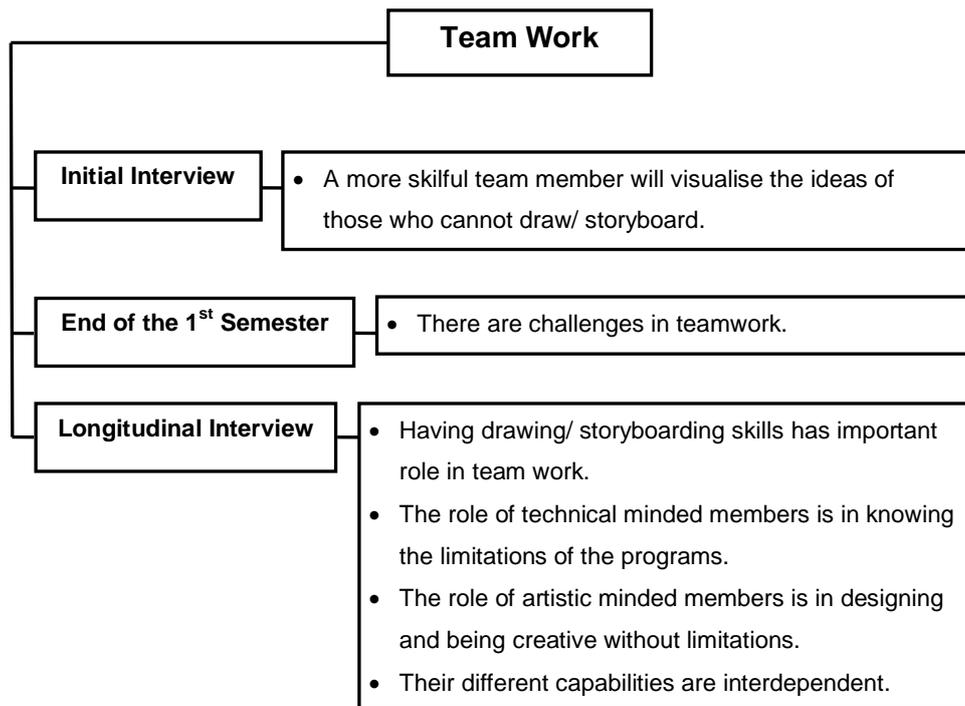


Figure 5.11: Triangulation of Students' Views on 'Teamwork'

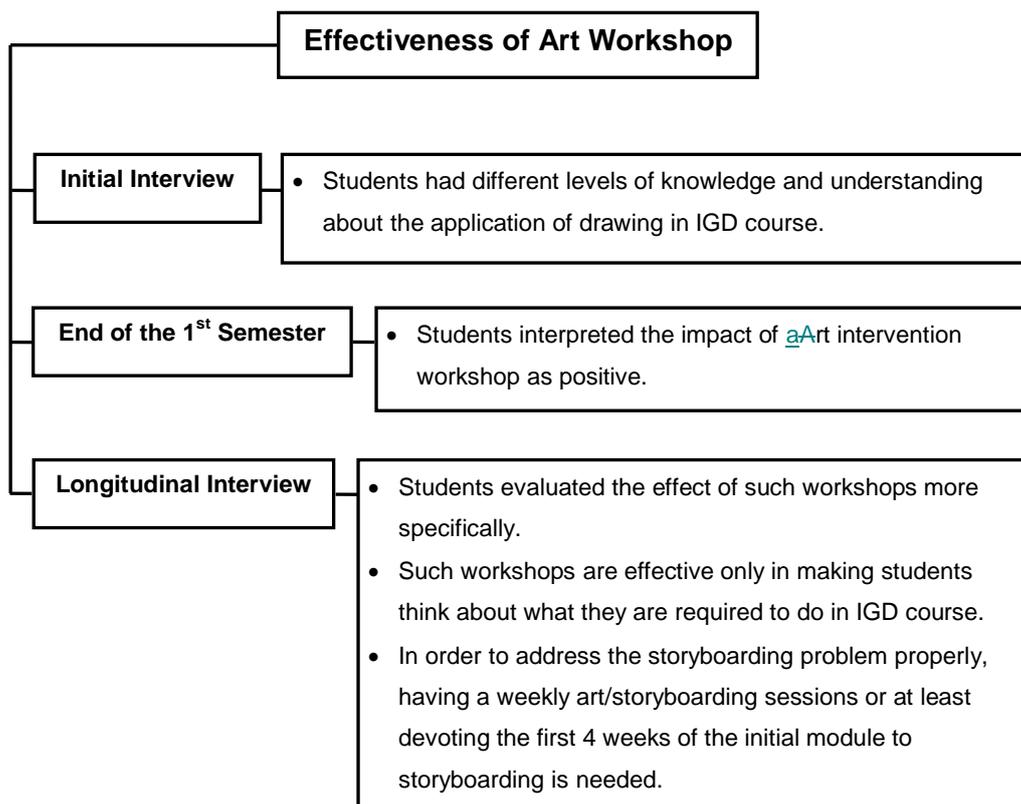


Figure 5.12: Triangulation of Students' Views on 'Effectiveness of Art Workshop'

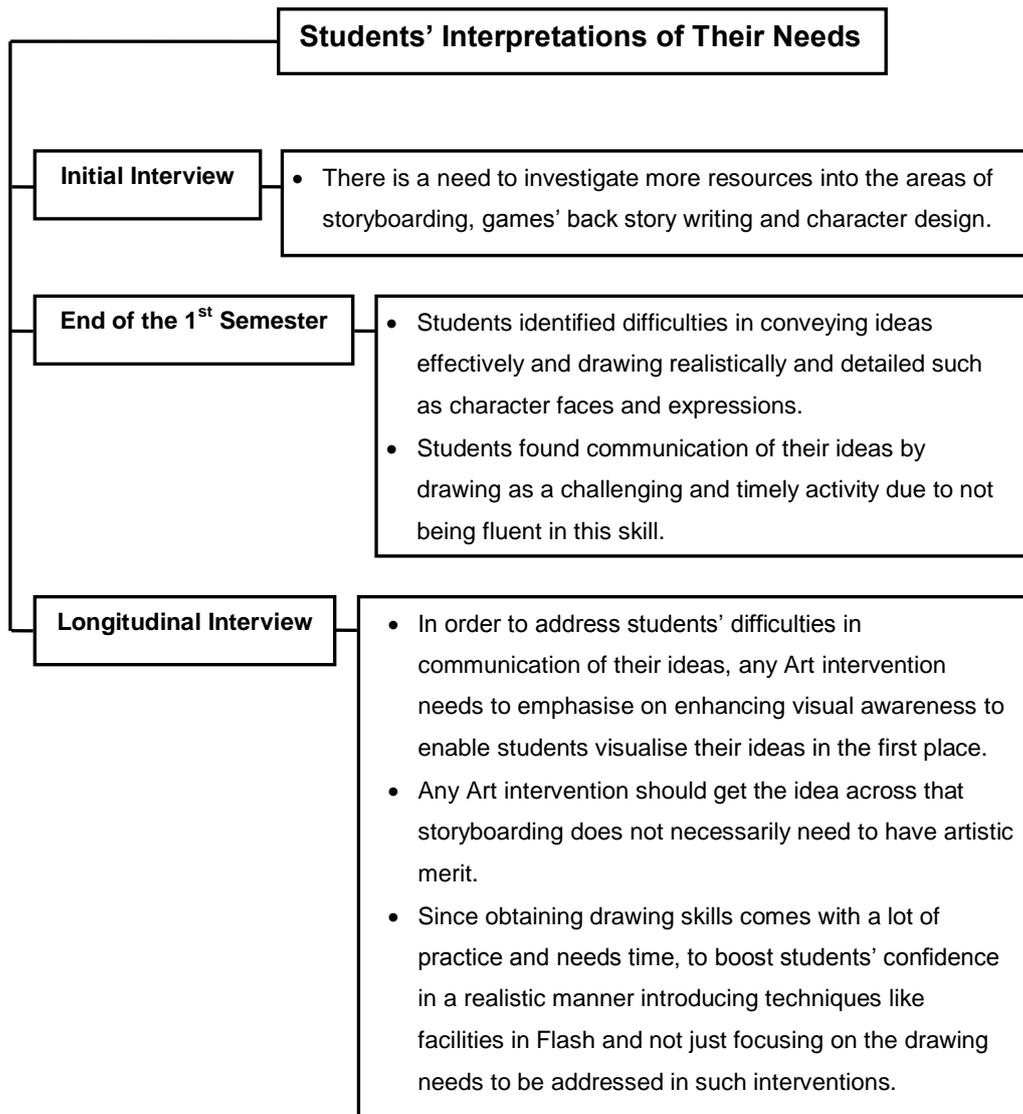


Figure 5.13: Triangulation of Students' Views on 'Interpretations of Needs'

5.5 Conclusions from the Analysis of the Results

This chapter was focused on views of two groups of randomly selected students from the start of their course in Level 4 in academic years 2010 and 2011 in order to develop an understanding of their attitudes and motivations with respect to storyboarding and investigate the effect of a drawing tutorial intervention. Their views were collected at the beginning of the course (Section 5.3.1) and at the end of the first semester (Section 5.3.2). For the 2010 cohort, their views were collected in Level 5 in a longitudinal study (Section 5.3.3). The results of each stage were analysed and interpreted in Section 5.4. The evolutionary nature of students' views

on the common themes of enquiry like 'necessity of drawing skills' and 'effectiveness of Art workshop' and 'teamwork' and their interpretations of their needs were presented in the same section.

According to findings of this part of the research based on students' perspective, in IGD field, it is important to acquire drawing/ storyboarding skills specifically for teamwork which also helps creativity. In order to address students' difficulties in communication of their ideas by drawing/ storyboarding a short intervention workshop is not adequate and specifying more resources such as a module or several sessions into the areas of storyboarding, games' back story writing and character design would be more effective. Regardless of the personal choice of storyboarding techniques which is sketching on paper for skilful drawers and using software for those with poor drawing skills, the focus of any Art intervention needs to be on the following element in a structured goal-based pragmatic manner:

- Emphasise on enhancing students' visual awareness to enable students visualise their ideas in the first place.
- Storyboarding does not necessarily need to have artistic merit.
- Introducing other techniques like software facilities for those with poor drawing skills.
- Providing students with enough knowledge about the industry standards in terms of needed level of drawing skills to boost their confidence and also final presentation requirement in digital format.
- Emphasis on character design.

Also since all IGD students need to communicate their ideas in various modules individually and as a member of a team during the course, their reliance on someone else to visualise their ideas for them is an important point to be addressed.

The results of this part of study suggest that learning how to storyboard through software can only happen if it is combined in a blended learning manner with well-designed tutor-led sessions. Considering this, addressing the final aim of this study in design of a framework for an e-learning object might involve some design aspects of a tutor-led session too. Taking into account students' fascination to active learning method one suggestion is to

use this teaching method for intervention and make the e-learning object as interactive as possible and hence avoid book simulation with linear structure.

In respect of the issue of trustworthiness for this part of the study, data was collected under no bias and a reasonable number of students participated in the study. According to the findings at students' initial interview the intakes in 2010 and 2011 were homogenous and therefore represent a sample of typical students recruited at UoG. These together with accurate presentation of data and supporting the findings with data and using triangulations of views make this part of the study credible and confirmable. The consistency in research questions, data collection and analysis (Bailey, 2007) also makes this part of the study dependable.

Recruiting students for IGD course without art background as prerequisite might increase the number of intakes at the beginning and therefore be encountered as a financially profitable strategy by the University management. However, the retention statistics and the problems observed by IGD team at UoG do not suggest so (Section 3.3). For Higher Education institutions which offer free education to students, the students' recruitment strategy might be different by not having financial purposes and biases. As a result they might recruit students with more relevant and necessary prerequisites. In this regard, this study would not be transferable to such educational systems.

At this point an understanding of the students' attitudes and motivations with respect to storyboarding has been developed, their challenges are identified, the effect of a drawing tutorial intervention has been investigated and suggestions to address their challenges are collected and interpreted. In order to identify criteria to assess the quality of storyboards, experts from other institutions have been interviewed. The next chapter will analyse and discuss their perspectives regarding such criteria.

6 Data Analysis and Discussions-Part3

Experts' Perceptions of Storyboarding

6.1 Introduction

The research design and data gathering procedures in regard to identifying criteria to assess the quality of storyboards and investigating the effectiveness of the Art intervention workshops at UoG were introduced in Section 3.9.

This chapter addresses Objective 3 and second part of Objective 4 of this study (Section 1.2). It begins with the methodological approach to this part of the research which is followed by the description of experts' views on the central theme in Procedure Section. The results will be presented next and the interpretation and relevance of the description to this research is presented as a conclusion at the end. In order to maintain credibility and confirmability of this part of study, attempts have been made to present accurate representation of data and supporting the findings by the data gathered (Bailey, 2007).

6.2 Methodological Approach

A taster sheet (Appendix I) from 2010 students' work sample including their first drawings from their sketchbook, their drawings at the intervention workshop and their storyboarding for their final project was prepared to be discussed by experts. For the 2010 cohort, this study continued to Level 5 in their 'Animation for Games' module in which they made animatics as a storyboarding method to make a game trailer for group projects. The animatics produced for this module by five groups of students were collected for further assessment by the panel of experts (Appendix K). These samples were discussed with experts in another interview (Appendix J) to seek their strategy in using animatics and also to delve deeper into the criteria the experts use for the assessment of storyboarding/animatics.

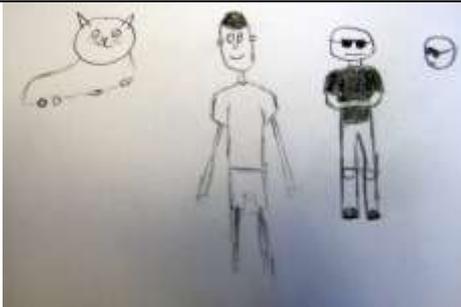
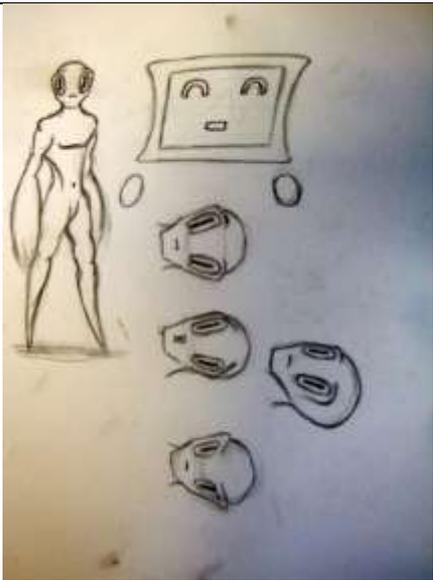
6.3 Procedure

The analysis and discussion of tutors' (coded 'experts') views is the focus of this section. The themes emerged from analysis of experts' ideas gained in interviews are coded as 'effectiveness of Art workshop', 'visual awareness', 'other techniques', 'storyboarding software', 'art school lessons', 'criteria', 'weighing criteria', 'confidence', 'teamwork', 'animatics' and 'students' psychological profiles'. These codes are presented in experts' interview summary tables in Appendices T1, T2, T3, T4, T5, T6, T7 and T8.

6.3.1 Effectiveness of the Art Workshop

According to experts' views, an optional one or two hour intervention workshops at the beginning of IGD course cannot play a major role in solving students' problem in communicating their ideas. However, it could be effective in raising this issue and making students aware about the need for acquiring some skills in terms of storyboarding (Expert 1). According to Expert 6 for such a short art intervention, a tutor at most can talk about drawing storyboards to help students develop ideas and thinking about drawing and interaction with characters. Expert 2, referring to the threshold concept (Meyer and Land, 2003), said: "The impression I get from the intervention 2010 is that it is a very quick dipping your toe into threshold concept and I'm not sure if that threshold has been breached by the time they get to week 11."

Studying the two interventions described in Section 5.2.3 shows the direct influence of the tutor and teaching material on students' work both in the workshops and later on their projects. For instance Expert 2 said: "The intervention in UoG has really worked for most students in using more creative side of brain and less mathematical area of the brain. My impression is that they've been given freedom to do things without being judged." This reflects the aim and mood of 2010 workshop described in Section 5.2.3. On the other hand students' works in 2011 intervention were highly influenced by the tutor's focus on character design (Appendix L). Table 6.1 shows some examples.

| Influence of 2011 Art Intervention Workshop on Character Design | |
|---|--|
| Sketches at Intervention Session | Final Presentation |
| Student Code: MAT17 | |
|  |  <p>Non-Playable Characters</p> <p>Fiona 5 years old Female Can be found in the garden Frankie is making her birthday present</p> <p>Frankie's Magic Flowers</p> |
| Student Code: MAT23 | |
|  |  <p>Characters</p> <p>Robert Vanquize A friendly NPC. Chief police officer of New York.</p> |
| Student Code: MAT10 | |
|  |  <p>Characters and Bios -Lux-</p> <p>Narrative Role Lux, our Hero, accompanied by Dux, Philux and Wikki, has been sent to find a way to save his home planet from the brink of environmental collapse. He will venture the galaxy learning the ways of other civilizations to find all the tools and knowledge he needs to save his world and anyone else who needs a hand along the way.</p> <p>Gameplay Role Lux is the player character. His primary goal is to save his home world by gathering technology to build a machine capable of doing so. His appearance will vary as multiple costume options are available.</p> <p>Menu</p> |
| Student Code: MAT20 | |

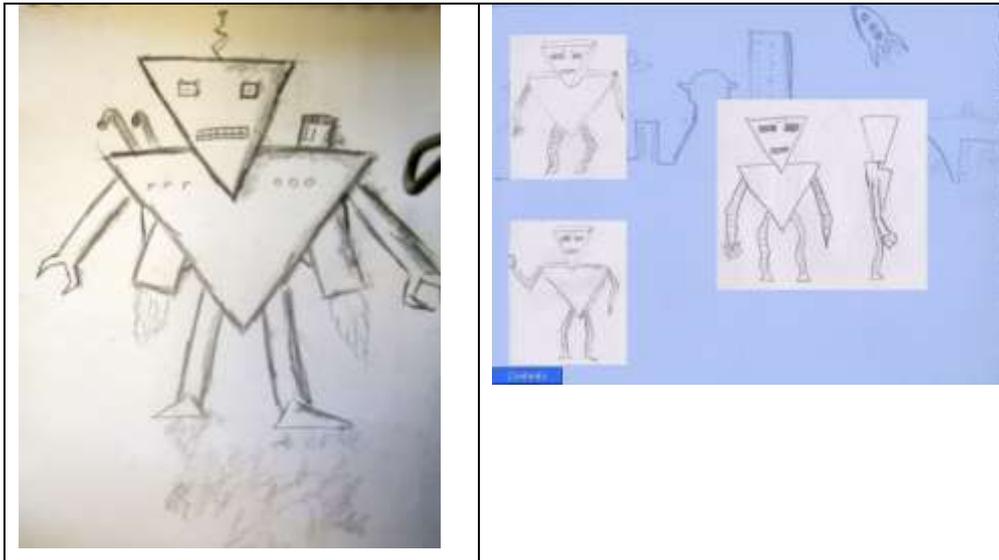


Table 6.1: Influence of 2011 Art Intervention Workshop on Character Design

In regard to addressing students' difficulties in communication of ideas by storyboarding, experts suggested that there are more fundamental issues which are hard to be covered in a short workshop. Investigating their views is the subject of next section.

6.3.2 Visual Awareness

According to the experts, lack of drawing/ storyboarding skills is not the source of problems and challenges that students face for communication of their ideas. For instance, majority of the experts opined that using basic elements like stickmen is acceptable in storyboarding, which is in line with what literature suggests (Roam, 2009). However, the main problem identified is the lack of compositional and observational skills and the ability to think about value and contrast issues which all play fundamental roles in being able to draw important and central components of a scene and therefore being fluent in communicating ideas. Expert 2 said: "Students who lacked the fundamental visual understanding of what was good and what was not and their brains cannot translate from what they see, filter it and output what's important couldn't benchmark their own work against other people very well." This experts' experience suggested that students who did not have a sense of visual awareness did exceptionally poorly, no matter what tools the tutors gave them. This was confirmed by Expert 1's view which asserted that although some students like the idea of using techniques such as 'Tracing' tool in Adobe Flash, these tools are only

effective if one can recognise what elements will work and what will not. According to Expert 1, Expert 7 and Expert 8 students need training in order to attain visual skill to be able to know where to start, break down the elements, think compositionally and include the necessary elements and their relationship in each scene of a storyboard. For example, if one draws a hand in front of a face bigger, it means that s/he is thinking about the right things (Expert 3). Teaching these skills is like teaching students a different language providing them with a new set of vocabulary which takes time but enables them to express how they feel when they look at certain objects (Expert 1). Since teaching these skills is the focus of courses offered by Art schools, next section is concentrating on the ideas gathered from experts in an Arts department.

6.3.3 Lessons from Art Schools

According to experts storyboarding for animation has a lot in common with storyboarding for games. Therefore their views (Expert 1, Expert 6, Expert 7 and Expert 8) based on their experience within Animation course can give insights into designing the framework as the last objective of this study (Section 1.2).

Experts from Art departments emphasised that drawing is so important that everyone in Animation courses should do it. They believe that everyone can be taught drawing on some level which is supported by literature (Edwards, 2008) and anybody could draw with practice (Expert 7 and Expert 8).

In some Art departments (Expert 1), they do not have specific modules for storyboarding. However, they take the time of the first modules on lots of classical painting that starts with composition and giving the students the vocabulary by teaching them observational skills so they can express how they feel. Another strategy employed by Expert 1 to strengthen the students' visual skills, is to train them to come up with the short story by teaching them the certain elements of simple story writing.

In another Art school (Expert 7 and Expert 8) they have specific modules for storyboarding and animatic for 2D animation employing film making

storyboarding techniques with supporting modules such as 'Life Drawing', 'Illusion of Light' and 'Character Design'. Therefore from the beginning, students learn drawing foundations such as drawing objects and characters, shading, colour, perspective, moving objects, and life drawing in an extensive manner. Later they focus on visualisation where students have to do micro-studies. For instance in visualising landscapes they study the effect of the atmosphere on the landscape such as darkness, haziness or being rainy. By practicing these two parts (learning foundations and doing micro studies) they can create assets for the games. In their storyboarding module they emphasis on providing enough information on the status of camera for the viewer and addressing the aspect/ratio issue for different mediums such as TV, wide screen or mobile screen. The strategies they use in this module are:

- Getting the students to observe their environment (for instance observing people drinking tea to get the idea of timings, actions, the perspective and how it looks)
- Showing students lots of examples of storyboards (those which work, those which do not work)
- Getting them to do trial/ error storyboard as a method to explain their ideas and
- Having constructive critical feedback within the whole group including the tutors and the rest of students

Expert 7 and Expert 8 described the step by step techniques to storyboarding that they use which gives an insight to a functional procedure in an Art intervention design for IGD students later in this study:

1. Mind maps - purely idea generating (whatever comes to the head)
2. Mood board - visualising ideas by:
 - Collecting images that explain the intention and the concept
 - Drawing certain scenes or certain ideas
 - Creating some effect
 - Creating some movements by videoing themselves and recording how a certain movement happens

(With the mood board one should be able to guess the theme, ambient and style of the animation)

3. Story development- developing a theme based on a random selected sound clips (e.g. a scandal, a love story, etc.) and setting a storyline based on that theme
4. Reflective Visual Journal (RVJ) – putting storyboards and animatics on a blog with feedbacks or annotations on them

Since mastering the skills taught extensively in Art schools might not be possible or realistic for IGD students at technical Universities such as UoG, the possibility of using other techniques in an effective way was investigated which is presented next.

6.3.4 Other Techniques versus Drawing

According to experts, students going to technical Universities who are skilful in drawing are at an advantage compared with those who have to learn drawing alongside other things. However, all experts implied that in order to communicate ideas by storyboarding one does not need to be a professional artist. As emphasised in previous sections provided that students acquire the visual awareness, they can use rapid prototyping tools and techniques that are used in industry all the time according to Expert 2. Rapid prototyping techniques are such as downloading pictures from the Internet, cutting bits out, collaging them together in Photoshop , using 3D mock up facilities, modelling, rendering, taking images into Photoshop or AfterEffects, drawing on top of them, finding a picture of a character from a movie, using a pose suitable for the intended character, drawing on top of that, using 'Tracing' tool in Flash, using bipeds or perspective facilities in 3DsMax, etc. (Expert 2, Expert 3, Expert 6, Expert 4, Expert 7, Expert 8) .

The idea of software for rapid prototyping described above might suggest the possibilities of doing storyboards via software from scratch. Experts' perspective on this matter is described next.

6.3.5 Storyboarding Software

As suggested in previous section rapid prototyping techniques are used in technical departments as a functional and realistic tool to communicate ideas by storyboarding. Although there are storyboarding software such as

“Storyboard Quick”, “Moviesoft”, and “Storyboard Pro” (Expert 5), none of experts in Art and technical departments encourage their students to use these software. Expert 5 asserted that students understand storyboarding more if they do it themselves. Expert 2 and Expert 3 also suggested that students can create their storyboards however best suits them and the final end product.

6.3.6 Criteria to Assess Quality of Storyboarding/ Animatic

According to Expert 5 storyboarding in IGD modules is only one element of the assignments for making a complete game and therefore the storyboarding skills expected from IGD students depends on the context of the assignment more than anything else. For instance in an Animation module, students do the storyboard for cut scenes or for the trailers rather than for game play, therefore the criteria to assess storyboards is from film in particular but for Games Design modules they use layout charts to show the game play.

In order to devise a set of criteria to assess the quality of storyboards three broad perspectives could be taken into consideration: Graphic Design perspective, Film/ Animation perspective and Games Design perspective which are described in the next three sections. Criteria for assessment of animatics and the issue of weighing criteria in evaluation of storyboarding/ animatic are presented afterwards.

6.3.6.1 Graphic Design

From a Graphic Design perspective, criteria for evaluating drawing skills may involve some or all of the following: effective use of line, positive and negative space, illusion of perspective, revealing form through light and shadow, level of detail, observational skills, composition and balance, proportion, scale, information value, use of colour, drawing style, character proportions, gestures and poses, indication of movement, consistency, completeness and relationship to background environment.

According to Expert 9, Expert 5, Expert 2 and Expert 3, the criteria to assess storyboards from Graphic Design perspective are:

- Fitness with materials

- Positive and negative space (contrast)
- Perspective
- Shading

According to Expert 2, any material used for storyboarding whether traditional or digital, needs fitness to be effective and aesthetically pleasing which is the reason for defining the first criterion above.

When applying the criteria, the Panel of experts noted that IGD students appear to have trouble with analysing their illustration into component elements which means that they struggle to think compositionally as illustrated in Figure 6.1. This drawing can be set in contrast to Figure 6.2 where the criteria are satisfied e.g. good contrast, perspective, shading and finesse with materials.



Figure 6.1: Storyboarding Sketch 1



Figure 6.2: Storyboarding Sketch 2

From another point of view the elements necessary for the basic sketching vocabulary can be categorised into:

- Characters (figure- human form)
- Environment (landscape)
- Objects (still life) sometimes referred to as props (*sic*)

According to Expert 2 in this way the criteria for observational drawing are applicable to these elements. For instance, environment drawing needs perspective and contrast and props need perspective and fitness with materials. According to Expert 6, even in the drawing stage students should be thinking of contrast and shading and character development. Majority of experts identified characters the most challenging element to draw since it is harder to hide the drawing deficiencies in creating faces as the most complex part (Expert 7 and Expert 8). Figure 6.3 represents a character design sample in which the student was struggling to illustrate the complexity of the face gestures while in Figure 6.4 the character design process is achieved successfully.



Figure 6.3: Character Design Sample 1

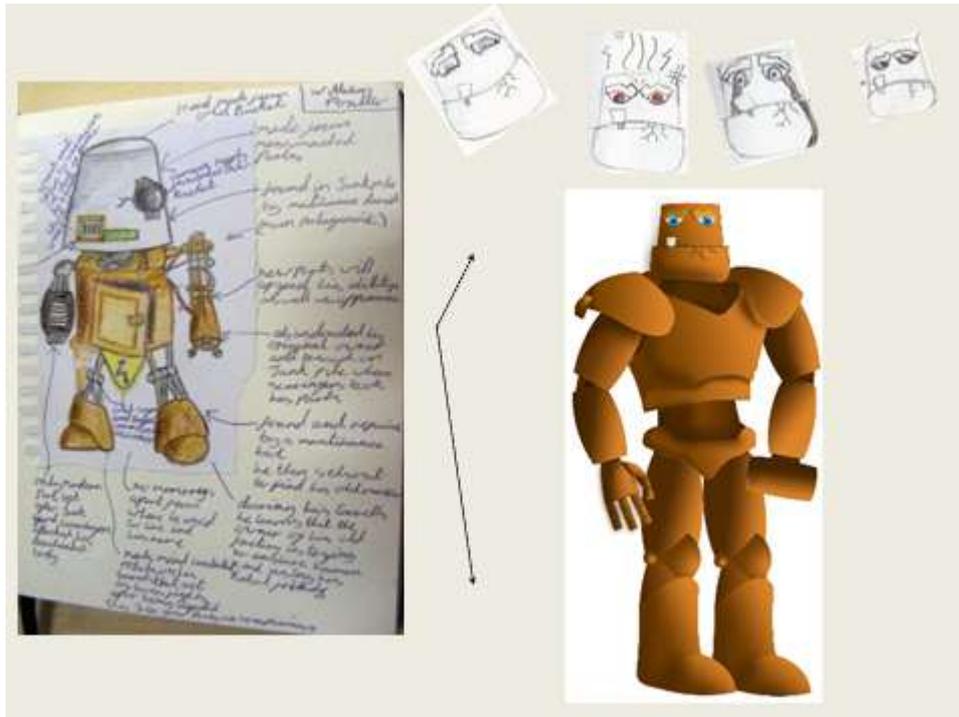


Figure 6.4: Character Design Sample 2

6.3.6.2 Film/ Animation

The criteria from Film/Animation are considered by most experts when evaluating students' storyboards are as below:

- Time sequence (having a beginning, middle and end)
- Pace
- Location of interaction
- Characterization (presenting the people as personalities, providing details about the other actions and things characters are doing as they interact)
- Annotation (emphasizing actions and emotions by adding visual annotations to the sketches if needed)
- Camera view points

According to Expert 5 the criterion 'pace' in terms of games refers to how much is happening to the play as users play the game and how fast the narrative is driven. In this regard pace as the number of frames being shown (frame per second) is not used in this context and it is a factor which depends on the hardware.

Figures 6.5, 6.6, 6.7 and 6.8 are storyboarding samples from 2010 and 2011 cohorts. While Figure 6.5 illustrates a digitally designed storyboard, in Figure 6.6 the student has scanned the hand sketched storyboard completed by annotations for the final presentations. Figure 6.7 and Figure 6.8 are two examples of hand drawn storyboards. In a vague sequence of frames with no annotation the storyboard illustrated in Figure 6.8 can be set in contrast with the one as Figure 6.7 which satisfies most of the film/animation criteria listed above such as time sequence, location of interaction, annotation and camera viewpoint.



Figure 6.5: Storyboarding Sample 1

Introduction Cutscene

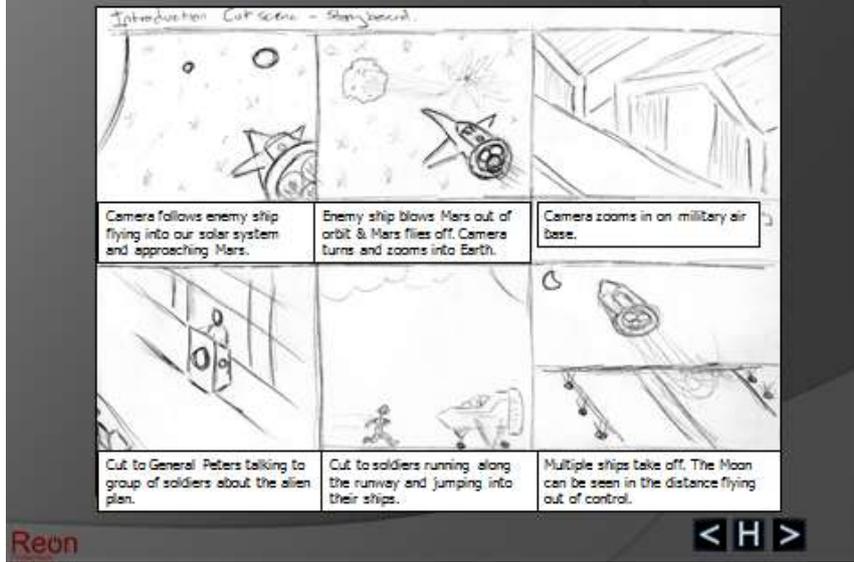


Figure 06.6: Storyboarding Sample 2



Figure 6.7: Storyboarding Sample 3

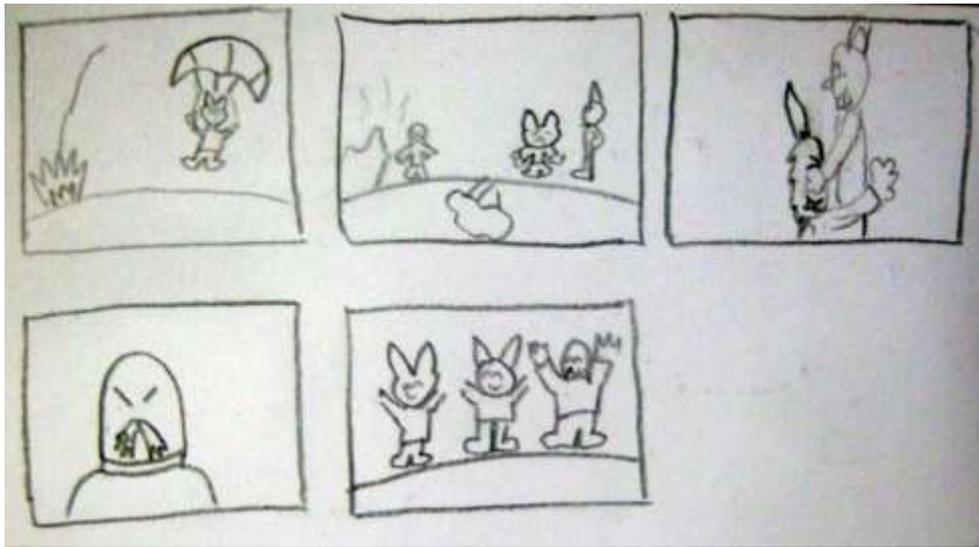


Figure 6.8: Storyboarding Sample 4

6.3.6.3 Games Design

The criteria initially considered from Games Design perspective were:

- Level of uncertainty
- Aspects of user controls (AoUC)
- Feedback (reduce short term memory load to help users recognise easily what to do in a situation) and
- Accessibility (cater to universal usability)

However, according to Expert 5, students do not normally create storyboards for the actual moment to moment game play and if needed they use layout charts to represent how the game elements would play together. Therefore, 'level of uncertainty' does not mean much in the context of storyboarding. Figure 6.9 is an example of level chart design and Figure 6.10 is an example of game layout presentation taken from students' projects.

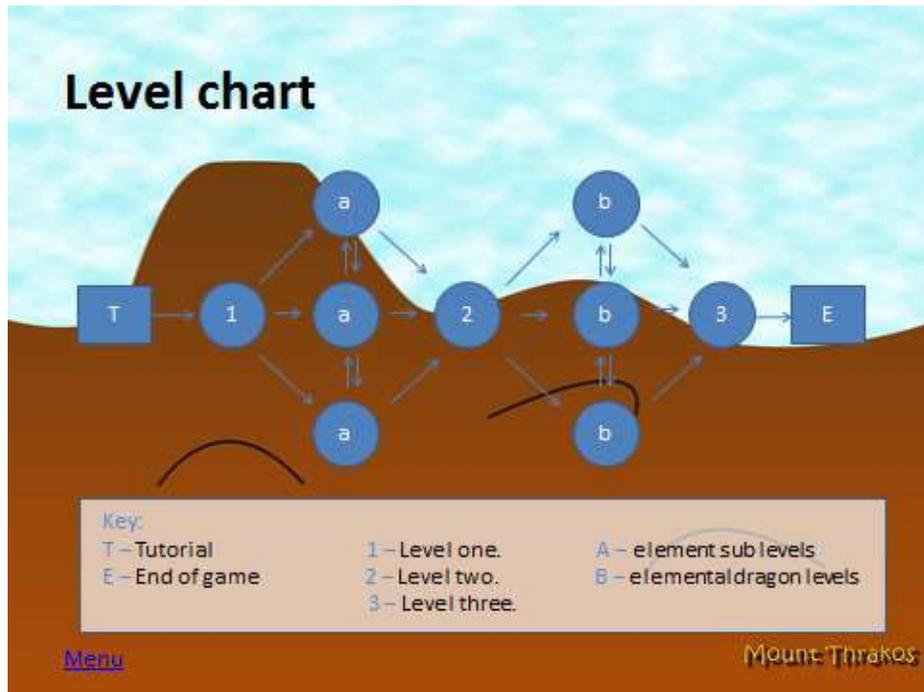


Figure 6.9: Level Chart Sample

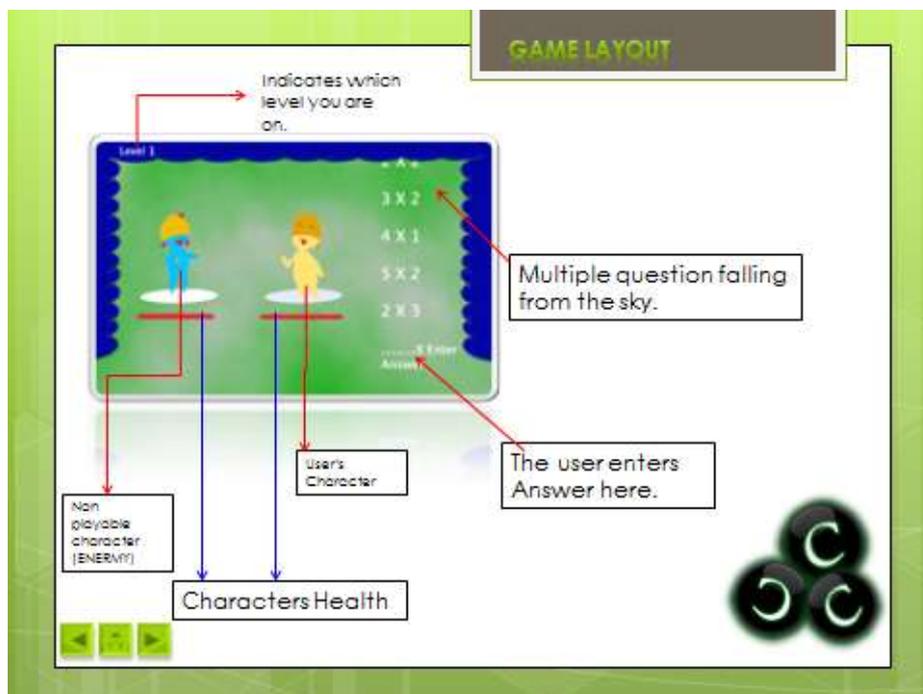


Figure 6.10: Game Layout Sample

'Feedback' criterion was explained by Expert 2 to be something that can only come from interaction, so is not applicable in a non-interactive format like storyboard or animatic. Regarding 'accessibility' criterion Expert 2 explained: "This should be linked to a target market or demographic. There is space in the wider spectrum of games for hard-core perma-death fans

and casual short session gamers without much extrinsic knowledge of game mechanics. The key is for the designer to be aware what part of the spectrum their game is targeted to, and why.”

In this regard the initially proposed criteria to assess storyboard quality from Games Design perspective is not relevant enough in the context of what students learn and do in IGD course. It was suggested by Expert 2 to consider ‘ease of marking’ as a factor for the setting of the criteria, as most tutors will not be able to spend more than 20 minutes watching, comparing, evaluating, marking and writing feedback per item. This expert said: “I usually limit my criteria to a maximum of seven criteria per assessment. Five of these will be directly linked to the learning outcomes for the module and one or two will be good practice or linked to the wider programme outcomes such as employability, good academic practice or industry awareness/practical viability.”

6.3.6.4 Animatics

According to Expert 5, animatics can get the feeling of the story across very effectively by using movements and 2D shapes with music and helps communication of ideas relatively straightforward (*sic*). Expert 3 explained that a storyboard represents an initial idea which enables tutors to give formative feedback but in an animatic the tempo and pacing is also shown. Therefore it is a kind of a proof to the concept of the timing too. Expert 2 indicated that making animatics is not encouraged for Games students in their department because although animatics can show storyline or mood and some movement, they are very poor at simulating gameplay. Therefore animatics are much more for Animation students. Expert 2 implied that for communication of ideas in Games Design they encourage the students to make Game Design Documentation which includes concept art, flowcharts for actions and narrative, move lists and control systems.

The criteria to evaluate animatics were suggested (Expert 2) to be as below under the general consideration of how effective the communication is:

- Draftsmanship/ Aesthetics (is it skilfully drawn? Are elements clearly depicted and immediately identifiable?)

- Mood (does the animatic convey the overall mood well? E.g. edgy, perilous, funny, romantic, etc.)
- Action and Dynamism (does it show movement effectively? This includes signifiers like arrows, 'bang!' (Figure 6.11) overlays or wobble/movement lines, or camera shake)
- Pace
- Gameplay (can the viewer tell what sort of gameplay happens in this game? E.g. is it first person shooter (FPS), RPG, platforming, stealth, or fighting etc.)

Figures 6.11 and 6.12 are samples of animatic frames sequences created by Level 5 students as a group project prior to creating a cinematic trailer in their Animation module at UoG. When applying the criteria, the panel of experts noted that some students at this stage of the study and even in a group project appear to have trouble with visualising ideas with good quality as illustrated in Figure 6.12. This sample can be set in contrast to Figure 6.11 where the criteria for animatics are satisfied e.g. good aesthetics, mood and action and dynamism.



Figure 6.11: Animatic Sample 1

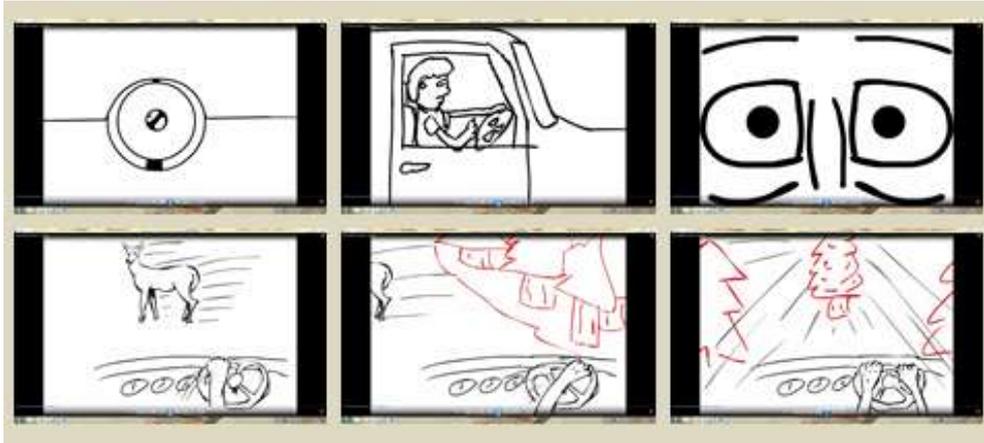


Figure 6.12: Animatic Sample 2

6.3.6.5 Weighing the Criteria

As explained above the elements of criteria were all discussed with the experts but some criteria are considered in assessment as more key ones rather than the others. For instance Film/Animation criteria were considered as higher priority than the Graphic Design ones by Expert 5. Therefore the idea of weighing the importance of criteria was brainstormed with the experts. According to Expert 2, weighting the elements of criteria allows criteria to be constructively aligned with the learning outcomes (LO). It also allows universal good practice criteria (e.g. academic rigour or market positioning/awareness) that may come from programme level LOs, to be explicitly assessed and tracked in the modules without eclipsing the module LOs. Expert 3 said that considering weighing the criteria is inevitable, however it was described that it is one of those subjective matters where one group or one person may just approach it in an entirely different way. In this regard it was suggested that it should be thought of as a very generic criteria like 'visual clarity' and be titled in a vague manner.

6.3.7 Students' Psychological Profiles

Studies with human participants are complex in any field (Bailey, 2007). Studying Games Design students is no exception. Experts interviewed in this research discussed or evaluated their teaching experience referring to the issues like impact of students' personality, learning style, confidence and other issues rooted in students' psychological profiles. As an example of rare situation, Expert 5 said: "Sometimes occasionally I find that a

student has natural ability for drawing/ storyboarding but unless they try they wouldn't find out it is there." As another example Expert 3 observed that some students with artistic background are very resistant to learn anything new probably because they perceive the new teaching material intrusive to their creativity. In contrast some programmers with no artistic background were found to be willing to follow teaching material on design process with the character maybe because they used to follow some sort of process with regard to their programming.

Expert 1 emphasised on the impact of course philosophy, the influence of tutors and the academic environment on students' motivations and attitudes. From this experts' perspective 'the one pathway' (*sic*) approach with fixed academic schedule for students within small class sizes makes it possible to focus on each student to find their personal artistic personality in the artistic atmosphere of Art schools whereas in technical Universities with shared modules among different courses and large class sizes it is almost impossible to direct individuals to establish their personal identity but there they can improve the quality of their technical skills.

It was opined that students nowadays are impatient, seeking instant solutions in the quickest way due to the environment they have been brought up and that is why they would not put much detail out into their works. Expert 2 raised the concept of narcissism in the younger generations and the extent of which they are self-involved. Expert 1 indicated that unlike previous generations, students do not read books so they "do not get" (*sic*) the theoretical part of subjects. However, much of their learning comes from playing games which is negative in the way that they are more consumers and positive in the way that they are provided with so many options they can ever imagine. Cultural differences in education were encountered as an important element which plays a big role in students' attitudes and motivations. For instance Expert 1 said: "It's easier for people in western countries to come up with ideas freely whereas Chinese, Japanese, Korean and Iranian struggle with that but they are very good with technical parts and structure and practice."

6.3.7.1 Communication of Ideas and Confidence (Fear of Drawing)

Majority of experts (Expert 1, Expert 2, Expert 3, Expert 7, and Expert 8) agreed that the issue of confidence or fear of drawing plays a role in students' ability to communicate their ideas. Providing students with constructive, non-judgemental feedbacks with encouraging attitude was suggested to be the tutors' role and very effective factor in building up confidence in students. Expert 8 said: "It is important to tell the students that it's ok to make mistakes now, rather than making mistakes after graduation or at work because they can't make mistakes then." Expert 1 described it as "Being shy about storyboarding and saying 'I can't draw' is like singing. No one say I can sing unless they are extremely good in it. Since not everyone is extremely good in drawing they don't know what they have therefore they lack confidence." Expert 1 suggested that it is important to be honest that these students are not going to do storyboarding all the time and in game making companies there are professional storyboard artist to do it as a job.

6.3.7.2 Teamwork

All experts emphasised that teamwork and group working are essential and an industry requirement. Therefore, there should be an element of it in every stage of a game degree. Expert 3 asserted that, in small development teams everybody has to have a very broad range of different skills. Therefore students need to be able to communicate their ideas at minimum so they can function within a team. Even at Art school where the students do not do Games Design and mainly create assets for games such as animation, they found the communication between design and development teams essential (Expert 7 and Expert 8). Expert 7 said: "After the Art students worked with programmers, they know the kind of problems that programmers face and the programmers know what the artists could be. Collaboration cannot be taught. It should be experienced." Expert 2 raised the issue of the diminishing rate of how much students want to communicate with and care about others. This expert said that the data emerged from their final year students who did a Belbin test (management psychology test in job roles) suggested that the 'team worker' role as a skill was just vanishing; the skill that is very important for games.

6.4 Results

The summary of experts' views according to identifying criteria to assess the quality of storyboards and investigating the effectiveness of the Art intervention workshops at UoG is represented in Table 6.2. This is organised based on the themes emerged at this part of the study.

| Experts' Views Based on Emergent Themes (Storyboarding Assessment Criteria and Effectiveness of Art Workshop) | |
|--|---|
| Effectiveness of Art workshop | <ul style="list-style-type: none"> • It is effective to some extent to raise the issue of the need for storyboarding skills for IGD course. • It cannot address students' difficulties in communication of their ideas by drawing/ storyboarding due to its limitations and also the complications in the nature of the problem itself. • Teaching styles used by different tutors have direct influence on students' mind set and the way of implementing their projects. |
| Visual awareness | <ul style="list-style-type: none"> • Lack of visual awareness is the main problem identified at the heart of deficiencies in drawing/ storyboarding skills to communicate ideas. • Visual awareness is: <ul style="list-style-type: none"> • Compositional and observational skills, • The ability to break down the elements, • Thinking about value and contrast issues to be able to draw important and central components and • Recognising the relationship of central elements in a scene of storyboard. • In order to attain these skills students need training which is like learning a new language providing them with new set of vocabulary. • Acquiring this skill takes time but enables students to express how they feel when they look at certain objects. • In order to be able to communicate ideas, it is fundamental to obtain visual skills before being able to either draw or using other techniques for storyboarding. |
| Other techniques | <ul style="list-style-type: none"> • Rapid prototyping techniques are such as: <ul style="list-style-type: none"> • getting pictures from other sources, • collaging them together in software like Photoshop or AfterEffects, • using 3D mock up facilities, modelling, rendering, • manipulating the images, • using 'Tracing' tool in Flash, and • using bipeds or perspective facilities in 3DsMax, etc. • In order to communicate ideas by storyboarding one does not need to |

| | |
|-------------------------------|--|
| | be a professional artist. |
| Storyboarding Software | <ul style="list-style-type: none"> • None of experts encourage their students to use storyboarding software such as “Storyboard Quick”, “Moviesoft”, and “Storyboard Pro” because: <ul style="list-style-type: none"> • Students understand storyboarding more if they do it themselves. • Students can create their storyboards however best suits them. |
| Art school lessons | <ul style="list-style-type: none"> • Focus on teaching the fundamentals for visual awareness either through a specific module for storyboarding or specifying time and resources of other modules for this matter. • Strategies: <ul style="list-style-type: none"> • Teaching short story writing skills, • Encouraging students to do micro studies, • Getting students to observe their environment to get the idea of timings, actions, the perspective and how it looks, • Showing students various examples of successful and poor storyboards, • Getting them to do trial error storyboard, • Having constructive critical feedback within the whole group including the tutors and other students. • Emphasising on camera viewpoint and aspect/ ratio for different mediums such as TV, wide screen and mobile phone screen. |
| Criteria | <ul style="list-style-type: none"> • Storyboarding in IGD modules is only one element of a complete game and therefore it depends on the context of the project. • Criteria from Graphic Design perspective: <ul style="list-style-type: none"> • ‘finesse with materials’, • ‘positive and negative space (contrast)’, • ‘perspective’ • ‘shading’ • Criteria from Film/ Animation perspective: <ul style="list-style-type: none"> • ‘time sequence’, • ‘pace’, • ‘location of interaction’, • ‘characterization’, • ‘annotation’ • ‘camera view points’ • The elements necessary for the basic sketching vocabulary: <ul style="list-style-type: none"> • ‘characters’, • ‘environment (landscape)’ • ‘objects’ • Characters are the most challenging element to draw since it is |

| | |
|---|--|
| | <p>harder to hide the drawing deficiencies in creating faces as the most complex part.</p> <ul style="list-style-type: none"> • Game Design Documentation (concept art, flowcharts for actions and narrative, move lists and control systems) are used for modules specific to Games Design. • Considering 'ease of marking' as a factor for watching, comparing, evaluating, marking and writing feedback per assignments from tutors' perspective. |
| Animatics | <ul style="list-style-type: none"> • Using animatic is effective in Animation modules. • Animatics can show the storyline and mood by using movements and 2D shapes with music. • Animatics help communication of ideas relatively straightforward and unlike simple storyboard it shows tempo and pacing which is a proof of a concept of the timing. • Using animatics is a poor technique for simulating gameplay. • Criteria to evaluate animatics are: <ul style="list-style-type: none"> • draftsmanship/ aesthetics • mood • action and dynamism • pace • gameplay |
| Students' psychological profiles | <ul style="list-style-type: none"> • Students' motivation and educational experience are affected by: <ul style="list-style-type: none"> • their personalities, • the course philosophy, • the influence of tutors and academic environments, • class sizes, • course design • cultural differences in education compare to other countries educational systems, • cultural differences or in regard to previous generation educational experience • For the course design to be effective, tutors needs to consider current students' specific personality traits. |

Table 06.2: Summary of Experts' Views on Storyboarding Assessment Criteria and Effectiveness of Art Workshop

6.5 Conclusions from the Analysis of the Results

The focus of this chapter was to identify criteria to assess the quality of storyboards and to investigate the effectiveness of the Art intervention workshops based on analysis of experts' viewpoints.

The interpretation of the experts' evaluation of the Art intervention workshop suggests that the impact of styles of teaching and delivering the material and limitations of them should be taken into consideration in design of any kind of intervention, including an e-learning object to develop storyboard communication skills at the end of this research.

The results of this part of the study makes an emphasis on the necessity of acquiring visual skills which means that in order to be able to use computer applications including mobile apps on sketching/ storyboarding one needs to acquire the visual awareness first. This suggests that IGD course team in technical universities need to teach this fundamental issue so they can address students' problems in communication of their ideas.

The strategies employed in Art schools to help students with communicating their ideas are inspiring from art intervention design and course design points of view at technical Universities. In regard to this study the focus of these strategies on strengthening the visual awareness by introducing the concept of story writing and micro-studies as well as film making storyboarding concepts can be considered in designing the framework which is the final aim of this research. The step by step techniques they use for storyboarding in the Art school can also be used as an effective functional procedure in designing the framework since storyboarding for animation and games are very similar. The steps of this procedure are mind maps, mood board, story development based on a random sound clip and a RVJ on a blog.

Experts' understanding of students' motivations and attitudes suggests that in designing art interventions (tutor-based or e-learning object) the core issues such as patience, confidence and teamwork should be addressed in a constructive and gamified style which appeals most to students. Pursuing learning in a theoretical fashion such as book reading also needs to be avoided due to students' taste in learning.

In respect of the issue of trustworthiness for this part of the study, the number of tutors participated was reasonable and the data was collected under no bias. Data was presented accurately and the findings were supported by the data. Triangulation of views from tutors at both art and

technical departments was used. These make this part of the study credible and confirmable. The consistency in research questions, data collection and analysis (Bailey, 2007) also makes this part of the study dependable.

At this point the criteria to assess the quality of storyboards/ animatics are identified according to experts' views and the effectiveness of the Art intervention workshops at UoG is investigated from their perspective. Experts' suggestions to address the problem studied in this research are gathered and interpreted. This would address Objective 3 and the second part of Objective 4. In order to design a framework for an electronic learning object to develop storyboard communication skills, the results of data analysis from previous stages of this study which are 'establishing the extent of the problem', 'case study' and 'experts' views' will be collated in the next chapter.

7 Framework for Design of an E-Learning Object

7.1 Introduction

The phases of the research were initially identified as (Section 3.9):

- Establishing the extent of the problem
- A case study of two groups of students at the start of Level 4
- Experts' views of the quality of storyboards and the effectiveness of the Art intervention workshops
- Specifying an e-learning object

To design a framework for an e-learning object, the results from the first three phases are considered in order to establish a strong foundation related to students' needs, experts' suggestions and professionals' views (Section 3.9.4). This addresses the final aim of the study. The summary of the results of these phases are presented in Appendix W accompanied with a categorisation of results based on the common themes emerged from the data analysis. As a reminder, tutors participated in the interviews in this study are referred to as 'experts' and participants in LinkedIn discussions the views of whom were used in this study are referred to as 'professionals'.

This chapter begins by establishing the foundations explained above. It presents the general aspects of any intervention to address IGD students' difficulties in communicating their ideas by drawing/ storyboarding and finally suggests a framework for an e-learning object to develop storyboard communication skills. In order to maintain credibility and confirmability of this part of study, attempts have been made to accurately refer to collation of data and supporting the suggestions and the framework using the results from data analysis and interpretation (Bailey, 2007).

7.2 Identifying Main Categories to Design an E-Learning Object

From the common themes which emerged in various stages of data analysis described in Sections 4.3.1, 4.3.2, 5.3.1, 5.3.3 and 6.3 and represented in Table 7.1, the followings are the key concepts: 'visual

awareness', 'necessity of drawing skills', 'drawing skills level', 'teamwork', 'other techniques' and 'effectiveness of Art workshop'.

| Emergent Themes | | |
|---|--|--|
| Chapter 5 (Experts and professionals) | Chapter 6 (Students) | Chapter 7 (Experts) |
| <p>Set1</p> <ul style="list-style-type: none"> • 'nature of the course' • 'students background' • 'problem' • 'response' • 'drawing skills level' • 'teamwork' <p>Set2</p> <ul style="list-style-type: none"> • 'hand sketching' • 'meetings and presentation' • 'drawing skills level' • 'digital tools' | <p>Set1</p> <ul style="list-style-type: none"> • 'students background' • 'course choice' • 'university choice' • 'expectations' • 'future plan' • 'perception of artistic skills' • 'necessity of drawing skills' • 'active learning' • 'game preferences' <p>Set2</p> <ul style="list-style-type: none"> • 'necessity of drawing skills' • 'effectiveness of Art workshop' • 'software vs. tutor-led storyboarding session' • 'software attributes' • 'other techniques' • 'visual awareness' • 'confidence' • 'creativity' • 'most challenging part' • 'learning style' | <p>Set1</p> <ul style="list-style-type: none"> • 'effectiveness of Art workshop' • 'visual awareness' • 'other techniques' • 'storyboarding software' • 'art school lessons' • 'criteria' • 'weighing criteria' • 'confidence' • 'teamwork' • 'animatics' • 'students' psychological profiles' |

Table 7.1: Emergent Themes from Different Stages of Data Analysis

Discussing the aspects of intervention design and designing a framework for an e-learning object need to be addressed based on these key themes which lead to three groups of skills: visual skills, drawing/ storyboarding skills and rapid prototyping skills (Figure 7.1).

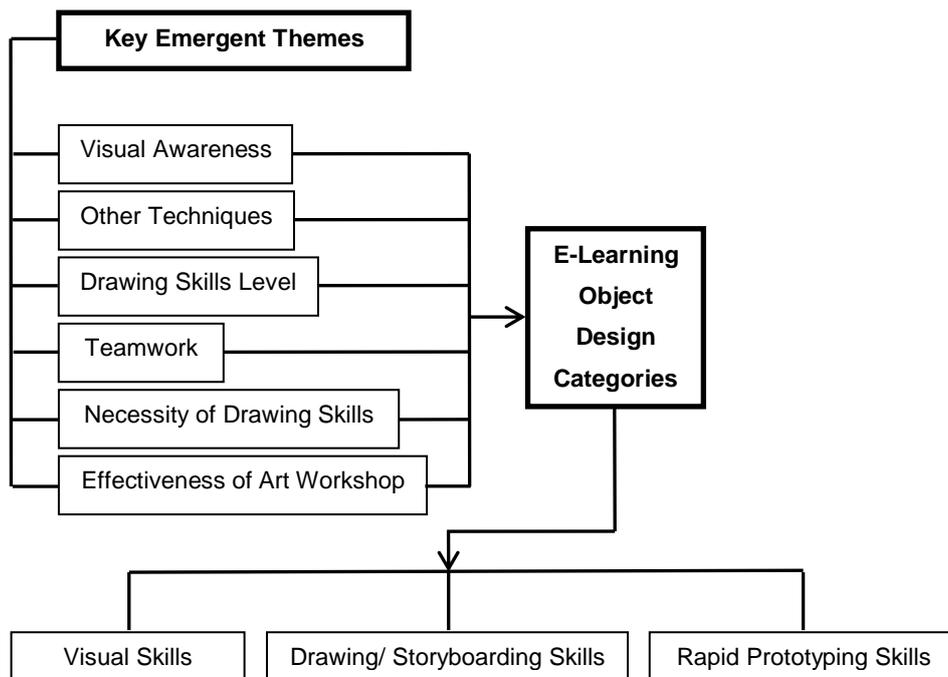


Figure 7.1: Key Emergent Themes Leading to the E-Learning Object Design Categories

According to the findings of this study summarised in Section 4.4 and Tables 5.3 and 6.2 the relationships between the three categories identified above are as illustrated in Figure 7.2.

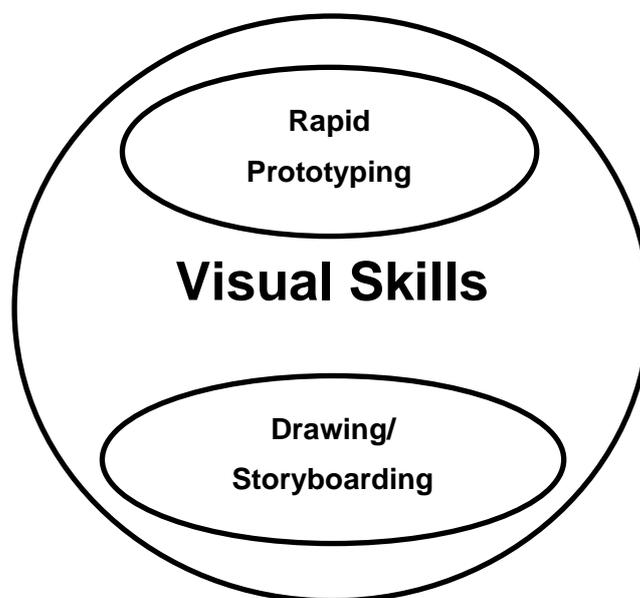


Figure 7.2: The Relationships of the E-Learning Object Design Categories

7.3 General Aspects of an Intervention Design

According to students' and experts' evaluations on the effectiveness of the Art intervention workshop at UoG, there are some aspects and specifications to an art intervention for IGD students. These aspects need to be taken into consideration in design of an art intervention either tutor-based or as an e-learning object. Together with professionals' perspectives, the findings are listed below:

- A short art intervention workshop can only be informative in regard to raising the issue of the need for storyboarding skills for the IGD course (resulted from the data analysis presented in Sections 5.4.3, 5.4.4 and 6.4).
- A short intervention workshop cannot address IGD students' difficulties in communication of their ideas by drawing/ storyboarding and therefore it is not adequate (resulted from the data analysis presented in Sections 5.4.3, 5.4.4 and 6.4).
- For an art intervention a module or several sessions of training is needed (resulted from the data analysis presented in Sections 5.4.3, 5.4.4 and 6.4 and also supported by the literature review in Section 2.2.1.4).
- Application of an e-learning object specified to storyboarding design is effective if it is combined with well-designed tutor-led sessions (resulted from the data analysis presented in Sections 5.4.3 and 5.4.4 and also supported by the literature review in Section 2.5.3).
- Teaching styles used by different tutors have direct influence on students' mind set and the way of implementing their projects (resulted from the data analysis presented in Section 6.4 and also supported by the literature review in Section 2.5.2).
- An art intervention would be successful if designed in a structured goal-based manner with considering Active learning method, interactivity and gamification (resulted from the data analysis presented in Section 5.4.1 and also supported by the literature review in Sections 2.4.2, 2.5.1 and 2.5.4).

7.4 A Framework for an E-Learning Object to Develop Storyboard Communication Skills

The essence of producing a framework (LSRC, 2004) for an e-learning object to develop storyboarding skills is classifying activities involved in communicating ideas based on three groups of skills identified in Section 7.2. As described in Section 3.9.4, a framework is a structure which represents processes and activities in an abstract and generalised way (Plowright, 2011). In the same section it was explained that e-learning objects consist of discrete lessons and learning units, in different forms of media which are available online with efficient access by learners (Anderson, 2008). In Section 5.3.3.4, students' suggestions on the specification of an e-learning object accompanying tutor-led sessions were listed. Considering these together with the general aspects of intervention design described above (Section 7.3), the framework of the e-learning object in this research needs to embed the following aspects so that students develop their skills in communicating their ideas:

- **Media:** providing different and appropriate forms of media such as animations, videos, simulations, educational games, and multimedia texts in a reusable manner (see Section 3.9.4).
- **Learner Preparation:** including pre-learning activities to prepare learners for the details of the lesson, and to connect and motivate them to learn the online lesson including some key point as to where to start (see Section 5.3.3.4 and Section 3.9.4).
- **Learner Activities:** providing learning activities through the media mentioned above with appropriate application exercises and practice activities with appropriate feedback (see Section 3.9.4).
- **Learner-interface Interaction:** designing learner-interface interaction as easy as possible for learners to sense the information, for transfer to sensory store and then into short-term memory for processing (see Section 5.3.3.4 and Section 3.9.4).
- **Learner-content Interaction:** designing learner-content interaction to acquire the information needed and to form the knowledge base as interactive as possible and hence avoid book simulation with linear structure (see Section 5.3.3.4 and Section 3.9.4).
- **Learner-others Interaction:** designing the interaction between the learner and other learners, between the learner and the instructor, and

between the learner and experts to collaborate, participate in shared cognition through social networks (see Section 3.9.4).

- Cultural Effects: considering different learning cultures, styles, and motivations (see Section 3.9.4, Section 6.3.7 and Section 6.4).
- Accessibility: considering the accessibility as a universal usability issue (see Section 6.3.6.3).

Table 7.2 represents a template for the framework (LSRC, 2004) which can be completed with different processes, techniques and exercises in a general way.

| | Visual Skills | Drawing/ Storyboarding Skills | Rapid prototyping Skills |
|--------------------------------------|----------------------|--------------------------------------|---------------------------------|
| Media | | | |
| Learner Preparation | | | |
| Learner Activities | | | |
| Learner-interface Interaction | | | |
| Learner-content Interaction | | | |
| Learner-others Interaction | | | |
| Cultural Effects | | | |
| Accessibility | | | |

Table 7.2: The Framework for an E-Learning Object to Develop Storyboarding Skills

Table 7.3 is an example based on the step by step method towards developing and presenting ideas introduced in Section 6.3.3:

1. Mind maps - purely idea generating.
2. Mood board - visualising ideas to convey the theme, ambience and style of the final product.
3. Story development- theme generating based on randomly selected sound clips to set the storyline.

4. Reflective Visual Journal (RVJ) – putting storyboards/ animatics on personal blogs.

| | Visual Skills | Drawing/ Storyboarding Skills | Rapid prototyping Skills |
|--------------------------------------|--|--|--|
| Techniques | 1. Mind maps 2. Story development | Mood board | RVJ |
| Media | Video, Recorded Audio, Multimedia samples | Video, Recorded Audio, Games, Multimedia samples | Video, Multimedia samples |
| Learner Preparation | 1. Video tutorial 2. Multimedia samples | Video tutorial | Multimedia guides |
| Learner Activities | Exercises | Exercises | Exercises |
| Learner-interface Interaction | 1. Consider short-term memory load 2. Be easy to use 3. Similar to existing interfaces | 1. Consider short-term memory load 2. Be easy to use 3. Similar to existing interfaces | 1. Consider short-term memory load 2. Be easy to use 3. Similar to existing interfaces |
| Learner-content Interaction | 1. Audio samples 2. Pre-drawn objects and shapes | 1. Audio samples 2. Library of objects, shapes and photos | 1. Modifiable templates 2. Access to software |
| Learner-others Interaction | Social networks | Social networks | Social networks |
| Cultural Effects | 1. Learning Styles 2. Personal motivations | 1. Learning Styles 2. Personal motivations | 1. Learning Styles 2. Personal motivations |
| Accessibility | Universal usability issues | Universal usability issues | Universal usability issues |

Table 7.3: An Example of the Framework for Developing and Presenting Ideas

Obviously the template (Table 7.2) can be modified towards more specific details to describe a learning unit in later stages of the e-learning object design. Some examples are introduced in this section. Since 'Learner-

interface Interaction’, ‘Cultural Effects’ and ‘Accessibility’ are general aspects in design; they are not included in these tables.

Table 7.4 is an example of a specific exercise to enhance visual skills using the ‘6*6 Vision Pathway Rule’ technique developed by Roam (2009) (see Section 2.2.1.3).

| | Visual Skills: 6*6 Vision Pathway Rule Technique |
|------------------------------------|---|
| Media | Video, Games, Multimedia samples |
| Learner Preparation | <ol style="list-style-type: none"> 1. Video tutorial 2. Multimedia samples 3. A game |
| Learner Activities | Provide various exercises to visualise a scene of a scenario using techniques below: See Who/What → Show Portrait See How Much → Show Chart See Where → Show Map See When → Show Timeline See How → Show Flowchart See Why → Show Multi variable plot |
| Learner-content Interaction | <ol style="list-style-type: none"> 1. Provide a library of objects such as portraits, charts, maps, timelines, flowcharts and multi variable plots. 2. Provide facilities to upload the scanned hand-sketched visualisations |
| Learner-others Interaction | <ol style="list-style-type: none"> 1. Provide facilities to share the visualisations on social networks 2. Provide facilities to upload the visualisations on personal RVJs and make it accessible to other users |

Table 7.4: 6*6 Vision Pathway Rule Exercise as a Learning Unit for Visual Skills

Table 7.5 is an example of a specific learning unit for drawing/ storyboarding skills using the ‘Line Quality’ exercise introduced by Greenberg *et al.* (2012). This technique is to strengthen the hand sketching abilities by creating a line with many variations, rather than a meaningful drawing.

| | Drawing/ Storyboarding Skills: Line Quality Exercise |
|------------------------------------|--|
| Media | Video, Recorded stories in audio |
| Learner Preparation | 1. Video tutorial |
| Learner Activities | Exercise instructions in video or audio format as below: 1. Play recorded stories (preferably children's story with lots of feelings, emotions and actions without many details) 2. Take the pencil for a walk on paper. 3. Don't lift the pencil off the paper through the whole exercise. 4. Don't look at drawing as you are creating it. 5. The location of the line on the paper does not matter. 6. Concentrate on listening and making the line reflect the story. 7. Change HOW you are drawing your lines as the actions and emotions change |
| Learner-content Interaction | 1. Provide facilities to upload the scanned hand-sketches |
| Learner-others Interaction | 1. Provide facilities to share the sketches on social networks 2. Provide facilities to upload the sketches on personal RVJs and make it accessible to other users |

Table 7.5: Line Quality Exercise as a Learning Unit for Drawing/ Storyboarding Skills

Table 7.6 is another example of a specific learning unit for drawing/ storyboarding skills to help learning to draw what is seen rather than what one thinks s/he sees (Edwards, 2008) by:

1. Drawing from imagination
2. Copy a drawing of a person
3. Drawing a figure upside down

| | Drawing/ Storyboarding Skills: Learn How to See |
|------------------------------------|---|
| Media | Video, Multimedia samples, Recorded scenarios in audio |
| Learner Preparation | 1. Video tutorial 2. Multimedia samples |
| Learner Activities | Exercise instructions in multimedia format referring to resources provided in 'Learner-content Interaction' for each part below: 1. Drawing from imagination 2. Copy a drawing of a person 3. Drawing a figure upside down |
| Learner-content Interaction | 1. Provide a library of recorded scenarios in audio or text for drawing from imagination exercise 2. Provide a library of figure images for upside down drawing exercise 3. Provide facilities to upload the scanned hand-sketched visualisations |
| Learner-others Interaction | 1. Provide facilities to share the visualisations on social networks 2. Provide facilities to upload the visualisations on personal RVJs and make it accessible to other users |

Table 7.6: 'Learn How to See' Exercise as a Learning Unit for Drawing/ Storyboarding Skills

Table 7.7 is another example of a specific learning unit for drawing/ storyboarding skills to practice step by step character drawing. This is inspired by UoG intervention workshop in 2011 (Section 5.2.3).

| | Drawing/ Storyboarding Skills: Step by Step Character Drawing Technique |
|----------------------------|--|
| Media | Video, Games, Multimedia samples |
| Learner Preparation | 1. Video tutorial 2. Multimedia/ animation samples 3. A game |
| Learner Activities | Provide various exercises to character design using techniques below: 1. Start by basic shapes. 2. Play with different eye and nose sizes and eyebrows and mouth to show emotions. 3. Exercise with different characteristics through shapes such as square for strong character and help it to be stronger by adding bold nose and small eyes; soften the character by giving it big eyes, or by giving a half through line in the eyes give it an unsure character with that blinked eyes, etc. 4. Make 3D characters by casting a shadow with the side of the |

| | |
|------------------------------------|---|
| | pencil on a 2D image. |
| Learner-content Interaction | <ol style="list-style-type: none"> 1. Provide a library of objects such as simple shapes and pre-drawn characters. 2. Provide facilities to upload the scanned hand-sketched visualisations |
| Learner-others Interaction | <ol style="list-style-type: none"> 1. Provide facilities to share the visualisations on social networks 2. Provide facilities to upload the visualisations on personal RVJs and make it accessible to other users |

Table 7.7: Character Drawing Technique as a Learning Unit for Drawing/ Storyboarding Skills

Table 7.8 is an example of a specific learning unit for rapid prototyping skills introduced by Greenberg *et al.* (2012) as a method of sketching a storyboard.

| Rapid Prototyping Skills: Storyboarding Technique | |
|--|--|
| Media | Video, Games, Multimedia samples |
| Learner Preparation | <ol style="list-style-type: none"> 1. Video tutorial 2. Multimedia samples 3. A game |
| Learner Activities | <ol style="list-style-type: none"> 1. Outline storyboard frames 2. Develop the story line – Aspects to consider when describing a storyline: <ul style="list-style-type: none"> - Where does the interaction take place? - What is the problem? - What is the task that people are trying to do? - Which people are present and what are their actions? - What kind of objects or digital devices do they use? - What is the possible input and output for each digital system? - How do the actions of people and/or devices solve the problem? 3. Sketch establishing shot (introduction) 4. Continue the storytelling sketches with appropriate camera shots 5. Emphasize actions and emotions – If needed add visual annotations to the sketches (might use various arrows to indicate a person's motion) |
| Learner-content Interaction | <ol style="list-style-type: none"> 1. Provide basic modifiable templates for different types of structures for storyboards 2. Provide a library of scenarios to develop storylines for storyboarding |

| | |
|-----------------------------------|--|
| | <ol style="list-style-type: none"> 3. Provide a library of arrows, frames and different camera shots 4. Provide facilities for adding textual annotations 5. Provide library of pre-drawn images or icons for characters, environments and objects to be dragged and dropped in the frames 6. Provide facilities to upload photo snap shots or the scanned hand-drawn sketches |
| Learner-others Interaction | <ol style="list-style-type: none"> 1. Provide facilities to share the storyboards on social networks 2. Provide facilities to upload the storyboards on personal RVJs and make it accessible to other users |

Table 7.8: Storyboarding Technique as a Learning Unit for Rapid Prototyping Skills

7.5 Conclusions

This chapter began by establishing the foundations for addressing the final objective of this research by drawing out the findings from the overall data analysis. The key categories and general aspects of any intervention design to address IGD students' difficulties in communicating their ideas by drawing/ storyboarding were identified. The specifications of a framework for an e-learning object to develop storyboard communication skill were developed. The framework was used to introduce learning units for developing the essential skills in the major parts of the e-learning object defined as visual skills, drawing/ storyboarding skills and rapid prototyping skills. In order to justify why this proposed tool should be implemented, reference has been made to the literature review and the results of this research. Also various examples of its application were shown by populating the framework with supporting examples. The conclusions of this study are presented in the next chapter.

8 Conclusions and Further Work

8.1 Research Background

The interdisciplinary nature of Games Design has led the game design industry to be the host to some very challenging design problems (Section 2.2). It is asserted that there is a need for technical artists within the games design team who can build bridges between the art team and the engineering team by being able to speak both of their languages fluently (Schell, 2010b). This subject has got academic credibility. However, some studies have shown the growing criticism among games communities on the apparent lack of graduates capable of meeting the industry's employment needs (IP, 2012; Livingstone and Hope, 2011). In this regard research on students' needs in Higher Education and investigating possible solutions is important.

The IGD course design for BSc students in technical universities is focused on educating students so that they can represent their creative ideas to fellow team members, managers, budget holders and to the audience for the games. The recruitment of these students, unlike students in Art and Design Departments, do not require art or design background. The students' module evaluations and observations by the course team at UoG have shown that many students have difficulties in communicating their creative ideas about the environments and characters of the games that they want to design due to lack of drawing skills. To address this problem, the course team arranged a short Art workshop providing a set of basic skills for students in order to encourage the development of storyboarding expertise (Section 5.2.3).

This problem was a key driver for this study. It has also been recognised in other fields in which the technical and aesthetic aspects of technology are involved (Section 2.2.1).

8.2 Research Problem and Question

A set of questions were identified (Section 1.2) in order to clarify the aims of this research. This led to setting the objectives of this study as following:

1. Objective 1- Identifying the problems experienced by students

2. Objective 2- Exploring the nature and necessity of drawing skills
3. Objective 3- Identifying criteria to assess the quality of storyboards
4. Objective 4- Investigating the effect of a drawing tutorial intervention
5. Objective 5- Designing a framework for an e-learning object to develop storyboard communication skills

Using an interpretive philosophical framework, a mixed method approach was chosen to allow for greater opportunity to understand the phenomenon and its complexities. In its multiphase design different projects were defined within an action research paradigm as following:

1. Establishing the extent of the problem
2. A case study
3. Experts' views
4. Specifying an e-learning object

The data collection, analysis and interpretation for the first three phases were explained extensively in Chapters 4, 5 and 6. The final phase was addressed according to the theory and the findings from the previous three phases in Chapter 7. The limitations of this study are presented in the next section.

8.3 Limitations

This study approached three main groups of participants: students, experts (tutors) and professionals (participants in LinkedIn discussions) (Section 3.5.1). In general the risk with gathering research data from people in the sense that they might be too busy to give an appointment or participate in the study had an impact on the limitations of research. In respect to the students' participants, the researcher was limited to gather data from one institution (UoG). Also it was better if there was access to more students at interviews (Sections 5.3.1 and 5.3.3) and for the questionnaires (Section 5.3.2). Another limitation was due to the low response from online questionnaire (Section 5.3.2). This could not be dealt with by talking to students directly afterwards because it was at the end of the semester and they were not available. In respect to expert participants, it was also more beneficial if more tutors agreed to take part in the study (Sections 4.2 and 4.3.1.1). As regards to include professionals' views from the Games Design

industry, only three sets of views were gathered from three online discussions (Sections 4.2 and 4.3.2). It was better if a specific discussion was set up to gather more data remotely. However during all stages of this study triangulation of views between students, experts and professionals have been used to mitigate the limitations and strengthen the foundations of the research (Sections 3.7 and 3.8). The limitations of this study give the opportunity for further work which is suggested in Section 8.6.

8.4 Evaluation Criteria

In order to evaluate the results of quantitative studies (Section 3.4), positivists (Section 3.2) agree on the concepts of reliability and validity. According to Hammersley (1992), reliability refers to the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions. Validity is interpreted as the extent to which an account accurately represents the social phenomenon to which it refers (Hammersley, 1992). In the early 1980s, terms such as 'trustworthiness' and 'authenticity' were used to create a distinct, new language for qualitative inquiry (Section 3.4) around the topic of validity. Therefore, the interpretive paradigm (Section 3.2) judges the results of qualitative studies in terms of trustworthiness, which includes credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985; Bailey, 2007).

Although some studies raise the need for a new language to be used in designing and conducting a mixed methods (Section 3.4) research separate from the language of either quantitative or qualitative research, the terms are still far from settled (Creswell and Plano Clark, 2011). Therefore this research uses available criteria.

8.4.1 Trustworthiness

The students in this study (Sections 3.5.1.1 and 5.2.1) were at the beginning of a new course and it is assumed that at the beginning they have an interest but not necessarily the skills, so according to Hammersley (1992) and Lincoln and Guba (1985), it has been a valid and a trustworthy situation for research. Also their background status and their ideas (Section

5.3.1.1), about the issues asked, were generally similar for 2010 and 2011 participants. This indicates that the intakes were homogenous and therefore represent a sample of typical students recruited at UoG.

8.4.2 Credibility

Credibility concerns the truthfulness of the data collected and accurate representation of the study (Bailey, 2007). Different strategies in using triangulation of data such as studying two cohorts of students and having a longitudinal case study have been employed in conducting this multiphase study (Section 5.2). These strategies together with the mixed methods nature of this research such as using multiple data gathering methods, along with truthfulness of the data collected and accurate representation of the study make this study credible (Lincoln and Guba, 1985).

8.4.3 Transferability

In order to make this study transferable (generalizable), attempts were made to provide enough information (Sections 4.2, 5.2 and 6.2) to allow the reader to establish the degree of similarity between it and other cases to which the findings might be transferred by collecting and keeping the notes and analysis of data in every stage of the study as detailed as possible (Schwandt, 1997). However, this study will be transferable to an equivalent group of undergraduate students at technical Universities but not to students on a course within an art department as they would have completed an art foundation degree (UoG, 2010).

8.4.4 Dependability

Dependability is the qualitative equivalent of the quantitative research term 'reliability', which refers to how well a study and its findings can be replicated. Schwandt (1997) advises researchers to create an audit trail, which may include recorded materials, interview transcripts, interview guides, lists of interviewees, field notes and research procedures. In this study, the reasons (Sections 4.2, 5.2 and 6.2) and the processes (Sections 4.3, 5.3 and 6.3) taken in collecting and analysing data have been made explicit and all the materials listed above are presented in several appendices. Also the core elements of the research projects (research

questions, data collection and analysis and conceptual understanding) are consistent (Bailey, 2007) so the study is reliable or dependable.

8.4.5 Confirmability

Confirmability is in regard to the degree to which the data and interpretations of the study is based firmly on evidence collected rather than the personal construction of the researcher. The findings in this research are grounded in data (presented in appendices) and the data derived inferences are logical and the categories have explanatory power and they have been used with previous studies (see Section 8.6) and they fit the data (Lincoln and Guba, 1985). Therefore this research is confirmable.

8.5 Ethical Considerations

Ethical decisions need to be considered based on the participants in the study. Informed consent, right of refusal to take part, right to withdraw, anonymity and confidentiality, deception and protecting participants and researchers from harm either emotional or physical are the most important issues to consider (Ritchie and Lewis, 2003; Plowright, 2011).

This research has been conducted in accordance with the University of Gloucestershire Research Ethics Handbook (UoG, 2008), in particular relating to informed consent, confidentiality, anonymity and the right to withdraw. At the beginning of every interview, participants were given a consent form which gave a clear picture of the research and its aims, ensuring their identity would remain confidential and anonymous by coding and explaining their right to refuse to participate or withdraw from the study (Appendices A, C and D). In particular, since the researcher is not a member of the teaching team, participation in the research had no bearing on the assessment process for the students.

8.6 Contribution to Knowledge

This section highlights the contribution to knowledge gained from the inquiry in this study based on the defined objectives. Figure 8.1 represents the structure for the research objectives.

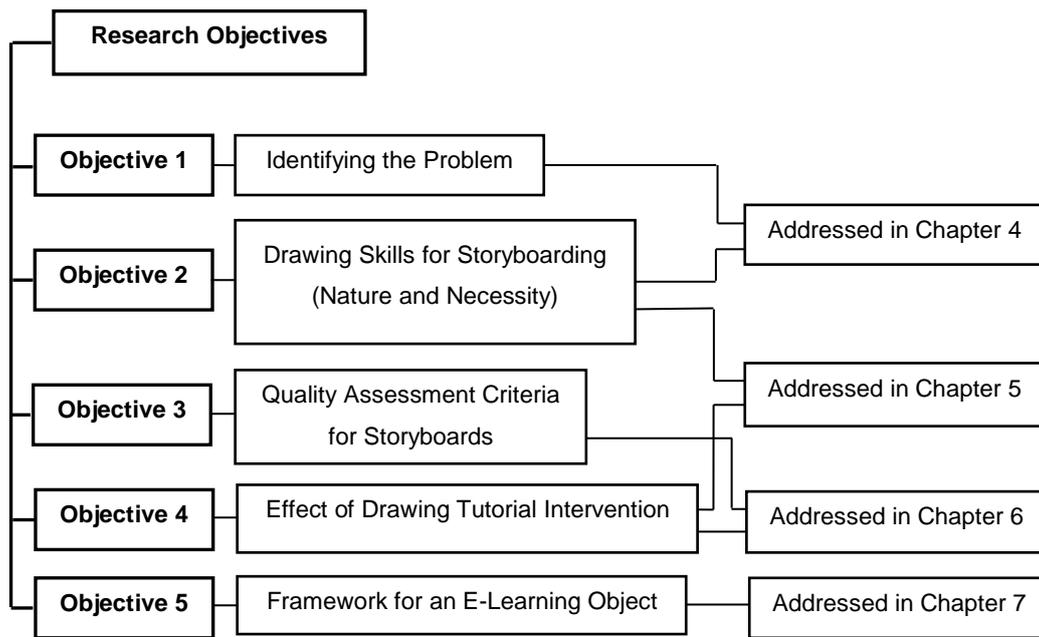


Figure 8.1: Research Objectives

According to Livingstone and Hope (2011), the video games and visual effect industries were reported to be UK's twin strengths in creativity and technology with the growing rate of 16.8 per cent between 2006 and 2008. However, in two years this rapid growth of video games was dipped from third to sixth in the global development ranking and the visual effect industry sourced talent from overseas because of skills shortage in the country. This was evaluated as a failure of the educational system from schools to universities. The issue is raised by another study too (IP, 2012). Identifying the skills needed by educators was a part of the investigation as was described in Section 2.2.2.

Students' difficulties in communicating their creative ideas about the environments and characters of the games that they want to design due to lack of drawing skills was the "problem" investigated in this study. Identifying this problem could shed light into a part of skills shortage addressed in the above reports. In this regard, the first contribution of this research is addressing Objective 1 which was involved with gathering insights from tutors, both from Art and Technical departments, about the problem and their strategies to deal with it (Figure 8.2). No evidence was found to show that the problem was addressed in a module tailored for idea

generating and communicating by storyboarding, not even an attempt at interventions for all students as at the UoG (Section 4.5).

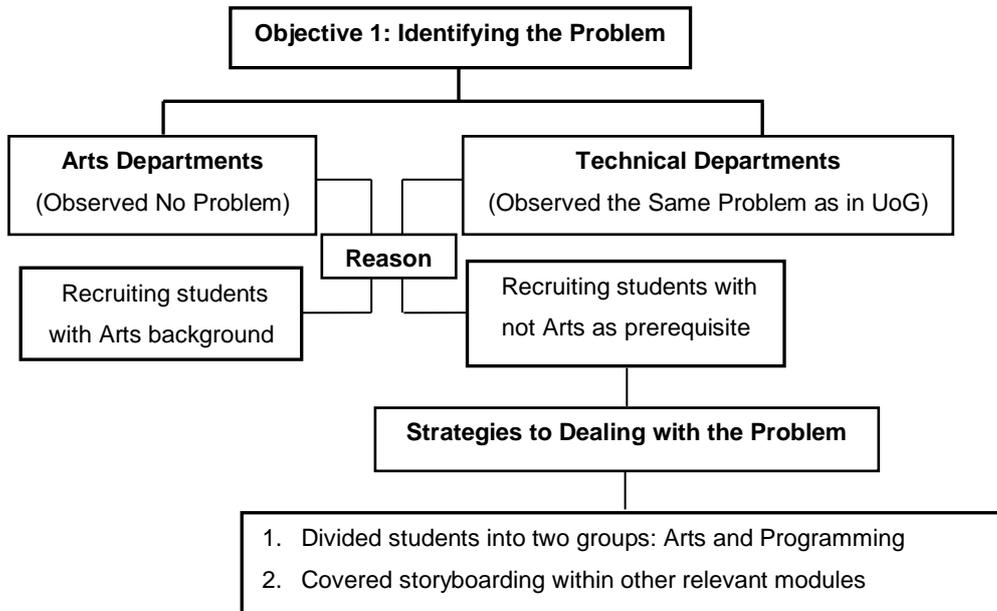


Figure 8.2: Objective 1- Identifying the Problem

The second contribution (Figure 8.3) is addressing Objective 2 which provided adequate evidence based on students', tutors' and industry-professionals' views to answer the first and second research questions (Section 1.2).

The study in the Mechanical Engineering sector (Section 2.2.1.2) evaluated sketching ability based on three distinct aspects relevant to engineering design: visual recall, rendering, and novel visualization. By focusing on sketching in engineering design this study considered the role of a designer's sketching ability and examined the potential link between this skill and measures of engineering design performance (Yang and Cham, 2007). Addressing Objective 2 in this research contributes a more specific and clear result. It revealed that obtaining visual skills is fundamental before being able to draw or using rapid prototyping techniques for storyboarding, therefore in order to be able to use computer applications including mobile apps on sketching/ storyboarding one needs to acquire the visual skills first.

It appears that students' motivations and attitudes relate to a web of complex factors. Some of these factors are rooted in students' personalities and some are influenced by external factors. From this point of view, the course philosophy, the influence of tutors and academic environments, class sizes and course design are effective factors in motivating students and directing their educational experience (Sections 4.5, 5.5 and 6.5).

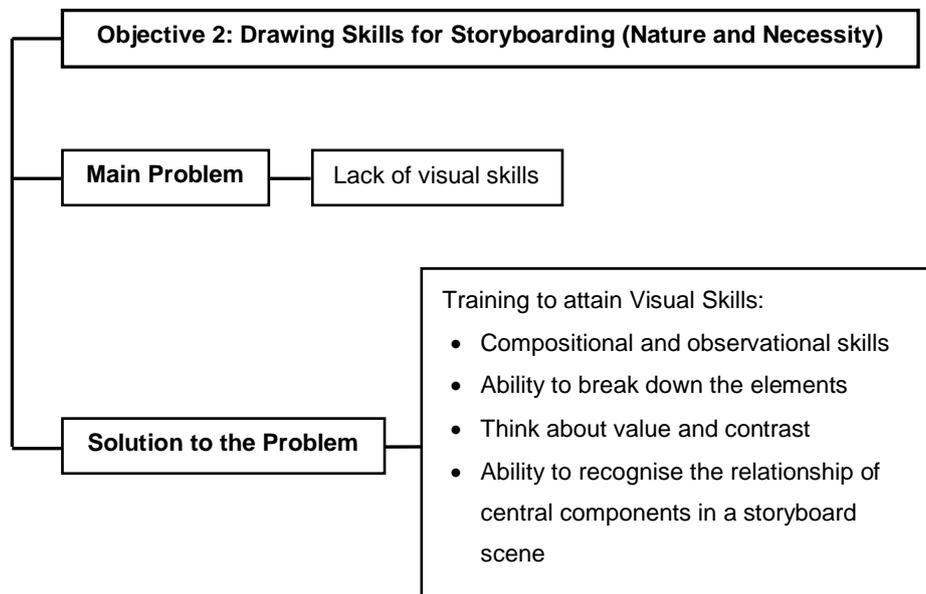


Figure 8.3: Objective 2- Drawing Skills for Storyboarding (Nature and Necessity)

The third contribution of this study (Figure 8.4) addresses Objective 3 in identifying criteria to assess the quality of storyboards and therefore answering the third research question (Section 1.2). It was also appeared that animatics can be used as helpful tools for communication of ideas for Animation modules (Section 6.4).

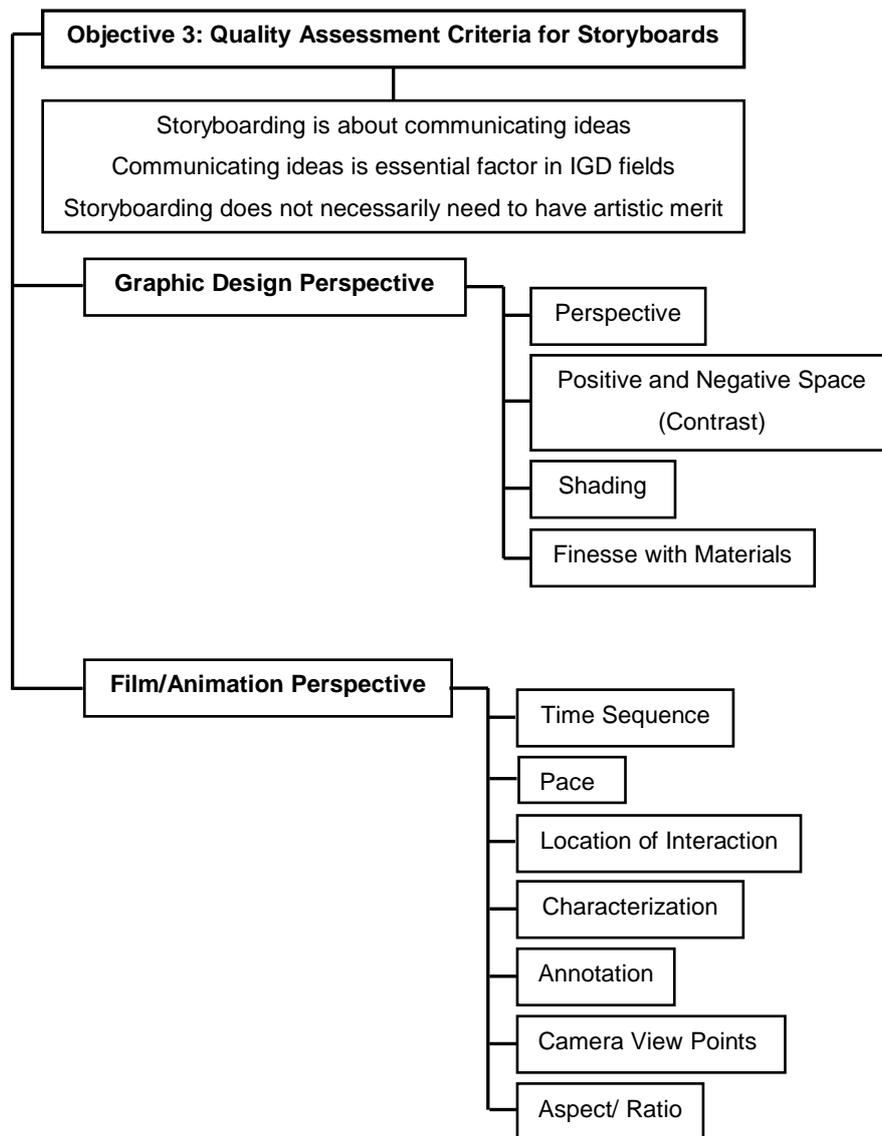


Figure 8.4: Objective 3- Quality Assessment Criteria for Storyboards

The fourth contribution of this study (Figure 8.5) addresses Objective 4 to investigate the effect of the drawing tutorial intervention and therefore answering the fourth research question (Section 1.2). In Section 2.2.1.4 the solution to a similar interdisciplinary issue in a Medical school was introduced. In that study it was shown that a formal art observation training improves medical students' visual diagnostic skills through structured observation of artworks, understanding of fine art concepts and applying these skills to patient care. An intervention consisting of eight paired sessions of art observation exercises designed in that study improved participants' observation skills and increased sophistication in their descriptions of artistic and clinical imagery (Naghshineh *et al.*, 2008). Similar to the results of this study, the research addressed in this thesis

revealed that hand sketching by pen and paper is important and essential at the design stage (idea generating and visualisation) and using software is recommended at final stage of presentation to clients and stakeholders (Section 4.5). Therefore IGD students need to develop both skills. It was also appeared that, learning how to storyboard through software can only be effective if it is combined with well-designed tutor-led sessions (Section 5.5).

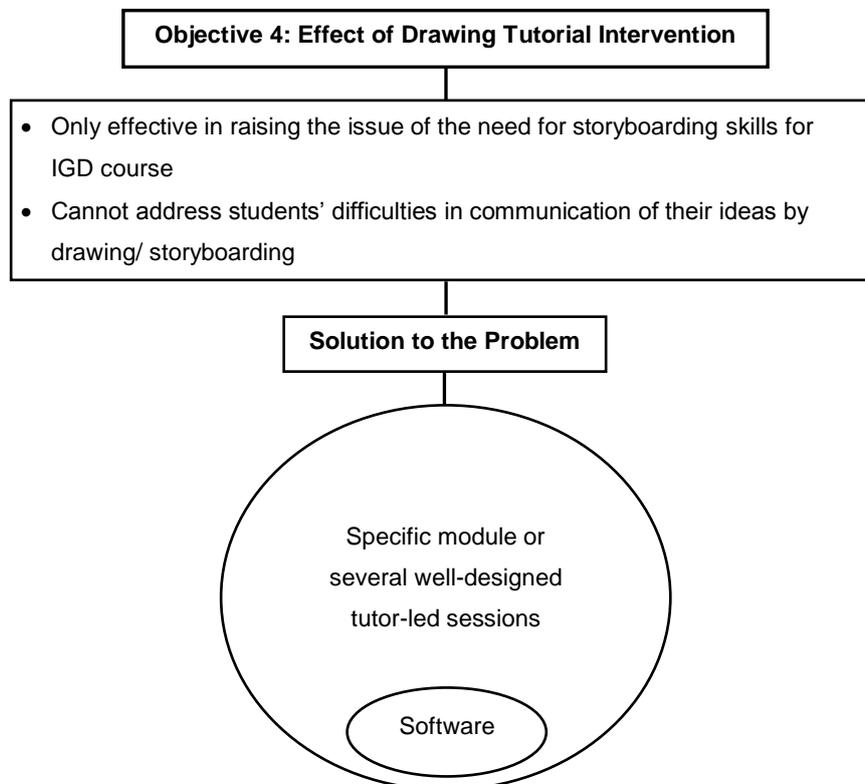


Figure 8.5: Objective 4- Effect of Drawing Tutorial Intervention

Finally, the fifth contribution of this study (Figure 8.6) addresses Objective 5 with the designing of a framework for an e-learning object and therefore answering the last research question (Section 1.2). The steps towards designing this framework and how it is based on the findings of this study are described in Chapter 7.

As shown in Section 2.2.1.1, in a web-design domain, researchers have developed a learning process using worksheets called ‘image plots’ with standard design templates as teaching materials to help Japanese non-design students to prepare visualisations of web pages (Ariga and Watanabe, 2008). Figure 8.6 represents the ‘process and worksheets’ and

In contrast with this strategy based on providing the students with ready-made templates and guidelines, this study introduces a more flexible framework to help students learn how to communicate ideas by providing them with various learning units. Figure 8.8 represents an abstract and general structure of the framework and the relationships of its elements. Several practical examples ready to be implemented as learning units were introduced in Section 7.4. The results of this study (Sections 4.4, 5.4 and 6.4) revealed that the design of an art intervention (tutor-based or e-learning object) for IGD students, needs to address the issues of confidence and teamwork alongside with the learning materials in a constructive and gamified style and as interactive as possible in a structured goal-based manner. It would also benefit from a teaching style based on Active learning.

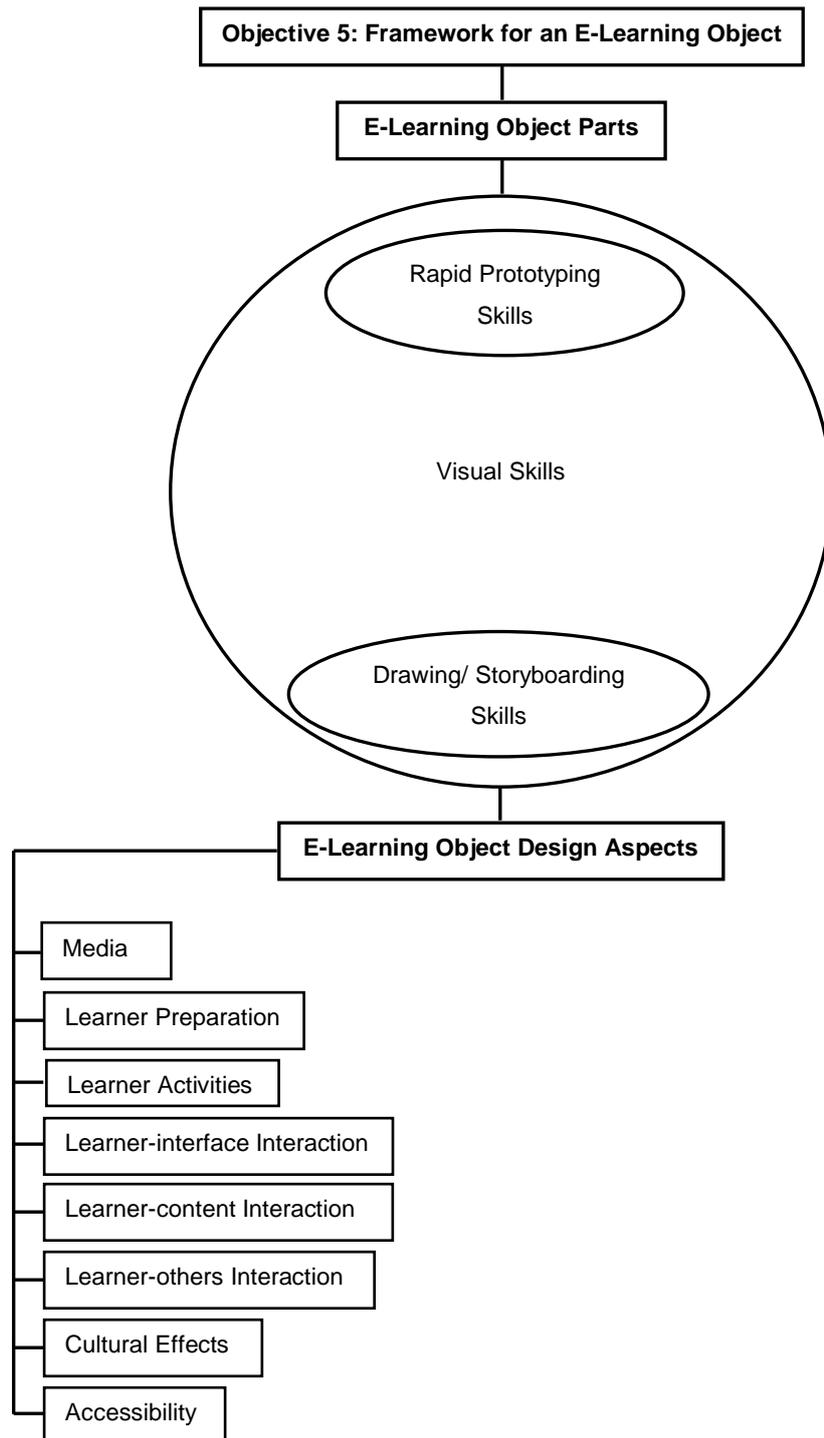


Figure 8.8: Objective 5- Framework for an E-Learning Object

In 2012 a report of this research with the results up to that stage of the study was published and presented in Eva London 2012 (a BCS conference) with a positive feedback (Maani and Reeves, 2012). The information provided by the findings of this research has the potential to be considered by course designers at technical departments offering IGD

courses. This is to emphasise students' educational needs and the retention rate and therefore specify relevant resources to this matter such as modules for idea generating and storyboarding skills accompanied with proper e-learning tools.

8.7 Suggestions for Further Work

This study can be extended to further levels both from data gathering perspective and the ideas discussed by participants. For further work considering the suggestions in the sections below would be useful.

8.7.1 Experts in Industry

During the course of this study there were criticisms on the shortage of skills in academia in terms of producing the graduates who do not meet industry standards (Livingstone and Hope, 2011; IP, 2012). This research was mainly focused on investigating the problem within academia. In order to understand the essence of game production, the challenges in Games Design industry and the expectations from graduates it is recommended to continue this study by interviewing the experts in the industry. Until recently a lot of game production has been done in a kind of factory stage where there are artistic people, technical people and project managers presumably to make these two groups of people speak together (Schell, 2010b). However, partly because of the mobile applications for games, there are games which are being produced by independent game producers (Turner, Thomas and Owen, 2013) who have various skills and work in much smaller units. In this regard interviewing experts from both game production types will provide valuable insights into the subject of this thesis.

8.7.2 Online Discussion

Setting up a specific online discussion focused on the problems investigated in this research will also help expand the results of this study.

8.7.3 Implementation of the E-Learning Object

Several examples for the design of e-learning units were introduced in Section 7.4. The proposed designs of these units are all based on the framework introduced in this study as the main contribution. The next logical step of continuing the work presented in this thesis is to implement and test this e-learning object so it will find its application in relevant educational sectors. An important element to be considered is investigating cultural differences in education compared to other countries' educational systems and in regards to previous generation's educational experience

8.7.4 E-Diagnostic Tool

Considering an e-learning object as a diagnostic tool in terms of finding the kind of intervention students need (artistic, data or presentation) is another strategy for the design of the e-learning object. This idea was raised by Expert2 (Section 4.3.1.1) during the interview. The transcription of this brain storming is fully presented in Appendix T2. From this perspective the e-learning object might follow the MAP (Management Assessment of Proficiency) in terms of percentiles and data management to how each student compares to other students in a module, with the whole class and with the whole year.

References

- Abba, T. (2007) *A Grammar, Form and Content for Interactive Narrative*. Ph.D., University of West of England.
- Andersen, M. (2011a) *Interview with a Learning Futurist*. Online available from <http://busynessgirl.com/interview-with-a-learning-futurist/> [Accessed Nov 2010].
- Andersen, M. (2011b) *Recipe for Free Range Learning*. YouTube, online available from <http://www.youtube.com/watch?v=mWdSz2nHQNY> [Accessed Oct 2012].
- Andersen, M. (2011c) *Where's the "Learn This" Button?*. YouTube, online available from <http://www.youtube.com/watch?v=m5kAOE3x1aY> [Accessed Nov 2012].
- Anderson, T. (2008) *The Theory and Practice of Online Learning*. 2nd ed. Canada: AU Press.
- Anon, (2010) *Montessori: The Philosophy*. Online available from http://www.montessori.org.uk/what_is_montessori/the_philosophy [Accessed Dec 2010].
- Anthony, (2012) *Why It is Important to Sketch before You Wireframe*. Online available from <http://uxmovement.com/wireframes/why-its-important-to-sketch-before-you-wireframe/> [Accessed Dec 2012].
- Ariga, T. and Watanabe, T. (2008) Teaching Materials to Enhance the Visual Expression of Web Pages for Students not in Art or Design Majors. *Computers and Education*, 51, pp. 815-828.
- Armstrong T. (2009) *Multiple Intelligences in the Classroom*. 3rd ed. Canada: Ascd.
- Arnone, M.P., Small, R.V., Chauncey, S.A. and McKenna H.P. (2011) Curiosity, Interest and Engagement in Technology-Pervasive Learning

Environments: a New Research Agenda. *Educational Technology Research and Development*, 59 (2), pp. 181-198.

Bailey, C.A. (2007) *A Guide to Qualitative Field Research*. 2nd ed. London: SAGE.

Barmeyer, C.I. (2005) Learning Styles and Their Impact on Cross-Cultural Training: An International Comparison in France, Germany and Quebec. *International Journal of Intercultural Relations*, 28, pp. 577–594.

Bates, B. (2011) *The Belly of the Whale (Living a Creative Life in the Game Industry)*. Online available from http://www.gamasutra.com/view/feature/134763/the_belly_of_the_whale_living_a_.php [Accessed Nov 2012].

Becker, H. (1998) *Tricks of the Trade: How to Think about Your Research While Doing It*. Chicago and London: University of Chicago Press.

Bogen, J. E. (1975) Some Educational Aspects of Hemispheric Specialization. *UCLA Educator*, 17, pp. 24-32.

Bono, E. (2009) *Six Thinking Hats*. London: Penguin Books.

Boutcher, S. (1992) Attention and Athletic Performance: An Integrated Approach. In: T. Horn (Ed.) *Advances in sport psychology*. Champaign, IL: Human Kinetics, pp. 251-265.

Brown, H.J. (2008a) *Video Games and Education*. New York: M.E. Sharpe.

Brown, S. (2011) *Doodlers, Unite!*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Oct 2012].

Brown, T. (2008b) *Tales of Creativity and Play*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Apr 2010].

Bryman, A. (2006) Integrating Quantitative and Qualitative Research: How Is It Done? *Qualitative Research*, 6 (1), 97-113.

Chatfield, T. (2010a) *Fun Inc.: Why Games Are the 21st Century's Most Serious Business*, Croydon: Virgin Books.

Chatfield, T. (2010b) *Seven Ways Games Reward the Brain*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Nov 2010].

Chomeya, R. (2010) Quality of Psychology Test Between Likert Scale 5 and 6 Points. *Journal of Social Sciences*, 6 (3), pp. 399-403.

Chuang, M. (2011) Creativity in Advertising Education: an Experimental Study. *Instructional Design: An International Journal of the Learning Sciences*, 39 (6), pp. 843-864.

Cleese, J. (2010) *John Cleese on Creativity*. YouTube, online available from <http://www.youtube.com/watch?v=DMpdPrm6UI4&feature=related> [Accessed Nov 2012].

Cobb, G.W. (1998) *Introduction to Design and Analysis of Experiments*. New York: Springer.

Coghlan, D. and Brannick, T. (2005) *Doing Action Research in Your Own Organization*. 2nd ed. London: Sage.

Connole, H., Smith, R.J. and Wiseman, R. (1995) *Research Methodology 1: Issues and Methods in Research (Study Guide)*. Deakin University.

Corner, L. (2006) *Code of Practice for the Visual Arts – Artists. a-n The Artists Information Company*. Online available from http://www.a-n.co.uk/knowledge_bank/article/92660 [Accessed Mar 2012].

Craft, A. (2011) *Creativity and Education Futures*. Stoke on Trent: Trentham Books Limited.

Creswell, J.W. (1998) *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Thousand Oaks, CA: SAGE.

Creswell, J.W. and Plano Clark, V.L. (2011) *Designing and Conducting Mixed Methods Research*. 2nd ed. London: SAGE.

Cristiano, G. (2012) *The Storyboard Artist: A Guide to Freelancing in Film, TV, and Advertising*. California: Michael Wiese Productions.

Decosterd, M.L. (2008) *Right Brain/ Left Brain Leadership*. USA: PRAEGER.

Denzin, N.K. (1978) *The Research Act: A Theoretical Introduction to Sociological Methods*. New York: McGraw-Hill.

Department for Culture, Media and Sport (2011) *The Government's Response to Next Gen. Transforming the UK into the World's Leading Talent Hub for Video Games and Visual Effects Industries*. Online available from

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/77596/Govt-Resp_NextGen_Cm-8226.pdf [Accessed Nov 2011].

Dietrich, A. and Kanso R. (2010) A Review of EEG, ERP, and Neuroimaging Studies of Creativity and Insight. *Psychological Bulletin*, 136 (5), pp. 822–848.

Edwards, B. (2008) *The New Drawing on the Right Side of the Brain*. London: Harper Collins.

Eskelinen, M. (2004) Towards Computer Games Studies. In *First Person: New Media as Story, Performance, and Game*, ed. Noah Wardrip-Fruin and Pat Harrigan, Cambridge: MIT Press, 36.

Gall, M.D., Borg, W.R., and Gall, J.P. (1996) *Educational Research: An Introduction*. 6th ed. White Plains, NY: Longman.

- Gårdenfors, D. (2002) Designing Sound-based Computer Games. In: *Proceedings of the Cybersonica International Festival of Music and Sound*, June 2002. Online available from <http://audiogames.net/pics/upload/gardenfors.pdf> [Accessed Mar 2012].
- Gardner, H. (2012) *Theory of Multiple Intelligence: First 29 Years*. Online available from <http://www.fenichel.com/gardner.shtml> [Accessed Nov 2012].
- Gardner, H. and Hatch, T. (1989) Multiple Intelligences Go to School: Educational Implications of the Theory of Multiple Intelligences. *Educational Researcher*, 18 (8), pp. 4-9.
- Gee, J.P. (2007) *What Video Games Have to Teach Us about Learning and Literacy*. New York: Palgrave Macmillan.
- Gilbert, E. (2009) *Your Elusive Creative Genius*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Mar 2011].
- Greene, J.C., Caracelli, V.J., and Graham, W.F. (1989) Toward a Conceptual Framework for Mixed-method Evaluation Designs. *Educational Evaluation and Policy Analysis*, 11 (3), pp. 255-274.
- Greenberg, S., Carpendale, S., Marquardt, N., Buxton, B. (2012) *Sketching User Experiences*. China: Morgan Kaufmann.
- Guthrie, E.R. (1952) *The Psychology of Learning*. New York: Harper & Row.
- Hammersley, M. (1992) *What's Wrong with Ethnography? Methodological Explorations*. London: Routledge.
- Harris, P. (2007) *Balancing Act: Bridging the Traditional And Technological Aspects of Culture Through Art Education*. The Forum on Public Policy.
- Hauptman, H. and Cohen, A. (2011) The Synergetic Effect of Learning Styles on the Interaction between Virtual Environments and the

Enhancement of Spatial Thinking. *Computers & Education*, 57 (3), pp. 2106-2117.

Hawk, T.F. and Shah A.J. (2007) Using Learning Style Instruments to Enhance Student Learning Decision. *Sciences Journal of Innovative Education*, 5 (1), pp. 1–19.

Hirschheim, R. (1985) Information Systems Epistemology: an Historical Perspective. *Research Methods in Information Systems, Proceedings of the IFIP (International Federation for Information Processing)*, pp. 13–35.

Honey, P and Mumford, A. (2006) *The Learning Styles Questionnaire, 80-item Version*. Maidenhead, UK: Peter Honey Publications.

IP, B. (2012) Fitting the Needs of an Industry: An Examination of Games Design, Development, and Art Courses in the UK. *ACM Transactions on Computing Education*, 12 (2), Article 6.

Jemison, M. (2002) *Teaching Art and Science Together*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Apr 2011].

Jenkins, H. (2004) *Game Design as Narrative Architecture*. Cambridge: MIT press.

Jenkins, H. (2005) *Game, the New Lively Art*. Cambridge: MIT press.

Johnson, S. (2011) *Where Good Ideas Come From: The Seven Patterns of Innovation*. USA: Penguin Books.

Jonassen D. and Land S. (eds) (2012) *Theoretical Foundations of Learning Environments*. 2nd ed. Oxford: Routledge, Taylor and Francis.

Jones, T. and Kelly, B.J. and Rosson, A.S. and Wolfe D. (2007) *Foundation Flash Cartoon Animation*. Apress.

Kawashima, R. (2008) *Train Your Brain: 60 Days to a Better Brain*. Penguin Books.

Kay, A. (2007) *Alan Kay Shares a Powerful Idea about Ideas*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Apr 2010].

Klašnja-Milićević, A., Vesin, B., Ivanović, M. and Budimac, Z. (2011) E-Learning Personalization Based on Hybrid Recommendation Strategy and Learning Style Identification. *Computers & Education*, 56 (3), pp. 885–899.

Klopfer, E. and Osterweil, S. and Salen K. (2009) *Moving Learning Games Forward*. Online available from http://education.mit.edu/papers/MovingLearningGamesForward_EdArcade.pdf [Accessed Nov 2012].

Kolb, D. (1984) Experiential Learning: Experience as the Source of Learning and Development. Englewood Cliffs, NJ: Prentice Hall.

Koller, D. (2012a) *Daphne Koller: Educator*. Online available from http://www.ted.com/speakers/daphne_koller.html [Accessed Nov 2012].

Koller, D. (2012b) *What We're Learning from Online Education*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Nov 2012].

Kongsved, S.M., Basnov, M., Holm-Christensen, K. and Hjollund, N.H. (2007) Response Rate and Completeness of Questionnaires: A Randomized Study of Internet versus Paper-and-Pencil Versions. *J Med Internet Res*, Jul-Sep, 9(3): e25.

Kroll, J. (2000) 'Emotional Engine'? I Don't Think So. *Newsweek*, 6th March, (64).

Kuhn, T.S. (1996) *The Structure of Scientific Revolutions* (3rd edn). Chicago: University of Chicago Press.

LaBerge, D. and Samuels, J. (1974) Towards a Theory of Automatic Information Processing in Reading. *Cognitive Psychology*, 6, pp. 293-323.

LDPrize.net (2012) *What Are Learning Styles?*. Online available from <http://www.ldpride.net/learningstyles.Ml.htm#Learning%20Styles%20Explained> [Accessed Nov 2010].

Lee, C.H.M., Cheng, Y.W., Rai, S. and Depickere, A. (2005) What Affect Student Cognitive Style in the Development of Hypermedia Learning System? *Computers & Education*, 45, pp. 1–19.

Lee, J.J. and Hammer, J. (2011) Gamification in Education: What, How, Why Bother? *Academic Exchange Quarterly*, 15(2).

Leite, W.L., Svinicki, M. and Shi, Y. (2009) *Attempted Validation of the Scores of the VARK: Learning Styles Inventory With Multitrait–Multimethod Confirmatory Factor Analysis Models*. SAGE Publications.

Lincoln, Y. and Guba, E. (1985) *Naturalistic Inquiry*. London: SAGE.

Lincoln, Y.S., and Guba, E.G. (2000) *Paradigmatic controversies, contradictions and emerging confluences*. Thousand Oaks, CA: SAGE.

Linder, J. and Zichermann, G. (2010) *Game-Based Marketing: Inspire Customer Loyalty Through Rewards, Challenges, and Contests*. John Wiley & Sons.

LinkedIn User Experience Group (2010) Discussion: 'Hand Sketching, Does Anyone Else Do It?'. Online available from <http://www.linkedin.com> [Accessed Jun 2010].

LinkedIn User Experience Group (2012) Discussion: 'Are you using a sketchbook for your UI sketches?'. Online available from <http://www.linkedin.com> [Accessed Jun 2012].

LinkedIn User Experience Professionals Network Group (2012) Discussion: 'The Importance of Sketching'. Online available from <http://www.linkedin.com> [Accessed Nov 2012].

Livingstone, I. and Hope, A. (2011) *Next Gen: Transforming the UK into the World's Leading Talent Hub for the Video Games and Visual Effects Industries, a Review*. Published by NESTA online available from http://www.nesta.org.uk/home1/assets/features/next_gen [Accessed Mar 2011].

Lohmann, S., Ziegler, J. and Tetzlaff, L. (2009) Comparison of Tag Cloud Layouts: Task-Related Performance and Visual Exploration, *Interact*, 5726, pp. 392-404.

Lotto, B. (2009) *Optical Illusions Show How We See*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Jan 2010].

LSRC (2004) *Thinking Skill Frameworks for Post-16 Learners: An Evaluation*. University of Newcastle and University of Sunderland.

Maani, L. and Reeves, N. (2012) Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study. *EVA London 2012, Electronic Visualisation and the Arts Proceedings*, pp. 258–265.

Mackay, W., Velay, G., Carter, K., Ma, C., Pagani, D. (1993) Augmenting Reality: Adding Computational Dimensions to Paper. *Communication of the ACM*, 36 (7).

Marshall, L.A. and Rowland, F. (1983) *A Guide to Learning Independently*. Maidenhead: Open University Press.

Maslen, M. and Southern, J. (2011) *Drawing Projects: An Exploration of the Language of Drawing*. London: Black Dog Publishing.

Massironi, M. (2002) *The Psychology of Graphic Images*. New Jersey: Lawrence Erlbaum Associates.

Matsuo, H., McIntyre, K.P., Tomazic, T., and Katz, B. (2004) *The Online Survey: Its Contributions and Potential Problems*. ASA Section on Survey Research Methods. Saint Louis University.

McGettrick, (2002) *Double Helix of Learning*. Online available from http://www.northumbria.ac.uk/static/5007/arpdf/ELLI_in_HE_and_DTS_Posters.pdf [Accessed Nov 2012].

McGilchrist, I. (2009) *The Master and His Emissary: The Divided Brain and the Making of the Western World*. New Haven and London: Yale University Press.

McGonigal, J. (2010) *Gaming Can Make a Better World*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Apr 2010].

McGonigal, J. (2012) *The Game that Can Give You 10 Extra Years of Life*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Nov 2012].

Meyer, J. and Land R. (2003) *Threshold Concepts and Troublesome Knowledge: Linkages to Ways of Thinking and Practising within the Disciplines*. Occasional Report 4, ETL Project, University of Edinburgh, online available from <https://commons.georgetown.edu/m/media/resources/ETL-Report4-Meyer-and-Land2.pdf> [Accessed Apr 2013].

Minkus, K. (2006) Audio in Casual Web, Downloadable and Xbox Live Arcade Games. *IGDA Casual Games Quarterly*, 2(1) Fall 2006. Online available from http://archives.igda.org/casual/quarterly/2_1/index.php?id=7 [Accessed Mar 2012].

- Mokyr, J. (2007) *The European Enlightenment, the Industrial Revolution, and Modern Economic Growth*. Max Weber Lecture Series MWP, online available from http://cadmus.eui.eu/bitstream/handle/1814/7631/MWP_LS_2007_06.pdf;jsessionid=E5CB408D53992F229C93E1B5836B54DA?sequence=1 [Accessed Dec 2010].
- Moore, J.L., Dickson-Deane, C. and Galyen, K. (2011) e-Learning, online learning, and distance learning environments: Are they the same? *Internet and Higher Education*, 14, pp. 129–135.
- Murray, A. (2008) *Public Perceptions of Montessori Education*. Online available from http://www.amshq.org/research/Murray_Dissertation.pdf [Accessed Dec 2010].
- Nagata, T. (1999) *An Investigation into Spatial Visualisation Ability and Drawing Strategies in the Training of Designers in a Japanese Context*. Ph.D., De Montfort.
- Naghshineh, S., Hafler, J.P., Miller, A.R., Blanco, M.A., Lipsitz, S.R., Dubroff, R.P., Khoshbin, S. and Katz, J.T. (2008) Formal Art Observation Training Improves Medical Students' Visual Diagnostic Skills. *J Gen Intern Med*, 23 (7), pp. 991–997.
- Norcini, J. (2008) *An introduction to the Assessment of Skills and Performance*. Online available from <http://www.amee.org/documents/Introduction%20to%20Medical%20Education%20-%20Norcini.pdf> [Accessed Dec 2010].
- Oliver, P. (2008) *Writing Your Thesis*. 2nd ed. London: SAGE.
- Osterwalder, A. and Pigneur, Y. (2010) *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Chichester: Wiley.
- Papert, S. (1998) Does Easy Do It? Children, Games and Learning. *Game Developer Magazine*, p. 88.

Pariser D.A. (1979) Two Methods of Teaching Drawing Skills. *Studies in Art Education*, 20 (3), pp. 30-42.

Patton, M.Q. (1990) *Qualitative Evaluation and Research Methods*. 2nd ed. Newbury Park, CA: SAGE.

Pawlak, K. and Bergquist, W. (2012) *Engaging Experience and Wisdom in a Postmodern Age*. Online available from

<http://www.psychology.edu/about/four-models-of-adult-education/>

[Accessed Nov 2012].

Perry, D. (2008) *Are Games Better than Life*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Jun 2010].

Plowright, D. (2011) *Using Mixed Methods: Frameworks for an Integrated Methodology*. SAGE.

Prensky, M. (2001) *Digital Game-based Learning*. London: McGraw-Hill.

Priebatsch, S. (2010) *The Game Layer on Top of the World*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Oct 2012].

Punch, K. (1998) *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: Sage.

Rabin, S. (2010) *Introduction to Game Development*. 2nd ed. Boston: Charles River Media.

Richardson John T.E. (2011) Approaches to Studying, Conceptions of Learning and Learning Styles in Higher Education. *Learning and Individual Differences*, 21(3), pp. 288–293.

Ring, G. and Mathieux, G. (2002) The key components of quality learning. *The ASTD Techknowledge 2002 Conference*, Las Vegas.

Ritchie, J. and Lewis, J. (2003) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: SAGE.

- Rivello, S.A. (2009) *Creating a Massively Multiplayer Online Game with Adobe Flex 3*. Adobe EDGE, online available from <http://www.adobe.com/inspire-archive/april2009/articles/article2/index.html?trackingid=EOCQW> [Accessed Dec 2011].
- Roam, D. (2009) *The Back of the Napkin: Solving Problems and Selling Ideas with Pictures*. London: Penguin Books.
- Robinson, K. (2006) *Schools Kill Creativity*. Ted Talks: Ideas Worth Spreading, online available from <http://www.tannerlectures.utah.edu/lectures/documents/popper80.pdf> [Accessed Dec 2011].
- Robinson, K. (2009) *The Element: How Finding Your Passion Changes Everything*. London: Penguin Books.
- Rosedale, P. (2008) *Second Life*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Aug 2012].
- Rovai, A.P. and Barnum, K.T. (2003) Online Course Effectiveness: An Analysis of Student Interactions and Perceptions of Learning. *Journal of Distance Education*, 18 (1), pp. 57–73.
- Schell, J. (2010a) *Design Outside the Box*. DICE 2010, online available from <http://www.g4tv.com/videos/44277/dice-2010-design-outside-the-box-presentation/> [Accessed Sep 2012].
- Schell, J. (2010b) *The Art of Game Design: A Book of Lenses*. Burlington: Morgan Kaufmann.
- Schwandt, T.A. (1997) *Qualitative Inquiry: A Dictionary of Terms*. Thousand Oaks, CA: SAGE.
- Seckel, A. (2004) *Powerful Visual Illusion*. Ted Talks: Ideas Worth Spreading, online available from <http://www.ted.com/talks> [Accessed Apr 2010].

Shirani, B.F. and Yamata, H. (2010) Learning Style Preferences by Iranian EFL Freshman University Students. *Procedia Social and Behavioral Sciences*, 7(C), pp. 219–226.

Silverman, D. (2010) *Doing Qualitative Research*. London: SAGE.

Smith K. (2011) Curiositas and Studiositas: Investigating Student Curiosity and the Design Studio. *International Journal of Art and Design Education*, 30 (2), pp.161-175.

Smith, M.K. (2008) *Howard Gardner, Multiple Intelligences and Education*. Online available from <http://www.infed.org/thinkers/gardner.htm> [Accessed Nov 2012].

Soanes, C. and Stevenson, A. (2005) *Oxford Dictionary of English*. 2nd ed, revised. Oxford: Oxford University Press.

Suinn R.M. (1997) Mental Practice in Sports Psychology: Where Have We Been, Where Do We Go?. *Clinical Psychology: Science and Practice*, 4 (3), pp.189-207.

Schwartz, T. (1989). "The Art of the Mind". *New York*: pp. 42–59.

Tashakkori, A. and Teddlie, C. (2003) *Handbook of Mixed Methods in Social and Behavioural Research*. Thousand Oaks, CA: SAGE.

The Charlotte Visualization Centre (2007) *The University of North Carolina at Charlotte*, online available from <http://www.viscenter.uncc.edu/> [Accessed May 2007].

Thurman, M. and Hearn, E. (2010) *Get Graphic!: Using Storyboards to Write and Draw Picture Books, Graphic Novels, or Comic Strips*. Pembroke Publishing Ltd.

Turner, T.J., Thomas, L. and Owen C. (2013) Living the Indie Life: Mapping Creative Teams in a 48 Hour Game Jam and Playing with Data.

Proceedings of the 9th Australasian Conference on Interactive Entertainment: Matters of Life and Death (IE '13).

University of Gloucestershire (2008) *Research Ethics: A Handbook of Principles and Procedures*. University of Gloucestershire Research Degrees Committee. Online available from:
<http://resources.glos.ac.uk/currentstudents/research/ethics/index.cfm>
[Accessed Mar 2011].

University of Gloucestershire (2010) *Interactive Games Design 2010 Entry*. Online available from <http://www.glos.ac.uk> [Accessed Mar 2010].

University of Gloucestershire (2010) *Interactive Games Design 2011 Entry*. Online available from
<http://www.glos.ac.uk/courses/undergraduate/igd/Pages/entry2011.aspx>
[Accessed Dec 2010].

White K. (2011) *101 Things to Learn in Art School*. Cambridge, MA: MIT Press.

Williams, R. (2008) *The Non-Designer's Design Book*, 3rd ed. California: Peachpit Press.

Wolcott, H. (1994) *Transforming Qualitative Data: Description, Analysis and Interpretation*. Thousand Oaks, CA: SAGE.

Wouters, P., Oostendorp, H.V., Boonekamp, R., and Spek, E.V.D. (2011) The Role of Game Discourse Analysis and Curiosity in Creating Engaging and Effective Serious Games by Implementing a Back Story and Foreshadowing. *Interacting with Computers*, 23 (4), pp. 329–336.

Yang, C. and Cham, G. (2007) An Analysis of Sketching Skill and Its Role in Early Stage Engineering Design, *ASME*, 129, pp. 476-482.

Zichermann, G. (2011) *TEDxKids@Brussels - Gabe Zichermann - Gamification*. YouTube, online available from <http://www.youtube.com/watch?v=O2N-5maKZ9Q> [Accessed Mar 2012].

Zinn, L. M. (1990) Identifying your philosophical orientation. In M. Galbraith (Ed.), *Adult Learning Methods*, pp. 39–77.

Appendix A: Consent Form for Initial Interviews

Consent Form for Student Participants

Project Title: Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study.

Thank you for taking the time to read this information.

My name is Leila Maani and I am a PhD student at the University of Gloucestershire. The purpose of my study is to look at the impact of sketching and drawing skills on finishing the Game Design course successfully. Results from this study will have the opportunity to provide new information on the role of drawing skills in the game design process. It is hoped that this will enhance our understanding of the possible solutions that may affect the teaching materials for delivering this course.

You can help in this study by consenting to take part in an interview, which will be recorded and notes will be taken. It will be really appreciated if you can provide examples of your current portfolio if you have any. Participation in this study is voluntary. You may withdraw your consent during or after the interview, at which time the recording will be destroyed. No names or other information that might identify you will be used in any publication or documentation arising from the research and your responses will be treated in strictest confidence. If you find some of the questions difficult to answer or silly you are not to worry about them. Since there are no right or wrong answers, the researcher is only interested in your opinions and personal experiences. You are perfectly free to ask clarification about any question. If you decide to withdraw from the study or do not take part, this will not in any way affect your studies at the University of Gloucestershire.

The original recording will be stored on DVDs. The DVDs will be kept by the researcher in a secure location during the data collection and transcription parts of the study and then will be destroyed after completion of qualification. A written transcript will be made from the recording and will

contain no names or details that might identify you and the audio recording of your interview will not be played publicly.

If you are willing to participate in this interview, could you please complete the consent section below? If you have any questions about this study please feel free to contact me, Leila Maani on s0111481@glos.ac.uk or my supervisor Dr. Nina Reeves on nreeves@glos.ac.uk.

Consent

I have read the above information. I have received a copy of this form. I agree to participate in this interview.

Participant's name and signature

Date

Researcher's signature

Date

Appendix B: Interview Guide for Initial Student Participants Interview

Interview Guide for Student Participants

Date/Time:

Location:

Student Name:

1- Permission to record and note taking

Thank you for being willing to take part in a follow-up interview. Can I first of all assure you that you will remain completely anonymous and no records of the interview will be kept with your name on them.

2- Introduce self, explain the length of the interview and purpose of study

3- Educational background: A-Levels and Artistic background

- Could you tell me about your educational backgrounds?
- If in the UK, what A-levels did you take or pass?
- Have you taken Arts at school?
- Can you tell me about your experience in Art if you have any?

4- Viewpoint about the impact of having drawing skills on success in Games Design

- What relationship do you think there is between Game Design and drawing?
- What is your view point about the necessity of having drawing skills to do this course?

5- Evaluation of artistic abilities

- How do you describe your abilities in drawing?

6- Action Learning

- Did you ever do a task like the one you were given before?

7- Information about the Game Design course (How and Why)

- Why did you choose this course?
- What do you know about this course?
- How did you get this information?

8- Expectations from the Game Design course

What do you expect from this course?

9- Expectations after finishing this course

What do you expect you will be able to do at the end of your studies?

10- Is there anything else you want to tell me?

11- Are you willing to participate on a more longitudinal basis in this research throughout your study?

12- Appreciation and say goodbye.

13- Test the recorder, fill in the gaps in the notes and write down the impression.

Appendix C: Consent Form for Observing Drawing Sessions

Consent Form for Student Participants

Project Title: Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study.

Thank you for taking the time to read this information.

My name is Leila Maani and I am a PhD student at the University of Gloucestershire. The purpose of my study is to look at the impact of sketching and drawing skills on finishing the Game Design course successfully. Results from this study will have the opportunity to provide new information on the role of drawing skills in the game design process. It is hoped that this will enhance our understanding of the possible solutions that may affect the teaching materials for delivering this course.

You can help in this study by consenting to have some of your drawings be collected after recording the drawing sessions by digital video camera. Participation in this study is voluntary. You may withdraw your consent during or after the drawing sessions or workshops, at which time the recording will be destroyed. No names or other information that might identify you will be used in any publication or documentation arising from the research. If you decide to withdraw from the study or do not take part, this will not in any way affect your studies at the University of Gloucestershire.

Being in this study will not involve any extra time for you. It will only mean that the drawing sessions you are already having will be video recorded. After transcription, the original recording will be stored on DVDs. The DVDs will be kept by the researcher in a secure location during the data collection and transcription parts of the study and then will be destroyed after completion of qualification. A written transcript will be made from the

Appendix D: Consent Form for Observing Final Presentation Sessions

Consent Form for Student Participants

Project Title: Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study.

Thank you for taking the time to read this information.

My name is Leila Maani and I am a PhD student at the University of Gloucestershire. The purpose of my study is to look at the impact of sketching and drawing skills on finishing the Game Design course successfully. Results from this study will have the opportunity to provide new information on the role of drawing skills in the game design process. It is hoped that this will enhance our understanding of the possible solutions that may affect the teaching materials for delivering this course.

You can help in this study by consenting to have your final presentations collected after video recording the session by digital video camera. Participation in this study is voluntary. You may withdraw your consent during or after the drawing sessions or workshops, at which time the recording will be destroyed. No names or other information that might identify you will be used in any publication or documentation arising from the research. If you decide to withdraw from the study or do not take part, this will not in any way affect your studies at the University of Gloucestershire.

Being in this study will not involve any extra time for you. It will only mean that the drawing sessions you are already having will be video recorded. After transcription, the original recording will be stored on DVDs. The DVDs will be kept by the researcher in a secure location during the data collection and transcription parts of the study and then will be destroyed after completion of qualification. A written transcript will be made from the

Appendix E: 2010 End Semester Survey Monkey Questionnaire and Email Communications

First Email

Dear **[Actual Name of the Student]**

My name is Leila Maani, a PhD student at the University of Gloucestershire and the purpose of my study is to look at whether sketching and drawing skills are essential for students on modules in the Game Design course.

Last semester we met and you showed me your first sketches in your log books. Thank you for helping me in this research and I wondered if you could help me a bit more by completing a short survey about your feelings about drawing and sketching for storyboards.

It would really help me out and I will, of course, keep your responses anonymous.

Also please feel free to leave any question you don't want to answer to.

In order to go to the questions please follow the link below:

<https://www.surveymonkey.com/s/T7QMMWW>

I would also appreciate if you would kindly share your viewpoints regarding the issues below:

1. What do you find the most difficult bit of storyboarding?
2. What do you enjoy least and most about IGD110 module?
3. Do you have any suggestions regarding delivery of IGD110 module?

Many thanks and looking forward for your reply,

Leila Maani

Second Email

Hi everyone,

I hope you are all fine and doing well with your assignments.

I would like to thank you for your time and cooperation in my studies so far.

My research is going well and I have found interesting points regarding the essential nature of drawing skills in Games Design. However, your ideas and feelings are really important to the validity of this work.

So, if you haven't so far, I would really appreciate if you could help me a bit more by completing a short survey about your feelings about drawing and sketching for storyboards.

In order to go to the survey please follow the link below:

<https://www.surveymonkey.com/s/T7QMMWW>

Many thanks and best wishes for the final days of this semester,

Leila Maani

The Questionnaire

| Drawing Skills and Games Design | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In this survey it is intended to investigate the impact of sketching skills on storyboarding and games design based on your experience in the last two semesters studying a module in games design (IGD110). Your views are important to this research, so I am grateful if you kindly complete this survey. | | | | | | |
| 1. All students studying games design need to be able to draw. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 2. Only students interested in game level design or character design need to be able to draw. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 3. Being able to sketch roughly is enough for storyboarding in Game Design. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 4. Sketching on paper is best. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 5. I feel happier using a computer-based sketching tool. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 6. I feel confident in my drawing skills for storyboarding. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 7. I prefer to convey the story of my games by describing it in the form of text or mind maps rather than drawing. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |
| 8. Software and technologies are helpful in overcoming poor drawing skills. | | | | | | |
| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
| Answer: | <input type="radio"/> |

Drawing Skills and Games Design

9. I found the art workshop which was to provide a set of basic drawing skills last semester encouraging for the development of storyboarding expertise.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

10. I feel my storyboarding skills have progressed since the start of IGD110 module in September 2010.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

11. I think the most important element to a successful game is the design quality of characters and environments of the game.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

12. I think game designers with poor sketching skills do not necessarily have problems in transferring their ideas because there are others in the team to do it for them.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

13. I think good story is more important than good graphics in the success of a game.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

14. I think learning some aspects of drawing like perspective is necessary for storyboarding.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

15. I feel I would progress more if I used software to help me draw.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

16. I feel there is a need to know about positive and negative spaces and how to draw them for storyboarding.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

Drawing Skills and Games Design

17. I feel computer games design students need to know about human proportions and gestures in order to design their game characters.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

18. I think computer games design students need to know about storyboarding techniques like movement between frames to sketch their storyboards.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

19. I think a software for aiding in storyboarding is necessary for computer games design courses.

| | Agree strongly | Agree | Somewhat agree | Somewhat disagree | Disagree | Disagree strongly |
|--------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Answer | <input type="radio"/> |

20. What do you find the most difficult bit of storyboarding?

21. What did you enjoy most about IGD110 module?

22. What did you enjoy least about IGD110 module?

23. Do you have any suggestions regarding delivery of IGD110 module?

I'd like to thank you again for joining in and appreciate your time.

Appendix E2: 2010 End Semester Survey Monkey Questionnaire Results

| 2010 End Semester Survey Monkey Questionnaire Results (Sketching Skills- Criteria to Evaluate Storyboarding) | | | | | |
|---|---|----------------|----------------|-------------------|------------------|
| Rating Average (RA) Scores: Agree Strongly(1) Agree (2) Somewhat Agree (3) Somewhat Disagree (4) Disagree (5) Disagree Strongly (6) | | | | | |
| No. | Question | Rating Average | Response Count | Answered Question | Skipped Question |
| 01 | All students studying games design need to be able to draw. | 3.57 | 7 | 7 | 0 |
| 02 | Only students interested in game level design or character design need to be able to draw. | 4.00 | 7 | 7 | 0 |
| 03 | Being able to sketch roughly is enough for storyboarding in Game Design. | 2.29 | 7 | 7 | 0 |
| 04 | Sketching on paper is best. | 2.43 | 7 | 7 | 0 |
| 05 | I feel happier using a computer-based sketching tool. | 4.14 | 7 | 7 | 0 |
| 06 | I feel confident in my drawing skills for storyboarding. | 2.71 | 7 | 7 | 0 |
| 07 | I prefer to convey the story of my games by describing it in the form of text or mind maps rather than drawing. | 3.29 | 7 | 7 | 0 |
| 08 | Software and technologies are helpful in overcoming poor drawing skills. | 2.29 | 7 | 7 | 0 |
| 09 | I found the art workshop which was to provide a set of basic drawing skills last semester encouraging for the development of storyboarding expertise. | 2.5 | 6 | 6 | 1 |
| 10 | I feel my storyboarding skills have progressed since the start of IGD110 module in September | 2.86 | 7 | 7 | 0 |

| | | | | | |
|----|---|------|---|---|---|
| | 2010. | | | | |
| 11 | I think the most important element to a successful game is the design quality of characters and environments of the game. | 3.17 | 6 | 6 | 1 |
| 12 | I think game designers with poor sketching skills do not necessarily have problems in transferring their ideas because there are others in the team to do it for them. | 3.14 | 7 | 7 | 0 |
| 13 | I think good story is more important than good graphics in the success of a game. | 3.14 | 7 | 7 | 0 |
| 14 | I think learning some aspects of drawing like perspective is necessary for storyboarding. | 2.86 | 7 | 7 | 0 |
| 15 | I feel I would progress more if I used software to help me draw. | 3.29 | 7 | 7 | 0 |
| 16 | I feel there is a need to know about positive and negative spaces and how to draw them for storyboarding. | 3.14 | 7 | 7 | 0 |
| 17 | I feel computer games design students need to know about human proportions and gestures in order to design their game characters. | 3.29 | 7 | 7 | 0 |
| 18 | I think computer games design students need to know about storyboarding techniques like movement between frames to sketch their storyboards. | 2.57 | 7 | 7 | 0 |
| 19 | I think software for aiding in storyboarding is necessary for computer games design courses. | 4.00 | 7 | 7 | 0 |
| 20 | <p>What do you find the most difficult bit of storyboarding?</p> <p><u>Comments (Replies):</u></p> <ul style="list-style-type: none"> • Drawing • Conveying dialogue effectively | | 6 | 6 | 1 |

| | | | | |
|----|--|---|---|---|
| | <ul style="list-style-type: none"> • Making the things trying to be shown to look good and realistic • Drawing realistic things • showing all the detail needed • Drawing faces and expressions | | | |
| 21 | <p>What did you enjoy most about IGD110 module?</p> <p><u>Comments (Replies):</u></p> <ul style="list-style-type: none"> • Structure • Preliminary design work for the game • Making a game • Playing games as part of research • Coding • drawings | 6 | 6 | 1 |
| 22 | <p>What did you enjoy least about IGD110 module?</p> <p><u>Comments (Replies):</u></p> <ul style="list-style-type: none"> • Having to rework the whole idea of the game brief we were provided to suit what limitations we had • Some people in teams not pulling their weight • --- • drawing sprites for character animation • programing | 4 | 4 | 3 |
| 23 | <p>Do you have any suggestions regarding delivery of IGD110 module?</p> <p><u>Comments (Replies):</u></p> <ul style="list-style-type: none"> • Go more into depth with xna • Maybe some of the main elements for programming could be explained earlier and a bit better • ---- • more hands-on workshops would be beneficial • I wish some drawings could take less time (personal opinion) | 4 | 4 | 3 |

| IGD14 Reply to Open Ended Questions |
|--|
| Question 1: What do you find the most difficult bit of storyboarding? |
| <p><u>Comments (Replies):</u></p> <p>Breaking up what you are trying to convey into smaller parts to fit into the frames. I often end up making my storyboards too vague, with too few frames and not enough continuity between each one. I generally solve this by writing more text but this is probably a bad way to do it.</p> |
| Question 2: What do you enjoy least and most about IGD110 module? |
| <p><u>Comments (Replies):</u></p> <p>I enjoy programming the most. I think it gives a very visual and interactive way to channel creativity/innovation. It also has very granular difficulty levels, so even people who know very little can produce meaningful/usable results, while those who are more skilled can continually be challenged. I did not enjoy the documentation, it was very vague and (in some areas) irrelevant to the project.</p> |
| Question 3: Do you have any suggestions regarding delivery of IGD110 module? |
| <p><u>Comments (Replies):</u></p> <p>It often feels like the lectures lag a few weeks behind what you are doing on your project at home. (i.e.: mapping lectures come several weeks after starting the maps). This may well be an unsolvable problem but it's annoying none the less.</p> |

Appendix F: 2011 End Semester Questionnaire

Sketching Skills-Confidence in Games Design

Hi everyone,

I hope you are all fine and doing well with your assignments.

I would like to thank you for your time and cooperation in my studies so far.

My research is going well and I have found interesting points regarding the essential nature of drawing skills in Games Design. However, your ideas and feelings are really important to the validity of this work.

I would really appreciate if you could help me a bit more by completing a short survey about your feelings about sketching for storyboards.

Many thanks and best wishes,

Leila Maani

| Sketching Skills-Confidence in Games Design | 1 | 2 | 3 | 4 | 5 |
|--|----------------|----------------|----------------------------|-------------------|-------------------|
| | Strongly Agree | Somewhat Agree | Neither Agree Nor Disagree | Somewhat Disagree | Strongly Disagree |
| 1- All students studying Games Design need to be able to draw. | | | | | |
| 2- Only students interested in Games level design or character design need to be able to draw. | | | | | |
| 3- Being able to sketch roughly is enough for storyboarding in Game Design. | | | | | |
| 4- Sketching on paper is best. | | | | | |
| 5- I feel happier using a computer-based sketching tool. | | | | | |
| 6- I feel confident in my drawing skills for storyboarding. | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| 7- I prefer to convey the story of my games by describing it in the form of text or mind maps rather than drawing. | | | | | |
| 8- Software and technologies are helpful in overcoming poor drawing skills. | | | | | |
| 9- I found the art workshop which was to provide a set of basic drawing skills last semester encouraging for the development of storyboarding expertise. | | | | | |
| 10- I feel my storyboarding skills have progressed since the start of IGD130 module in September 2011. | | | | | |
| 11- I got more confident in my ability to communicate my ideas by learning techniques like "Tracing" in Adobe Flash. | | | | | |
| 12- After spending one semester doing this course I feel having sketching skills is more important than I estimated. | | | | | |
| 13- I feel the problem in sketching skills is more to do with lack of confidence than lack of the skill. | | | | | |
| 14- I think acquiring sketching skills is easy. | | | | | |
| 15- When I'm told I am about to learn something in a class the subject looks harder to learn. | | | | | |
| 16- Active learning method helps students overcome their confidence problem more easily. | | | | | |

Appendix F2: 2011 End Semester Questionnaire Results

| 2011 End Semester Questionnaire Results (Sketching Skills- Confidence in Games Design) | | | | | |
|--|---|----------------|----------------|-------------------|------------------|
| Rating Average (RA) Scores: | | | | | |
| Agree Strongly(1) Somewhat Agree (2) Neutral (3) Somewhat Disagree (4) Disagree Strongly (5) | | | | | |
| No. | Question | Rating Average | Response Count | Answered Question | Skipped Question |
| 01 | All students studying Games Design need to be able to draw. | 3.18 | 28 | 28 | 0 |
| 02 | Only students interested in Games level design or character design need to be able to draw. | 3.07 | 28 | 28 | 0 |
| 03 | Being able to sketch roughly is enough for storyboarding in Game Design. | 1.93 | 28 | 28 | 0 |
| 04 | Sketching on paper is best. | 2.39 | 28 | 28 | 0 |
| 05 | I feel happier using a computer-based sketching tool. | 2.11 | 27 | 27 | 1 |
| 06 | I feel confident in my drawing skills for storyboarding. | 2.93 | 28 | 28 | 0 |
| 07 | I prefer to convey the story of my games by describing it in the form of text or mind maps rather than drawing. | 2.33 | 27 | 27 | 1 |
| 08 | Software and technologies are helpful in overcoming poor drawing skills. | 1.78 | 27 | 27 | 1 |
| 09 | I found the art workshop which was to provide a set of basic drawing skills last semester encouraging for the development of storyboarding expertise. | 2.46 | 28 | 28 | 0 |
| 10 | I feel my storyboarding skills have progressed since the start of IGD130 module in September 2011. | 2.37 | 27 | 27 | 1 |

| | | | | | |
|----|--|------|----|----|---|
| 11 | I got more confident in my ability to communicate my ideas by learning techniques like "Tracing" in Adobe Flash. | 1.86 | 28 | 28 | 0 |
| 12 | After spending one semester doing this course I feel having sketching skills is more important than I estimated. | 2.5 | 28 | 28 | 0 |
| 13 | I feel the problem in sketching skills is more to do with lack of confidence than lack of the skill. | 3.07 | 28 | 28 | 0 |
| 14 | I think acquiring sketching skills is easy. | 2.96 | 28 | 28 | 0 |
| 15 | When I'm told I am about to learn something in a class the subject looks harder to learn. | 3.43 | 28 | 28 | 0 |
| 16 | Active learning method helps students overcome their confidence problem more easily. | 2.29 | 28 | 28 | 0 |

Appendix G: Discussion Guide for Longitudinal Studies

Discussion Guide

(Designed mainly for in-depth interview for the longitudinal study on selected students)

Story Behind the Research

Multimedia Games Design team realised that a number of students have difficulties on getting their ideas across when designing their games. They believed that the students had ideas about the characters and environments of their games but somehow they were unable to communicate those ideas and as a result they get more into programming side of Games Design and some eventually get frustrated and quit the course.

The team suggested that having or obtaining drawing/storyboarding skills might have the key role to address this problem, since the students didn't need to have Art background to attend this course. So they arranged an Art workshop at the beginning of 1'st semester in order to help students realise their drawing/ storyboarding skill level.

Start of the Research

In order to see the effectiveness of drawing/storyboarding skills on the success of Games Design students I started observing 2010 students by asking their viewpoints at the beginning and end of the 1'st semester and gathering samples of their sketching at different points.

Evolution of the Research

- 1- Experts from other universities have the same issue on their course as our MGD team observed.
- 2- At the start of the course the majority of students believed drawing/storyboarding skills are not a must-have skill.
- 3- At the start of the course the majority of students believed being able to sketch roughly would be fine.
- 4- At the start of the course majority of students believed that if they can describe their ideas, someone else could draw for them.

- 5- At the end of the 2nd semester (at COMX 11) a couple of students said those skills are more important than they estimated before.
- 6- Experts have said that in reality Art cannot happen in short time, especially by just one workshop. So they have suggested using some other techniques to work around the problem such as using photographs and images from Internet and manipulating them in Photoshop or using tracing technique in Flash or other sorts of techniques to get ideas across.
- 7- Based on studies and experts' viewpoints I have devised a set of CRITERIA or elements most necessary in drawing/ storyboarding such as:
 - Timing (having beginning, middle and end)
 - Gestures
 - Level of details (camera angles: 1st or 3rd person)
 - Perspective (simple form: overlap of objects)
 - Depth and distance
 - Light and shadow
 - Effective use of lines
 - Basic shapes
 - Background
 - Positive/negative shapes
 - Negative space
 - Energy and fun

Seeking Viewpoints (longitudinal study)

After nearly 3 semester of experiencing different modules in Games Design course, I would like to update my information based on your new viewpoints.

- 1- How important do you think having drawing/storyboarding skills are in getting your ideas across?
- 2- What is your idea about the effectiveness of an art workshop on students' storyboarding skills?
- 3- Do you think that learning how to storyboard through software can replace tutor-led storyboarding sessions?

- 4- How this kind of software should be so that students feel it's going to be meaningful to them?
- 5- How do you feel about using other techniques (like diagrams, mind maps, tracing tool in Flash, other tools in other software) to communicate your ideas if you don't have drawing skills?
- 6- Do you think a person without visual skills can use any work around techniques to get ideas across?
- 7- How necessary are storyboards to deliver a game either individually or in a team from your point of view? (Can you create a game without storyboard?)
- 8- Some believe the main problem in communicating ideas via drawing is fear of drawing and lack of confidence. What does your experience say about this?
- 9- What are the differences between creating ideas on paper and on screen? (Does sketching on screen decrease quality comparing to sketches on paper?)
- 10- How do you feel about relationship between creativity and drawing during the Games Design process?
- 11- Which part do you think students struggle most while visualising their games elements: Characters, Props (objects) or Environment?
- 12- Which area do you think is more effective to focus when learning storyboard drawing for the first time: 1- working on visual awareness (fundamental visual understanding) or 2- Rapid prototyping (using all tools and techniques available to work around the design quickly?)
- 13- Do you think there is any relationship between the person's learning style (VARK: Visual, Aural, Read/write, and Kinesthetic sensory) and this whole matter

Appendix H: Email Communication to the Experts

First Email

Dear **[Actual Name of the Expert]**

My name is Leila Maani, a PhD student at the University of Gloucestershire and my research title is “Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study”.

Amongst the objectives of my research are:

- 1- Exploring the nature and necessity of drawing skills for sketching storyboards.
- 2- Identifying criteria to assess the quality of storyboards.
- 3- Investigating the effect of a drawing tutorial intervention.

I have observed a group of Interactive Game Design students and gathered:

- 1- Their first drawings from their logbooks at the start (week3) of an initial game course - before they had the drawing tutorial.
- 2- The drawing of their imaginary scene from a story read by the tutor in an intervention art workshop (week4).
- 3- Their final implemented drawings for their games (week11) - at the end of the semester.

My understanding of criteria for judging the improvement of sketching so far is something like:

- Level of detail
- Perspective
- Completeness (does it have a clear sense of beginning, middle and end)
- Consistency of presentation within different frames
- Scenes (use of different viewpoints: standing back from a big scene, etc.)
- Observational skills

However, I need the vision of an expert to complete my list. Would it be possible for me to make an appointment for a 30 minute meeting to show you some storyboard examples?

I would like to emphasise how much I value your viewpoints and appreciate your time and attention in advance.

If you have any questions do please contact my advisor Dr Nina Reeves nreeves@glos.ac.uk who will be happy to help.

Many thanks and kind regards,
Leila Maani

Second Email

Dear **[Actual Name of the Expert]**

My name is Leila Maani, a PhD student at the University of Gloucestershire and my research title is “Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study”.

Amongst the objectives of my research are:

- 1- Exploring the nature and necessity of drawing skills for sketching storyboards.
- 2- Identifying criteria to assess the quality of storyboards.
- 3- Investigating the effect of a drawing tutorial intervention.

Currently I am about to create an e-learning piece of software to be used by students as a tool to help with their storyboarding skills. For this I need the vision of experts to help me understand more about the specifications of my software and the criteria based on which the storyboards can be assessed.

Would it be possible for me to make an appointment for a 30 minute meeting to show you some storyboard examples?

I would like to emphasise how much I value your viewpoints and appreciate your time and attention in advance.

If you have any questions do please contact my advisor Dr Nina Reeves nreeves@glos.ac.uk who will be happy to help.

Many thanks and kind regards,
Leila Maani

Appendix I: Discussion Guide for Initial Interview with Experts Including 2010-11 Taster Sheet

A Taster Sheet to Define CRITERIA for Storyboarding

“Encouraging the Acquisition of Drawing Skills in Game Design: A Case Study” is the title of a PhD research project. In this study the researcher intends to:

- 1- Identify the problems experienced by students with drawing for storyboard communication and establish their impact on student attitude and motivation.
- 2- Explore the nature and necessity of drawing skills for sketching storyboards.
- 3- **Identify criteria to assess the quality of storyboards.**
- 4- Investigate the effect of a drawing tutorial intervention:
 - I. Establish student participants’ initial level of artistic confidence and competence.
 - II. Investigate the effect of a drawing tutorial intervention by assessing students’ assignment outcomes at the end of the semester.
- 5- Design a framework for an electronic learning object to develop storyboard communication skills.

This presentation is designed to elicit cooperation from experts to address aim 3 of this study. The images used in this presentation are collected from students’ storyboarding for the assignment of an initial Interactive Games Design module (IGD110) in the 2010-11 academic year. The assignment is as following:

Design a prototype role playing game for a local school that helps children learn a topic of your choice in a fun and interesting way for the target audience 8-10 years.

| Image 1 | Image 2 | Image 3 |
|--|---|---|
| <p>The images allocated in this column are what students sketched to visualise a scene of a story. They drew these after listening to a short story that the tutor of the intervention art workshop read to them in week 4 (The story comes in next page). These were collected to provide more details about students drawing skills at the beginning of the course.</p> | <p>The images allocated in this column are collected from students' log books in week 3. They were supposed to design the characters and elements of their games for the assignment of the initial Interactive Games Design module (IGD 110). These were collected as baseline information about their sketching skills.</p> | <p>The images allocated in this column are collected from students' final presentations in week 11. These are students final designs for their games. These are collected to provide information for evaluating their development in terms of sketching skills for storyboarding during this time (week 3 to week 11).</p> |

The Story

Autumn

(By Nina Reeves)

Red, gold, crunchy leaves were littered all around the path under the trees. He scrunched through the pines feeling the start of the chill wind from the eastern mountains. The woods gave some shelter to prey and predator alike.

Feeling pangs of hunger, he walked towards the edge of the wood and the fields of ripening corn. Juicy cobs of yellow – how good they would taste dripping in butter. But the meal would need some meat; what was that he could smell on the air? He turned and searched the field, noticing a path and a slight sound. What was that?

Adopting a more crouching position, he edged around the trees and saw a small cottage – thatched roof and wooden veranda outside. Someone was inside, singing softly. What an opportunity! He glanced round – no-one in sight!

“Rat-a-tat-tat!” on the flimsy wooden door.

“This won’t hold out if I give it a shove,” he thought.

“Who’s there?” came a high-pitched voice.

“Little pig, little pig, let me come in!” said the wolf.

Samples of Drawings and Final Presentations 2010-11 Students

IGD06

Visualisation of a scene of a story
(week 4)



Laila Meeni-Mey 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



IGD08

Visualisation of a scene of a story
(week 4)



Laila Meeni-Mey 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



IGD09

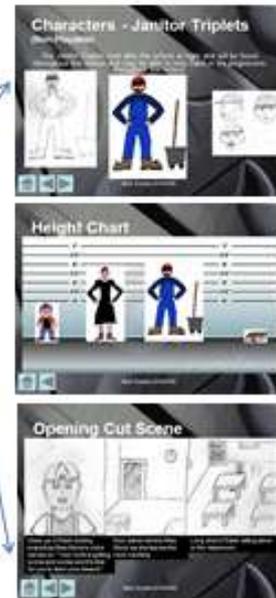
Visualisation of a scene of a story
(week 4)



First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



Lella Meani-May 2011

IGD14

Visualisation of a scene of a story
(week 4)



First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



Lella Meani-May 2011

IT01

Visualisation of a scene of a story
(week 4)

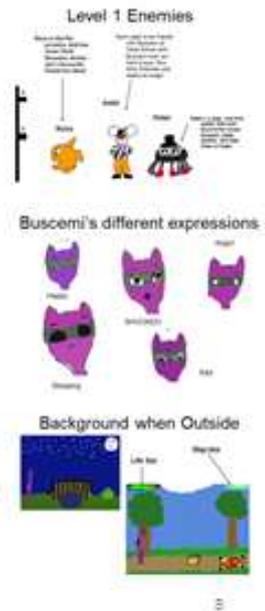


Leila Meani-May 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



STU03

Visualisation of a scene of a story
(week 4)



Leila Meani-May 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



IGD29

Visualisation of a scene of a story
(week 4)



Laila Meani-Mey 2011

First Sketches from Log Book
(week 3)



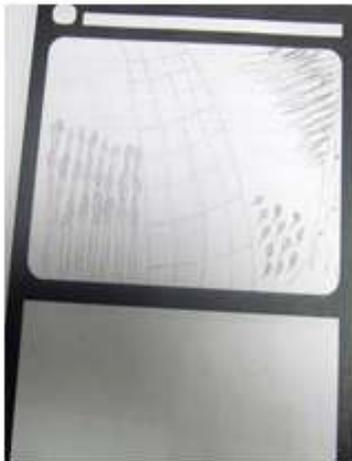
Final Presentation
(week 11)



10

IT02

Visualisation of a scene of a story
(week 4)

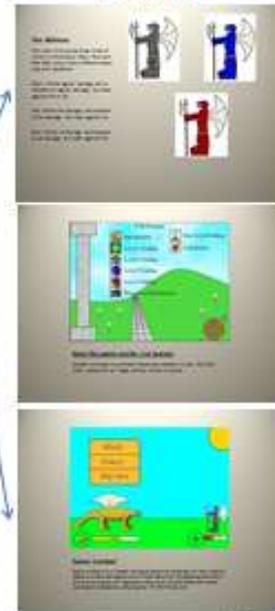


Laila Meani-Mey 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



11

STU05

Visualisation of a scene of a story
(week 4)



First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



Laila Meani-Mey 2011

12

STU08

Visualisation of a scene of a story
(week 4)



First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



Laila Meani-Mey 2011

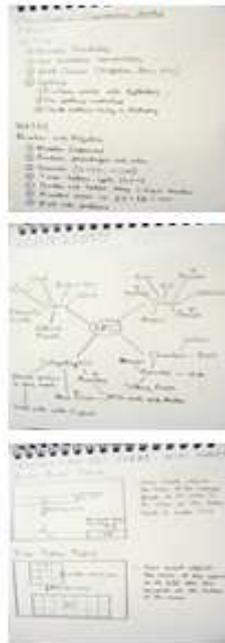
13

IGD02
 Visualisation of a scene of a story
 (week 4)

Not Available

Laila Meani-Mey 2011

**First Sketches from Log Book
 (week 3)**



**Final Presentation
 (week 11)**



IGD03
 Visualisation of a scene of a story
 (week 4)

Not Available

Laila Meani-Mey 2011

**First Sketches from Log Book
 (week 3)**



**Final Presentation
 (week 11)**



IGD04

Visualisation of a scene of a story
(week 4)

Not Available

Laila Meani-May 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



16

IGD05

Visualisation of a scene of a story
(week 4)

Not Available

Laila Meani-May 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



17

IGD07

Visualisation of a scene of a story
(week 4)

Not Available

Lella Meani-Mey 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



18

IGD15

Visualisation of a scene of a story
(week 4)

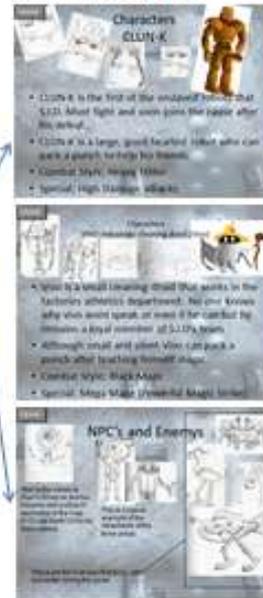
Not Available

Lella Meani-Mey 2011

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



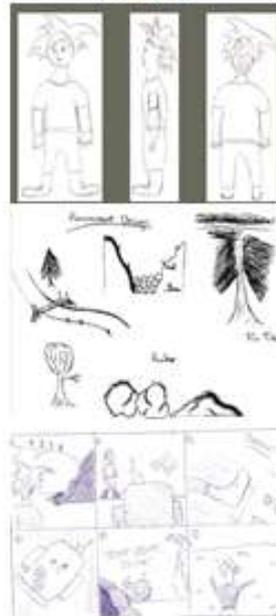
19

IGD22

Visualisation of a scene of a story
(week 4)

Not Available

First Sketches from Log Book
(week 3)



Final Presentation
(week 11)



Laila Meani-Mey 2011

20

Appendix J: Discussion Guide for Final Interview with the Experts

Seeking Experts' Advice on Developing a Set of CRITERIA to Evaluate the Animatics Made by 2010-11 Students

Base:

Communication of ideas → storyboarding → animatics → trailers → Game

Ideas:

- 1- Design: visual/ cut scenes/storyboards
- 2- Development: mechanics of games/ layout charts OR branching diagrams

CRITERIA

Art

- Effective use of style,
- Effective use of line,
- Positive-negative space (Contrast),
- Illusion of perspective,
- Light-shadow,
- Consistency (Repetition).

Film/Animation

- Time sequence,
- Pace1 (Stimulate attention by different stresses in telling the narrative),
- Pace2 (How fast the narrative is been driven),
- Location of interaction,
- Characterization,
- Annotation,
- Camera viewpoints.

Games

- Level of uncertainty,
- Aspects of user controls (AoUC),
- Feedback (Reduce short term memory load =help users recognise easily what to do in a situation),

- Accessibility (Cater to universal usability).

Aims:

- Triangulation
- Finding more efficient definition for the elements of CRITERIA
- Be able to finalise the set of CRITERIA to assess storyboards for Games as objective as possible

Questioning Process:

- 1- Which section of CRITERIA do you emphasise most for evaluation a storyboard/animatic?
- 2- Meaning of pace?
- 3- Show animatic 01 to the expert.
- 4- What is your synopsis of the story?
- 5- Evaluate the animatic based on CRITERIA by likert scale (Very good, Good, Neutral, Poor, Very poor)+ comments
- 6- Do you encourage your students to make animatics?
- 7- How do you evaluate your students' storyboards/animatics?
 - Comparison?
 - Industry standard?
 - Set of Criteria devised at the institution (like grading guides)
- 8- Annotation: the effect of annotations in communicating ideas vs. the powerful drawing skills like children's' cartoons which don't communicate via text or annotations or manga cartoons in different language.
- 9- Weighing: the applicability/importance of elements of CRITERIA
- 10- Evaluation: frame by frame vs. the whole animatic.
- 11- Do you recommend storyboarding software to your students to create their storyboards?
- 12- Show animatic 02,03,04,05 to the expert.
- 13- What is your synopsis of the story?
- 14- Evaluate the animatic based on CRITERIA by likert scale (Very good, Good, Neutral, Poor, Very poor)+ comments
- 15- Narratives: almost the same theme!
- 16- How do you think about the effect of group work?

Appendix K: Animatics Samples to Analyse with the Experts

Analysis on 2010-11 students Animatic presented at COMX12

CRITERIA to assess the elements of games storyboarding:

- Effective use of style,
- Effective use of line,
- Positive-negative space (Contrast),
- Illusion of perspective,
- light-shadow,
- Consistency (Repetition),
- Time sequence,
- Pace1 (Stimulate attention by different stresses in telling the narrative),
- Pace2 (How fast the narrative is been driven),
- Location of interaction,
- characterization,
- Annotation,
- Camera view points,
- Level of uncertainty,
- Aspects of user controls (AoUC),
- Feedback (Reduce short term memory load =help users recognise easily what to do in a situation),
- Accessibility (Cater to universal usability).

Analysis sample

| Screen Grab | Effective use of line | Positive and negative space | Illusion of perspective | light-shadow | Texture-energy |
|--|-----------------------|-----------------------------|-------------------------|--------------|----------------|
|  | poor | no | poor | poor | poor |
| Comments: struggle to think compositionally | | | | | |
|  | good | good | good | good | good |
| Comments: good composition, communication of location information as well as information about a character's interests and intentions | | | | | |

Serious Salmon

Team Name: Serious Salmon

Team Members: xxx

Game Name: City of One

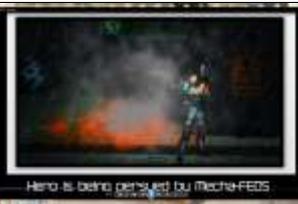
Synopsis: Cinematic trailer for survival action adventure game called City of One. Includes an interactive 3D level designed with Unity.



Min 00:03



Min 00:13



Min 00:20



Min 00:26



Min 00:27



Min 00:28



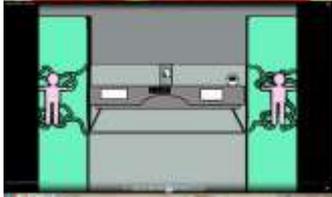
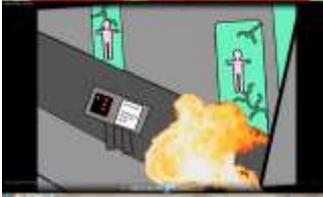
Min 00:38



Min 00:49

Duration:0.57 minutes

| | Very good | Good | Neutral | Poor | Very poor | Not relevant/considered |
|--------------------------------------|-----------|------|---------|------|-----------|-------------------------|
| Effective use of style | | | | | | |
| Effective use of line | | | | | | |
| Positive/negative space (contrast) | | | | | | |
| Illusion of perspective light-shadow | | | | | | |
| Consistency (repetition) | | | | | | |
| Time sequence | | | | | | |
| Pace1 (stimulating attention) | | | | | | |
| Pace2(how fast narrative is driven) | | | | | | |
| Location of interaction | | | | | | |
| Characterization | | | | | | |
| Annotations | | | | | | |
| Camera view | | | | | | |

| | | | | | | |
|---|---|--|----------|------|-----------|--------------------------|
| points | | | | | | |
| Comments (Expert): | | | | | | |
| Isometric Games Team Name: Isometric Games Team Members: xxx Game Name: ?????????? Synopsis: Trailer for a space adventure game where a ship blows up and an astronaut makes an emergency landing on an alien planet where he finds signs of intelligent life. | | | | | | |
|  |  |  | | | | |
| Min 00:10 | Min 00:12 | Min 00:19 | | | | |
|  |  |  | | | | |
| Min 00:25 | Min 00:42 | Min 00:48 | | | | |
|  |  |  | | | | |
| Min 00:57 | Min 01:01 | Min 01:10 | | | | |
| Duration: 1.10 minutes | | | | | | |
| | Very good | Good | Neut ral | Poor | Very poor | Not relevant/consi dered |
| Effective use of style | | | | | | |
| Effective use of line | | | | | | |
| Positive/negative space (contrast) | | | | | | |
| Illusion of perspective light-shadow | | | | | | |
| Consistency (repetition) | | | | | | |
| Time sequence | | | | | | |
| Pace1 (stimulating attention) | | | | | | |
| Pace2(how fast narrative is driven) | | | | | | |
| Location of | | | | | | |

| | | | | | | |
|--------------------|--|--|--|--|--|--|
| interaction | | | | | | |
| Characterization | | | | | | |
| Annotations | | | | | | |
| Camera view points | | | | | | |
| Comments (Expert): | | | | | | |

The Castaway Crew

Team Name: The Castaway Crew

Team Members: xxx

Game Name: The Unknown Island

Synopsis: The Castaway Crew is working on a game trailer called *The Unknown Island*. The trailer is promoting a horror game where the protagonist survives a plane crash and finds himself on an island. As he investigates the island he finds out that he is not the only one on that place.

He follows a path through the forest and he finds a lighted cave with a laboratory at the end of the tunnel. He gets hit on the head by an unknown person. When he wakes up he finds himself tied up in a chair in the laboratory where he gets injected by Doctor Steven Aoky.

And here begins the escape from The Unknown Island...

| | | |
|---|---|--|
|  |  |  |
| Min 00:00 | Min 00:05 | Min 00:10 |
|  |  |  |
| Min 00:16 | Min 00:20 | Min 00:25 |
|  |  |  |
| Min 00:30 | Min 00:35 | Min 00:40 |

Duration: 0.40 minutes

| | Very good | Good | Neutral | Poor | Very poor | Not relevant/considered |
|------------------------|-----------|------|---------|------|-----------|-------------------------|
| Effective use of style | | | | | | |
| Effective use of line | | | | | | |
| Positive/negative | | | | | | |

| | | | | | | |
|--------------------------------------|--|--|--|--|--|--|
| space (contrast) | | | | | | |
| Illusion of perspective | | | | | | |
| light-shadow | | | | | | |
| Consistency (repetition) | | | | | | |
| Time sequence | | | | | | |
| Pace1 (stimulating attention) | | | | | | |
| Pace2 (how fast narrative is driven) | | | | | | |
| Location of interaction | | | | | | |
| Characterization | | | | | | |
| Annotations | | | | | | |
| Camera view points | | | | | | |
| Comments (Expert): | | | | | | |

Dark Obsession Games

Team Name: Dark Obsession Games

Team Members: xxx

Game Name: Ignotus (unknown)

Synopsis: Pre cinematic trailer unravelling the story that surrounds an abandoned shack in the middle of mysterious woods.

An innocent man survives a freak car accident, wandering bewildered and alone, he searches for his lost dog, suddenly the ground gives way, plummeting him into a snowed covered abandoned shack. The events that happen next are ever increasingly strange and twisted, turning this unfortunate soul into the latest toy for the unknown.



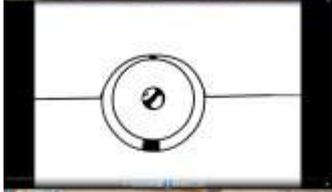
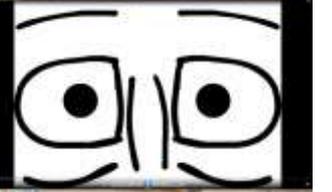
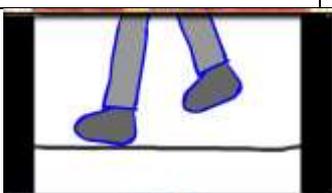
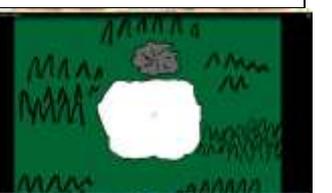
Min 00:00



Min 00:03

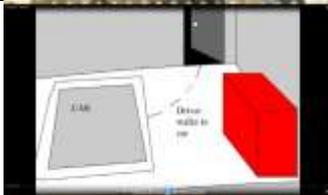
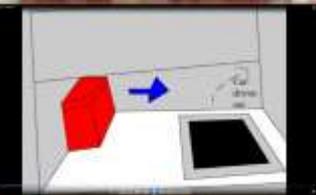


Min 00:05

| | | | | | | |
|---|---|---|---------|------|-----------|-------------------------|
|  |  |  | | | | |
| Min 00:06 | Min 00:08 | Min 00:10 | | | | |
|  |  |  | | | | |
| Min 00:11 | Min 00:12 | Min 00:14 | | | | |
|  |  |  | | | | |
| Min 00:15 | Min 00:28 | Min 00:32 | | | | |
|  |  |  | | | | |
| 00:43 Min | Min 00:44 | Min 01:16 | | | | |
|  |  |  | | | | |
| Min 01:21 | Min 01:26 | Min 01:34 | | | | |
| Duration: 1.34 minutes | | | | | | |
| | Very good | Good | Neutral | Poor | Very poor | Not relevant/considered |
| Effective use of style | | | | | | |
| Effective use of line | | | | | | |
| Positive/negative space (contrast) | | | | | | |
| Illusion of perspective light-shadow | | | | | | |
| Consistency (repetition) | | | | | | |
| Time sequence | | | | | | |
| Pace1 (stimulating) | | | | | | |

| | | | | | | |
|-------------------------------------|--|--|--|--|--|--|
| attention) | | | | | | |
| Pace2(how fast narrative is driven) | | | | | | |
| Location of interaction | | | | | | |
| Characterization | | | | | | |
| Annotations | | | | | | |
| Camera view points | | | | | | |
| Comments (Expert): | | | | | | |

V12 Games
Team Name: V12 Games
Team Members: xxx
Game Name: ??????
Synopsis: Fast paced cinematic trailer for 3D racing game plus an interactive level to explore

| | | | | | | |
|---|---|--|-------|-----|------|-----|
|  |  |  | | | | |
| Min 00:00 | Min 00:03 | Min 00:06 | | | | |
|  |  |  | | | | |
| Min 00:09 | Min 00:12 | Min 00:15 | | | | |
|  |  |  | | | | |
| Min 00:18 | Min 00:21 | Min 00:24 | | | | |
|  |  |  | | | | |
| Min 00:28 | Min 00:31 | Min 00:34 | | | | |
| Duration: 0.36 minutes | | | | | | |
| | Very | Good | Neutr | Poo | Very | Not |

| | good | | al | r | poor | relevant/considered |
|--------------------------------------|------|--|----|---|------|---------------------|
| Effective use of style | | | | | | |
| Effective use of line | | | | | | |
| Positive/negative space (contrast) | | | | | | |
| Illusion of perspective light-shadow | | | | | | |
| Consistency (repetition) | | | | | | |
| Time sequence | | | | | | |
| Pace1 (stimulating attention) | | | | | | |
| Pace2(how fast narrative is driven) | | | | | | |
| Location of interaction | | | | | | |
| Characterization | | | | | | |
| Annotations | | | | | | |
| Camera view points | | | | | | |
| Comments (Expert): | | | | | | |

Appendix L: Samples of Drawings and Final Presentations 2011-12 Students



MAT07

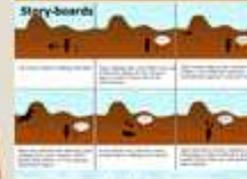
Sketches at Intervention



Sketches from Log Book



Final Presentation



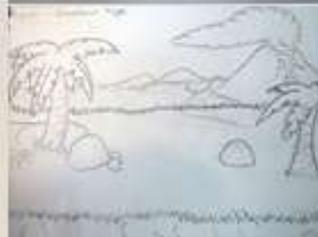
Lelle Meeni-Oct 2011

MAT08

Sketches at Intervention



Sketches from Log Book



Final Presentation



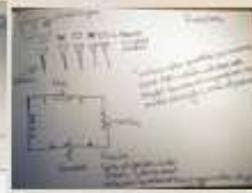
Lelle Meeni-Oct 2011

MAT09

Sketches at Intervention Sketches from Log Book



Lelle Meani-Oct 2011



Final Presentation

Companion (NPC) Sketches

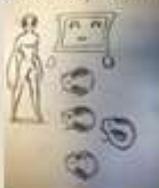
Companion Bio

Final Presentation

8

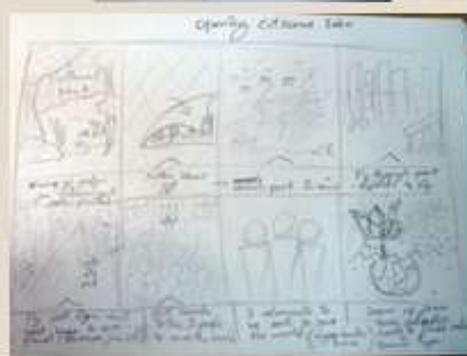
MAT10

Sketches at Intervention



Lelle Meani-Oct 2011

Sketches from Log Book



Final Presentation

Characters and Bios

Lux:

Cut scene Storyboards

Cut scene Storyboards

10

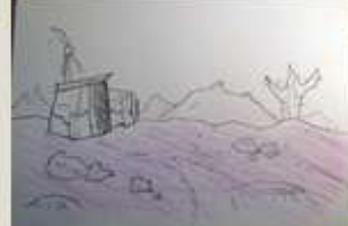
MAT15

Sketches at Intervention

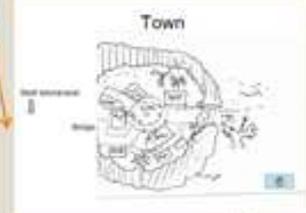
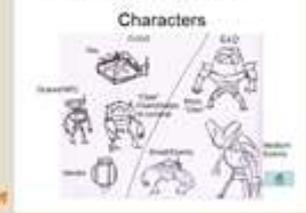


Lelle Meeni-Oct 2011

Sketches from Log Book



Final Presentation



15

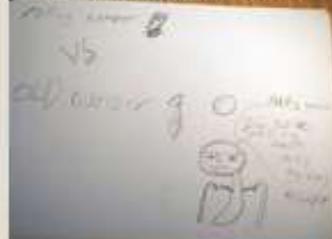
MAT16

Sketches at Intervention



Lelle Meeni-Oct 2011

Sketches from Log Book



Final Presentation



15

MAT17

Sketches at Intervention



Sketches from Log Book



Final Presentation



MAT18

Sketches at Intervention



Sketches from Log Book

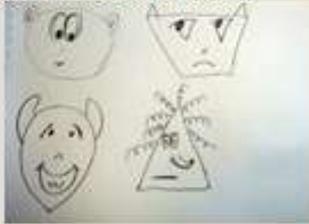


Final Presentation

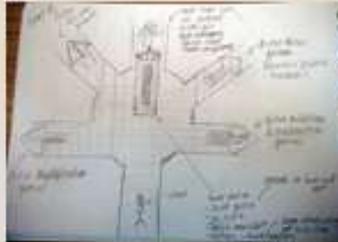


MAT21

Sketches at Intervention



Sketches from Log Book



Lelle Meani-Oct 2011

Final Presentation



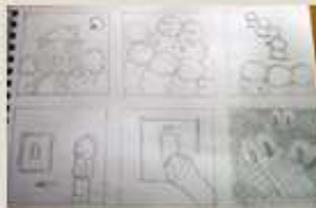
21

MAT22

Sketches at Intervention



Sketches from Log Book



Lelle Meani-Oct 2011

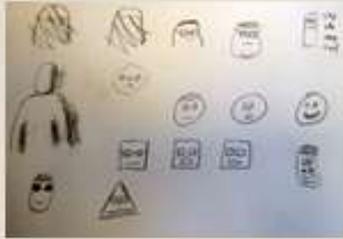
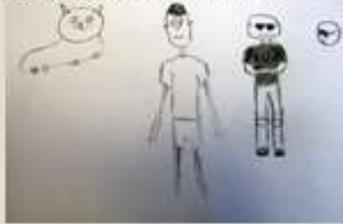
Final Presentation



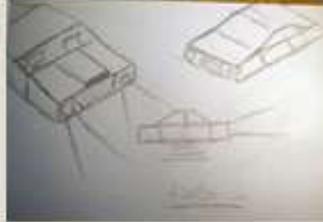
22

MAT23

Sketches at Intervention



Sketches from Log Book



Lelle Meani-Oct 2011

Final Presentation

Characters



Opening Cut Scene



23

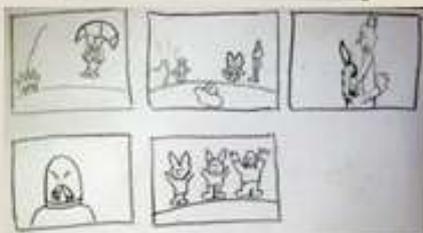
MAT24

Sketches at Intervention



Lelle Meani-Oct 2011

Sketches from Log Book



Final Presentation

Playable Character Kenzo The Rabbit



Movement



Cut Scene Storyboard



The final cut scene of the game where Professor Talpa is allowed back to The Bunny.

24

MAT36

Sketches at Intervention

Not Available

Sketches from Log Book



Lella Meani-Oct 2011

Final Presentation



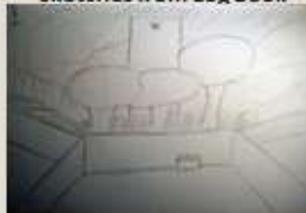
33

MAT37

Sketches at Intervention

Not Available

Sketches from Log Book



Lella Meani-Oct 2011

Final Presentation



34

MAT40

Sketches at Intervention

Not Available

Sketches from Log Book



Final Presentation



Lelle Meani-Oct 2011

Luca Savio 2011

Appendix M: Simplified Transcription Symbols

| Simplified Transcription Symbols (Silverman, 2005) | | |
|--|---|---|
| [| C2: quite a [while Mo: [yea | Left brackets indicate the point at which a current speaker's talk is overlapped by another's talk. |
| = | W: that I'm aware of = C: =Yes. Would you Confirm that? | Equal signs, one at the end of a line and one at the beginning, indicate no gap between the two lines. |
| (.4) | Yes (.2) yeah | Numbers in parentheses indicate elapsed time in silence in tenth of the second. |
| (.) | To get (.) treatment | A dot in parentheses indicates a tiny gap, probably no more than one-tenth of the second. |
| _____ | What's up? | Underscoring indicates some form of stress, via pitch and/or amplitude. |
| :: | O : kay? | Colons indicate prolongation of the immediately prior sound. The length of the row of colons indicates the length of the prolongation. |
| WORD | I've got ENOUGH TO WORRY ABOUT | Capitals, except at the beginnings of lines, indicate especially loud sounds relative to the surrounding talk. |
| .hhhh | I feel that 9.2) .hhh | A row of h's prefixed by a dot indicates an inbreath; without a dot, an outbreath. The length of the row of h's indicates the length of the in- or outbreath. |
| () | Future risks and () and life () | Empty parentheses indicate the transcriber's inability to hear what was said. |

| | | |
|--------|---|---|
| (word) | Would you see (there) anything positive | Parenthesized words are possible hearing. |
| (()) | Confirm that ((continues)) | Double parentheses contain author's descriptions rather than transcriptions. |
| .,? | What do you think? | Indicate speaker's intonation (.= falling intonation;.= flat or slightly rising intonation) |
| > | > What do you think? | Indicates data later discussed |

Appendix N: 2010-11 Students' First Interview Transcription

| 2010-11 Students' First Interview Transcription | | |
|---|---|---|
| Interview Question 01 | | |
| Background (A Levels)/ Artistic background | | |
| Emergent Theme: Background | | |
| CODE | Student's Reply | Summary |
| STU01 | <p>STU01: [I studied tourism at home which was in high school. After that I went to university and studied English in Romania for one year but I just couldn't cope in it. () this was like 5 years ago now. After that I just took English course over here. And it is my first year study here.</p> <p>Interviewer: [Was the system like here in high schools, like A Levels and .hhh</p> <p>STU01: [No. Just completely we have got grades at home. Like from one to (year) 10. 10 is the highest. If you get like 4 or less you fail. 5 is just pass but it's not good at all. So the best mark is 8, 9, 10. And we have got different system and you have take like the final exams you have to take it from like 5 or 6 different courses.</p> <p>Interviewer: [Which subjects? Was it divided into categories like for example Art, Science</p> <p>STU01: [Oh we haven't got these.</p> | <ul style="list-style-type: none"> • Non-UK high school: Tourism, Languages, Maths, Geography • Did computing lessons • Nearly finished the whole learning course of Web Designing which is more theory → haven't got any practical side |

| | | |
|--|---|--|
| | <p>Normally what we studies Languages, Maths, Geography like in all the high schools then ah.. there's like one exam from .hhh which basically whatever you studied during those four years. This is like for example I had to take a course about tourism so I had</p> <p>Interviewer: [in high school</p> <p>STU01: {yah. I needed the final exam about tourism. I had to make a work and just show for them about tourism like ammm</p> <p>Interviewer: [so you mean your compulsory subject</p> <p>STU01:[yah. It's always Languages like Romanian, Hungarian, Maths then another foreign language for me it was English but some of the people were taken German or French.</p> <p>Interviewer: [Did you do any Art or Computing?</p> <p>STU01: [I did computing lessons but I didn't taken the final exams because it was not a compulsory by the end of the four years. It was just like two lessons per week.</p> <p>Interviewer: [In general apart from studying in this school or the universities you attended any Art background? Any [</p> <p>STU01: [Ommm, my grandmother . I can do some painting actually. That's it I haven't been into any courses or anything.</p> <p>Interviewer: [static painting . not</p> | |
|--|---|--|

| | | |
|--------------|---|--|
| | <p>with computers.</p> <p>STU01: [No.No. No. Not yet.</p> | |
| STU02 | <p>Interviewer: [Are you coming from the educational system from England?</p> <p>STU02: [Yes. I've been out of education for a while now. I studied music technology. So (I can record music and that sort of media) and audio. I've been working full time for last 4-5 years now, so I've back to education. My backgrounds are really sort of with audio as well as marketing. So I used to work for Microsoft.</p> <p>Interviewer: [Did you get these experiences in higher education or</p> <p>STU02: [it was just</p> <p>Interviewer: [just come from high school to the market?</p> <p>STU02: [I went to college. So did the B-tech national diploma in music technology. So that's kind of () A level and sort of higher education. But then I:: that's what I've done really.</p> <p>Interviewer: [Do you have any::: except from music that you are expert now</p> <p>STU02: [yah</p> <p>Interviewer: [do you have any artistic backgrounds in some sort of fine Arts or computing Arts?</p> <p>STU02: [Not at all. No. Em I have photography as a hobby but I've not done training or anything. It's just a</p> | <ul style="list-style-type: none"> • BTEC national diploma in music technology • Working full time for last 4-5 years with audio as well as marketing • Do photography as a hobby |

| | | |
|---------------------|---|---|
| | <p>personal hobby.</p> <p>Interviewer: [Actually I'm not restricted to the educational system.</p> <p>STU02: [ok</p> <p>Interviewer: [Any artistic background? Any interest in for example sketching, drawing?</p> <p>STU02: [No I have no</p> <p>Interviewer: [Any skill in this area?</p> <p>STU02: [Only a () of photography. Nothing else at all. I'm not very artistic person. laugh.</p> <p>Interviewer: [Did you do editing on your photographs or just?</p> <p>STU02: [A little bit. But it's just more () of personal hobby. I don't do it for any other reasons. I don't have experience in any other thing else. I don't draw, paint, or anything.</p> | |
| <p>STU03</p> | <p>STU03: [Well. Ok: I've got big experience in kind of music production. Em.</p> <p>Interviewer: [sorry, may I ask if you had high school education in England?</p> <p>STU03: [Yah. I studied em obviously went to school a few years ago I'm 38 now basically ok? So I did a national B-Tech diploma in the UK for audio-music technology</p> <p>Interviewer: [right</p> <p>STU03: [and then since then cause it's about 9-10 years ago, since then I've been working self employed as a music producer(.) em:: and kind of writing music, working for other</p> | <ul style="list-style-type: none"> • BTEC national diploma in audio-music technology about 9-10 years ago • Got big experience in music production • Working self employed as a music producer |

| | | |
|--|---|--|
| | <p>people doing music and stuff(.) Now it's my switching kind of career almost and adding to my knowledge I'm coming back to Uni.</p> <p>Interviewer: [Obviously you are quite an expert in music industry but how do you evaluate yourself in other sort of for example fine Art experiences?</p> <p>STU03: [A little bit. Yah, I mean the most of what I do as self-employed now is kind of (.1) self-taught either music-based, Art-based, Graphics-based, so I got by with my knowledge as it stands up until this point and the only formal qualifications I've taken are audio-music technology based stuff. ok?</p> <p>Interviewer: [It is not important how formal was your education. To my study it's important what your experience, real experience is in for example sketching or drawing.</p> <p>STU03: [Right. So you wanna know what I've done up to date. What experience I had these sort of stuff?</p> <p>Interviewer: [Yah. If you don't mind.</p> <p>STU03: [Well I've done bits of general sort of painting, fine art stuff, just personal stuff. I had experience with things like Dreamweaver, updating websites which includes Photoshop, basic word processing, that sort of stuff (.1) providing image files for print companies to print and record sleeves that sort of thing, CD printing. Em, so what I've done is to</p> | |
|--|---|--|

| | | |
|--------------|---|--|
| | <p>do with Photoshop, Dreamweaver, or just kind of general sketching stuff. Is that what you mean?</p> <p>Interviewer: [Yah. I was just seeking what your personal experiences in Art field are.</p> | |
| STU04 | <p>STU04: [Em I studied Interactive Media in college (.)</p> <p>Interviewer: [right</p> <p>STU04: [for two years so yeah</p> <p>Interviewer: [what did you do in that course?</p> <p>STU04: [Em I did a bit of web design</p> <p>Interviewer: [Oohoom</p> <p>STU04: [I did some 3D modeling (.), graphic design and some animation</p> <p>Interviewer: [right</p> <p>STU04: [animation</p> <p>Interviewer: [did did those courses you did involve any sketching and drawing?</p> <p>STU04: [E:m yeah we had to sketch every single time (.) in our planning documents</p> <p>Interviewer: [right</p> | <ul style="list-style-type: none"> • College: Interactive Media, Web Design, 3D Modeling, Graphic Design and some Animation |
| IT01 | <p>IT01: [E:h yeah I did A levels at sixth form but I did a gap year (.) so yeah I went to school, GCSEs, failed some GCSEs and retook them when I was at my sixth form, passed them eventually .hh [and did</p> <p>Interviewer: [can I ask what A Levels did you get</p> <p>IT01: [aa::m what grades did I get?</p> <p>Interviewer: [No the titles the</p> <p>IT01: [oh right I got aa::m I did a</p> | <ul style="list-style-type: none"> • A-Levels at sixth form • A gap year • AS-Level in Media, Information Technology and Psychology • A-Levels in English Combined, General Studies • Didn't involve any drawings apart from doing structured |

| | | |
|---------------------|--|--|
| | <p>media AS: and Information Technology AS .hh English Combined (.) A Level (.) General Studies A Level (.) Psychology AS (.3) yeah that's it</p> <p>Interviewer: [Did you take any art during your whole studies?</p> <p>IT01: [No (.) apart from the media (.) media was kind of art (.) ish</p> <p>Interviewer: [can you explain more? Did it involve any drawings?</p> <p>IT01: [No didn't involve any drawings apart from doing structured storyboards for like aam when you go to shoot something you need to .h write down what how you you're goanna to do it what shots you use and what you expect to see in those shots</p> <p>Interviewer: [right</p> <p>IT01: [so you have to draw that. That's the only thing you have to draw</p> <p>Interviewer: [that's interesting</p> | <p>storyboards</p> |
| <p>IGD22</p> | <p>IGD22: [So what what I did em in the school?</p> <p>Interviewer: [yeah</p> <p>IGD22: [well I did em I did a BTech for two years in ICT BTech where I did like .hh web design, a bit of game design and like () designing stuff</p> <p>Interviewer: [right</p> <p>IGD22: [things like the history of animation</p> <p>Interviewer: [ok did your studies involve any practical things?</p> | <ul style="list-style-type: none"> • BTEC in ICT for 2 years • Did Web Design, a bit of Game Design and History of Animation • Did quite a lot of drawing on computers with Flash like outlining something, filling in and making it seem real but cartoony • Took Art in GCSE |

| | | |
|---------------------|--|---|
| | <p>IGD22: [Em (.) there was more there was more just based around of () software</p> <p>Interviewer: [Eh</p> <p>IGD22: [So do you mean like drawing stuff like drawing on paper or?</p> <p>Interviewer: [Yeah. Either on paper or on computers</p> <p>IGD22: [Aam we did eh did quite a lot of drawing on computers as well with Flash .hh</p> <p>Interviewer: [right</p> <p>IGD22: [Things like outlining something then .hh making look more cartoony</p> <p>Interviewer: [ok</p> <p>IGD22: [so like filling in and making (.) seem real but cartoon</p> <p>Interviewer: [ok. Do you have any experience in drawing on paper as well?</p> <p>IGD22: [Em I did take art in GCS:E (.) yeah took art in GCSE</p> <p>Interviewer: [ok</p> <p>IGD22: [Em(.2) in (.) get I got a D in (literature) but .hh I did alright in it</p> | |
| <p>IGD17</p> | <p>IGD17: [Em well I came from A Levels</p> <p>Interviewer: [A Levels</p> <p>IGD17: [College yeah</p> <p>Interviewer: [What A Levels did you take?</p> <p>IGD17: [Ah Maths, Graphics, Art Graphics and Computing in IT</p> <p>Interviewer: [oh brilliant so you are</p> | <ul style="list-style-type: none"> • A-Levels in Maths, Graphics, Art Graphics and Computing in IT • Did a Game, take photos, use Photoshop and a bit of character and environment design • Work on paper mainly |

| | | |
|--------------|---|---|
| | <p>already experienced in art and graphic design</p> <p>IGD17: [well yeah yeah</p> | |
| IGD16 | <p>IGD16: [Well basically I just have a basic GCSEs (used to) basic (H to Cs) .h and then I worked (based on security) when I finished and em then move into admin field and then I just helped with (the other) website there and just doing things there and then realized I quite like computing .hhh so: I was () Gloscat part time doing a:: enhanced () level two then I moved on:to eh NITQ level 3 which gave me enough qualification to start university here (.2) so I'm () I'm studying for a computing degree.</p> <p>Interviewer: [Right. Ah did your GCSEs involved any art courses?</p> <p>IGD16: [No, no</p> <p>Interviewer: [Have you got any aam art background yourself? Art experience in terms of drawing, sketching?</p> <p>IGD16: [No. no I did aap eh no we just did art at school actually among my subjects but .h () not really being to art no</p> | <ul style="list-style-type: none"> • Basic GCSE/ Gloscat level2/ NITQ level3 • Drawing at high school • Spreadsheet databases, Web Design and a bit of programming with basic |
| IGD14 | <p>IGD14: [Em (.) well I did art (.) I did at GCSE I did art at A Level (.2) so I'm quite artistic person anyway em and (coughing) I was (being interested) in games something like that but I did computing for A Level as well.</p> <p>Interviewer: [Right. So you are</p> | <ul style="list-style-type: none"> • A-Levels in Art, Computing • Art in GCSE • Quite an artistic person • Definitely prefer programming • Familiar with GTA for 5 years and |

| | | |
|---------------------|--|--|
| | <p>familiar with programming as well?</p> <p>IGD14: [yeah</p> <p>Interviewer: [do you like it or prefer have any preferences?</p> <p>IGD14: [Em (.1) what between programming and design?</p> <p>Interviewer: [yeah</p> <p>IGD14: [yeah definitely programming</p> <p>Interviewer: [Do you prefer programming?</p> <p>IGD14: [Yeah</p> <p>Interviewer: [Oh.</p> <p>IGD14: [(laughing)</p> <p>Interviewer: [I've come from programming background</p> <p>IGD14: [Oh right ok (laughing)</p> | <p>programming languages like Lua and a bit C</p> |
| <p>IGD12</p> | <p>IGD12: [Yeah sure e::m basically I went to school to()GCSEs emm did my A Levels em I actually then (.) left and did an apprenticeship with motorbike mechanics (.) and did that for few years and then wanted to come to University</p> <p>Interviewer: [that is interesting</p> <p>IGD12: [Yeah it's a bit of a U-turn I guess but yeah it's just a phase I think () with motorbike but I've always been really interested in games (.) so</p> <p>Interviewer: [brilliant</p> <p>IGD12: [Yeah</p> <p>Interviewer: [And can I ask what A Levels did you pass?</p> <p>IGD12: [Yes sure (.) eh I did Geography (.) Art (.) eh (.2) biology (.) that was it (.) three A Levels</p> <p>Interviewer: [What did you do in art?</p> | <ul style="list-style-type: none"> • A-Levels in Geography, Art and Biology • Did an apprenticeship with motorbike mechanics for few years • A level Art was generalization of what they wanted us to do, wasn't anything in particular |

| | | |
|---------------------|--|---|
| | <p>IGD12: [Em art was just (.) a generalization of what they wanted us to do for those terms really</p> <p>Interviewer: [Oh right</p> <p>IGD12: [wasn't anything in particular</p> <p>Interviewer: [Any drawing? Any</p> <p>IGD12: [It was more we sort of did (.) drawing for the course recon I mean project was normally something like big like a big portrait or I used to make more statues and these stuff</p> <p>Interviewer: [Oh so it was a mixture of anything</p> <p>IGD12: [yeah yeah</p> | |
| <p>IGD09</p> | <p>IGD09: [I went to high school (at) sixth forms .hh and then I took a gap year and I came here.</p> <p>Interviewer: [You came here. So, To my knowledge normally you have some A levels and these things passed?</p> <p>IGD09: [Yeah. Yeah I took A levels yeah</p> <p>Interviewer: [Can I have can I know what A levels did you pass?</p> <p>IGD09: [Amm I did Maths, Further Maths, Electro I did AS Level of Electronic .hhh</p> <p>Interviewer: [Right</p> <p>IGD09: [And Physics</p> <p>Interviewer: [Amm do you have any aamm mmm any experience course-wise in Arts?</p> <p>IGD09: [Amm no. No I'm (.1) in .hh obviously I took art when it was compulsory but as soon as it was</p> | <ul style="list-style-type: none"> • Sixth forms • A-Levels in Maths, Further Maths • AS-Level of Electronic and Physics • Took art when it was compulsory but as soon as it was down to choice I took Mathy subjects • Tiny bits of drawing- more on colours and less on drawing techniques than maybe sculpting with certain type of things/ very basic stuff that isn't really transferrable • Took a gap year |

| | | |
|---------------------|---|--|
| | <p>down to choice I was more kind of (.4)</p> <p>Interviewer: [Mathy</p> <p>IGD09: [Mathy subjects</p> <p>Interviewer: [Ahh how was your experience in that art course? Did it involve in drawing and sketching?</p> <p>IGD09: [Amm there was tiny bits of it but it was more kind of .hhh (coughing) it more was because it was a lot more () more kind of aimed (.3) kind of what colours clash what colours don't clash and .h less kind of drawing techniques than maybe sculpting with certain type of things but very kind of basic stuff that isn't really transferrable to .hh something like () maybe</p> <p>Interviewer: [Ok</p> | |
| <p>IGD08</p> | <p>IGD08: [I'm coming from a college if that's what you mean like : Gloucestershire college upon Gloucester</p> <p>Interviewer: [Right. A levels and these things?</p> <p>IGD08: [No. Like a national diploma course</p> <p>Interviewer: [Oh right</p> <p>IGD08: [and it was on Interactive Games Design</p> <p>Interviewer: [Right</p> <p>IGD08: [So::</p> <p>Interviewer: [You've done</p> <p>IGD08: [yeah yeah</p> <p>Interviewer: [What did you do in that that course?</p> | <ul style="list-style-type: none"> • Coming from Gloucestershire College • National diploma course on Interactive Games Design • Did 3D modeling, HCI, mostly story development and design • No sketching classes but some assignments involved drawing like for a concept art |

| | | |
|---------------------|--|---|
| | <p>IGD08: [It was like () 3D modeling .hhh it was HCI but I think a sort of most was like the story development the story design courses because () the back story of things</p> <p>Interviewer: [Right. What did you practically did :: aam in that college?</p> <p>IGD08: [Pardon?</p> <p>Interviewer: [Eh : Practically? What did you do?</p> <p>IGD08: [Ow ow, right em : I did like presentations for like piece of assignment work</p> <p>Interviewer: [Right</p> <p>IGD08: [create 3D objects and that hhhh although I'm not the best at it just sort of :: came out :: you can tell what it was but not to a good degree they appeared</p> <p>Interviewer: [Any sketching classes? Drawing?</p> <p>IGD08: [Ehhh. No they weren't like sketching classes but they were involved in some body assignments so like :: provide : a concept art for : this and that : for example</p> <p>Interviewer: [Right.</p> | |
| <p>IGD07</p> | <p>IGD07: [Eh come straight from (six form)</p> <p>Interviewer: [sorry?</p> <p>IGD07: [(six form) doing A Levels</p> <p>Interviewer: [A Levels?</p> <p>IGD07: [yeah</p> <p>Interviewer: [What A Levels did you take?</p> <p>IGD07: [I did ICT, Sociology and</p> | <ul style="list-style-type: none"> • Come straight from sixth form • A-Levels in ICT, Sociology and Philosophy and Ethics |

| | | |
|--------------|---|---|
| | <p>Philosophy and Ethics</p> <p>Interviewer: [Any Art course?</p> <p>IGD07: [Not really. I didn't eh I didn't do any art stuff</p> <p>Interviewer: [Or any : any informal : em experience in art?</p> <p>IGD07: [eh: as far as a little bit : I mean I did do sort of Graphic Design and that sort of thing at GCSE level</p> <p>Interviewer: [Right</p> <p>IGD07: [but nothing : eh : really recently</p> <p>Interviewer: [That doesn't matter. Any experience.</p> <p>IGD07: [yeah</p> <p>Interviewer: [What did you do in that course?</p> <p>IGD07: [Em. Well we just we had to eh design a product which was eh (things) of music festival and you just had to do a kind of art work for everything, so the logos : that sort of thing.</p> <p>Interviewer: [Any drawing : or sketching involved?</p> <p>IGD07: [Em : yeah. Well when we did when we did the logos and stuff we had to sketch out before we did the representation on computer</p> <p>Interviewer: [On paper</p> <p>IGD07: [Yeah, we draw on paper first.</p> <p>Interviewer: [Oohoom</p> | |
| IGD06 | <p>IGD06: [Well (.), I went first I was at primary school like I went to Gardens Lane but then I only stayed there like</p> | <ul style="list-style-type: none"> • Only got two GCSEs • Level 2 course at Gloucestershire |

| | | |
|--|---|---|
| | <p>1998 and then I went to Swinton Village until 2002, then I went to Winchcomb in 2002 to 2007 but I only got two GCSEs .h so I had to do level 2 course at Gloucestershire college</p> <p>Interviewer: [oohoom</p> <p>IGD06: [when I was in level 2 I got distinction plus :: that meant I got the highest grade. Then I went to do Game Design because I enjoyed doing it. I just looked really interested (at) I always enjoyed playing video games in my life .hh When I started playing video games I wanted to study and work with it and in 2008 I did my course (.) and overall I got distinction distinction merit(.)</p> <p>Interviewer: [brilliant</p> <p>IGD06: [thank you</p> <p>Interviewer: [so, what was the course you said in :: in: It was GCSE and then A levels?</p> <p>IGD06: [yeah. GCSE but then cause I did do well my GCSEs I had to do</p> <p>Interviewer: [eh::</p> <p>IGD06: [told to do A level course</p> <p>Interviewer: [right. What was the A level course?</p> <p>IGD06: [Interactive Game Design. I was at college (.) then</p> <p>Interviewer: [so you are coming straight forward from (.) game design</p> <p>IGD06: [yea</p> <p>Interviewer: [brilliant. Actually I like your cartoonish .h characters. Very</p> | <p>College (got distinction plus)</p> <ul style="list-style-type: none"> • Went to do Interactive Game Design and overall I got distinction distinction merit |
|--|---|---|

| | | |
|--|--|---|
| | <p>much ()</p> <p>IGD06: [yea. O.. thank you</p> <p>Interviewer: [so,</p> <p>IGD06: [yea</p> | |
| <p>Interview Question 02-01</p> <p>Information about the Interactive Game Design course (Why did you choose <u>this subject</u>?)</p> | | |
| <p>Emergent Theme: Course choice</p> | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | <p>STU01: [Cause I'm doing ahhhhh. I'm nearly finishing the whole learning course which is web designing and that one is like more theory so I haven't got any practical side of it. I just I was thinking to go to university anyways and () why shall I leave it now? Just to get a degree and get a better job.</p> <p>Interviewer: [Did you know anything about this university and the actual</p> <p>STU01: [No I just came to the open day and they just got information about the internet and () as well.</p> | <ul style="list-style-type: none"> • Get a degree • Get a better job • Learn about the course on the Internet and Open day |
| STU02 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Do coming up with design • Being creative • Visualizing something for someone else |
| STU03 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Switching career (almost) • Adding to my knowledge |
| STU04 | STU04: [Em I really enjoy it to be | <ul style="list-style-type: none"> • Enjoy it and find it |

| | | |
|--|--|--------------------|
| | <p>truthful it's something I can enjoy and I find interesting (.) so I thought might as well gain more experience</p> <p>Interviewer: [oohoom</p> <p>STU04: [and do something I enjoy in life</p> <p>Interviewer: [Any particular reason to choose this this module? For a particular</p> <p>STU04: [Em I</p> <p>Interviewer: [IGD one</p> <p>STU04: [Em I feel as me myself is quite creative (.) and as I can't draw it's quite useful for the computers to help me</p> <p>Interviewer: [oh sorry I meant this module that you are taking at the moment IGD 110</p> <p>STU04: [right</p> <p>Interviewer: [the game design thing</p> <p>STU04: [yeah</p> <p>Interviewer: [did you have to do that or you chose it?</p> <p>STU04: [Em (.1) well I didn't HAVE to do it (.)[but there was (.) very (.) minimum options to pick from really so game Design was like (.1) the last option for me to do really</p> <p>Interviewer: [Ok I know it is too early but how do you like this module?</p> <p>STU04: [Em it's all right it's not that bad to be fair cause obviously I've om had hadn't a lot of experiences in Game design before anyway but I'll haven't found it that bad now</p> <p>Interviewer: [Oohoom. Thanks. Any</p> | <p>interesting</p> |
|--|--|--------------------|

| | | |
|--------------------|--|--|
| | <p>particular reason to choose this University?</p> <p>STU04: [Aah (.) just (.) it was just a nightmare in all fairness this was my last choice</p> <p>Interviewer: [really?(laughing)</p> <p>STU04: [yeah (laughing) you want me to be truthful (.) so yeah</p> <p>Interviewer: [why is that? What was your first choice?</p> <p>STU04: [Eh I wanted to go to Wolverhampton (.3) because it was close to where I lived</p> <p>Interviewer: [oohoom</p> <p>STU04: [and then the course failed they closed down the course</p> <p>Interviewer: [ok</p> <p>STU04: [and then Birmingham was</p> <p>Interviewer: [come a little bit south and south</p> <p>STU04: [Birmingham wasn't a nice University and then (.) eh Bristol wanted me to do a Math test (.) and this was left</p> <p>Interviewer: [oohoo ok</p> <p>STU04: [so I just went ()</p> <p>Interviewer: [(laughing) but no choice then</p> <p>STU04: [yeah</p> <p>Interviewer: [ok</p> | |
| <p>IT01</p> | <p>IT01: [Because I love playing games</p> <p>Interviewer: [playing games</p> <p>IT01: [I love playing games I thought it would be really awesome a course like this</p> <p>Interviewer: [ok. And any particular</p> | <ul style="list-style-type: none"> • Love playing games |

| | | |
|--------------|---|-----|
| | <p>reason for choosing this university?</p> <p>IT01: [Aa::m (.2) ooh (.2) I don't know (.3) it was my second choice I didn't get into my first there is not a lot of places that do .hh Information Technology (.) I found and I don't wanna be TOO far away from home so there are loads of places like Wales cause I come down from Salisbury area .hh so down town and there wasn't a lot of places near there that actually do the course so that's actually quite close to home in relation to abuts were I thought</p> <p>Interviewer: [(laughing) fair enough. Thank you</p> | |
| IGD22 | <p>IGD22: [Em (.) well (.) it wasn't my it wasn't the first course I chose cause I looking around the (.1) lots of others cause (.) I'm not exactly very good at exams and we'd saw this and though mmm maybe it's a bit too high but then my my () I should go for it cause if I do get in well () to a good Uni (.) so an and it did look like a good course and</p> <p>Interviewer: [so was it one of your top choices or?</p> <p>IGD22: [It did turn out to be my top choice</p> <p>Interviewer: [Oh brilliant. Can I ask why did you choose this university in particular?</p> <p>IGD22: [Em (.1) well (.) cause em I went to separate open days (.) and</p> | N/A |

| | | |
|---------------------|---|--|
| | <p>this one had had a better course and it was sort of in the nicest area</p> <p>Interviewer: [aow</p> <p>IGD22: [so something o together pretty good so I chose it (throughout) the others</p> | |
| <p>IGD17</p> | <p>IGD17: [Em (.3) cause () was as I said in open day I went to this was more appealing () better place to learn and study and course really was .hhh really all I wanted to do for (.) quite a few years and just to go in game design and media design so just really you know just that choice was always there so (.) I went for it</p> <p>Interviewer: [right so you always wanted to go to game design industry</p> <p>IGD17: [Oom yeah yeah</p> <p>Interviewer: [right and you said you had a little bit experience in making a game in high school</p> <p>IGD17: [well yeah there is the well I () come up with an idea for it then (.) basically the idea but cover work was the main bit of it just a bit of just the background on it</p> <p>Interviewer: [what do you mean by cover work?</p> <p>IGD17: [Eh when you know we got a game or anything you got a (.) paper on the front of the case with the name and stuff on it that was</p> <p>Interviewer: [designing that</p> <p>IGD17: [the idea for that yeah yeah</p> <p>Interviewer: [all right ok</p> | <ul style="list-style-type: none"> • Always wanted to do Game Design and Media Design • Reason to choose this dept. rather than art faculty: Thought this would be more focused on the games (doing art in college previously got the impression that there is no focus on anything in particular) • Feel the need to narrow down things towards wherever a person wants to go |

| | | |
|---------------------|---|---|
| <p>IGD16</p> | <p>IGD16: [Game design! I em aeh I just I just thought being interested I've always (.1) when I start thinking about computing it was always computer programming I guess it's a lot of coding to do and em (.) game design I thought I just try and yeah to try and go to that area and could em (.) if I could try and get a qualification I thought it could be quite useful for when I () if I could do that (.) and see if I enjoy it the main one for me was the software development and em I guess like I could be some out of computer game design</p> <p>Interviewer: [You said you did some some course in Gloscat</p> <p>IGD16: [yeah</p> <p>Interviewer: [they were programming-based, weren't they?</p> <p>IGD16: [ah it's it is mainly:: it was things like spreadsheet databases it was a web design:: and then when I was younger and (.) I did look into a bit of programming like () Basic look into it a bit and em:</p> | <ul style="list-style-type: none"> • Always been interested in it • It is quite useful to learn software development |
| <p>IGD14</p> | <p>IGD14: [Em (.2) well I've always been interested in designing games (.) I think I'm definitely more into the programming than I am in the</p> <p>Interviewer: [into art</p> <p>IGD14: [yeah, into storyboards and characters and like that but I think it's NECESSARY to do something like this (.) if you want to be able to</p> | <ul style="list-style-type: none"> • Always been interested in designing games • Definitely more into the programming than I am in the storyboards and characters and like that |

| | | |
|--|--|--|
| | <p>program games in the future</p> <p>Interviewer: [Em can you tell me about your experience in programming?</p> <p>IGD14: [Em Do you know GTA?</p> <p>Interviewer: [No</p> <p>IGD14: [Ok. Grand Theft Auto (.) It's a game em I've spent like 5 years I think (moding and writing mods) for that (.) so I've been writing game (moods) within that game</p> <p>Interviewer: [ok</p> <p>IGD14: [so I've done that for quite a while</p> <p>Interviewer: [Aam what specific software did you use?</p> <p>IGD14: [Em</p> <p>Interviewer: [Or programming language let's say</p> <p>IGD14: [Aam Lua</p> <p>Interviewer: [right</p> <p>IGD14: [And we use () a bit which is it's kind of like C but not quite as good</p> <p>Interviewer: [oohoom</p> <p>IGD14: [So it wasn't that great</p> <p>Interviewer: [So are you familiar with C?</p> <p>IGD14: [Sometime yeah a little bit</p> <p>Interviewer: [Have you used it anyway?</p> <p>IGD14: [Yeah yeah I've used it a bit</p> <p>Interviewer: [You used it. can I ask why you chose this university?</p> <p>IGD14: [Em the course looked quite good I came to open day (.) the</p> | |
|--|--|--|

| | | |
|---------------------|--|--|
| | <p>presentation they did was really nice I thought that was great (.) it looked very:: em looked very hands on (.) you know very practical it wasn't a lot of theory (.) it was a lot of actually getting to do things and trying things out, nothing (to waste) we actually learn</p> <p>Interviewer: [right</p> <p>IGD14: [Just get your hands in it (.) do it (.) see what happens</p> <p>Interviewer: [Ah Ok.</p> | |
| <p>IGD12</p> | <p>IGD12: [E::m choosing the university cause I live locally (.) so it's quite handy (laughing)</p> <p>Interviewer: [fair enough</p> <p>IGD12: [yeah (laughing) eh and I've always been interested in games from (.) very young age just that's quite my number one thing I like to do eh (.) and I thought it (was) the time I took a step in the right direction to progress</p> <p>Interviewer: [ok</p> <p>IGD12: [really so</p> | <ul style="list-style-type: none"> • Always been interested in games from very young age • It's quite the number one thing I like to do • It was the time to take a step in the right direction to progress |
| <p>IGD09</p> | <p>IGD09: [Aam. I wasn't really sure what I wanted to do (coughing) and when I was taking a gap year I wasn't even sure if I wanted to come to university (.2) but then I kind of decided to just go on UCAS .hh and look through basically the lists of all the courses (.) just going through looking at the kind of like taking (off) anything that I've been vaguely</p> | <ul style="list-style-type: none"> • Wasn't sure • Took a gap year • Went on UCAS, look through the list of courses, something clicked inside me that this course is for me |

| | | |
|--|---|--|
| | <p>interested in</p> <p>Interviewer: [Right</p> <p>IGD09: [and I eventually got to interactive game design and () something inside clicked (and decided) this is what I want to do</p> <p>Interviewer: [Just by title?</p> <p>IGD09: [Intera .h I (.1) was anything that kind of even vaguely interests me I was looking into the background of what we would be doing in the course .hh but kind of something like Interactive Game Design (.3) kind of stock out to me a lot more than anything else I saw</p> <p>Interviewer: [That's interesting. And any particular reason to choose this university?</p> <p>IGD09: [Aam (.2) .hh I looked through and I (.3) I didn't know really know what I'd be looking for a University for this particular course .hh but I chose five that I thought looked like that would be good place to learn and I think I was accepted (by) four and out of them I just the open day I just preferred what they had here em (.2) the proximity and () the campus I was going to living at a:nd (.3) basically I don't think there was anything in any of the other one that I would prefer to anything here</p> <p>Interviewer: [Right</p> <p>IGD09: [So this was just kind of pretty much what I wanted out of my university experience ()</p> | |
|--|---|--|

| | | |
|--------------|--|---|
| | <p>Interviewer: [So good luck</p> <p>IGD09: [Ehhehe</p> | |
| IGD08 | <p>IGD08: [Ow. The University there wasn't really a choice. Well this campus there wasn't a choice but I chose this course because it () it offered a : four year thing .hhh whereas like : Wolverhampton where originally I would have gone didn't offer like that sort of option .hhh The four year sort of seems like helpful to () way that you know gives you a bit of experience like working place</p> <p>Interviewer: [Right</p> <p>IGD08: [And :: in design of the course just seemed : more round other things () just focus on drawing in particular. I mean as I said I'm not the greatest drawer and .hh they rely on drawing a lot.</p> | <ul style="list-style-type: none"> • It offered a four year thing whereas (Wolverhampton where originally I would have gone didn't offer this option) • The four year is helpful by giving the experience like working place • The design of the course is more round other things and focus on drawing in particular/ they rely on drawing a lot. |
| IGD07 | <p>IGD07: [Well : Basically I really like games so I thought .h there is nothing really more I like to do than you know having a job in games so</p> <p>Interviewer: [Ow</p> <p>IGD07: [Yeah. I think get some training in it :: hopefully get a career in games</p> <p>Interviewer: [Ow brilliant. Good luck to you then</p> <p>IGD07: [Thank you</p> <p>Interviewer: [And any particular reason for this University : for that?</p> <p>IGD07: [Ah. I just thought it is really</p> | <ul style="list-style-type: none"> • Really like games • Thought there is nothing really more I like to do than having a job in it |

| | | |
|--|--|---|
| | nice University in open day everyone's really nice and all the all the equipment seems to be really good Interviewer: [Oom. ()]. Ok | |
| IGD06 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Enjoyed doing it • Always enjoyed playing video games in my life so I wanted to study and work with it |
| Interview Question 02-02 | | |
| Information about the Interactive Game Design course (Why did you choose <u>this University?</u>) | | |
| Emergent Theme: University choice | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Learn about the Uni on the Internet and Open day |
| STU02 | N/A | N/A |
| STU03 | N/A | N/A |
| STU04 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • The last choice • Didn't go to Bristol Uni because they needed a Math test |
| IT01 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Second choice • There is not a lot of places doing Information Technology • Being close to home |
| IGD22 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Better course compare with other Unis in open days |

| | | |
|--------------|---|--|
| | | <ul style="list-style-type: none"> • Nicest area compare with other Unis in open days |
| IGD17 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • More appealing place to learn and study in the open day |
| IGD16 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Living in Cheltenham already |
| IGD14 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • The course looked quite good • The presentation they did was really nice in open day • It looked very hands on, very practical, it wasn't a lot of theory, it was a lot of actually getting to do things and trying things out, we actually learn, get your hands in it and do it , see what happens |
| IGD12 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Live locally so it's quite handy |
| IGD09 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Preferred the Uni in Open day out of 4 others • Preferred what they had, Proximity and the campus I was going to live at |

| | | |
|--|--|---|
| | | |
| IGD08 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • It wasn't really a choice |
| IGD07 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • I thought it is really nice University in open day • Everyone's really nice • All the equipment seems to be really good |
| IGD06 | <p>Interviewer: [obviously you are passionate about Game Design but why this University?</p> <p>IGD06: [University is very is helping get into the jobs you really wanted to do</p> <p>Interviewer: [right. Any particular reason for this University?</p> <p>IGD06: [This University? There is the main reason is that it's very close by and ()</p> <p>Interviewer: [right, ok.</p> | <ul style="list-style-type: none"> • It's very close by |
| Interview Question 03 | | |
| Evaluation of artistic abilities | | |
| Emergent Theme: Perception of artistic skills | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | <p>STU01: [Oh (.3) It is hard to say. Am ::: cause I never been creating something like () I don't really know this one.</p> <p>Interviewer: [But are you confident to sketch and draw anything on the paper</p> <p>STU01: [yah. If I have to yah. ()</p> | <ul style="list-style-type: none"> • Can do some painting • Confident in drawing if I have to |

| | | |
|--------------|---|--|
| | <p>because I haven't been to lessons or I didn't get any teaching background.</p> <p>Interviewer: [But your own idea, no matter you have been to a course or anything.</p> <p>STU01: [I think I can get down on the paper [Yah. That's it.</p> | |
| STU02 | <p>STU02: [Right. Em . Let's say my skill would kind of what. What I'm doing now is more around the sort of the technical aspect. So being able to work with different technologies as opposed to and trying be sort of fitted in mind as opposed to sort of being designing pictures and animations and things so I haven't got any background in design at all. It's kind of more technical</p> | <ul style="list-style-type: none"> • Not very artistic person • Haven't got any background in design at all • When it comes to storyboards I can come up with the sketches but it just coming little ways of visualizing what we're trying to do |
| STU03 | <p>Embedded in the reply to Question 01</p> | <ul style="list-style-type: none"> • Self-taught either music-based, Art-based, Graphics-based • Had experience with things like Dreamweaver, updating websites which includes Photoshop, basic word processing, providing image files for print companies to print and record sleeves that sort of thing, CD printing • General sketching stuff. |
| STU04 | <p>STU04: [No I'm not confident not at</p> | <ul style="list-style-type: none"> • Creative person |

| | | |
|--------------|--|---|
| | <p>all</p> <p>Interviewer: [why?</p> <p>STU04: [Em I'm just not really a good drawer to be truthful I can't really draw</p> <p>Interviewer: [aah so how how did you how did you did do that those modules then?</p> <p>STU04: [Eh: well (.1) basically I just (.1) draw the best I could and then (.) just used the graphics on the computer to help me</p> <p>Interviewer: [right</p> <p>STU04: [so (yeah) of course with 3D modeling as well you create the images yourself</p> <p>Interviewer: [oohoom</p> <p>STU04: [so yeah</p> | <ul style="list-style-type: none"> • Not a good drawer • Not confident at all |
| IT01 | <p>IT01: [Aa:m (.) no I'm not a good drawer</p> <p>Interviewer: [Oohoom</p> <p>IT01: [I'm not very (.) good at it (.1) I'm ok if I put my ideas into like a bullet point or .hh into (.) aa:: mind maps</p> <p>Interviewer: [right</p> <p>IT01: [anything like that sketching is something that I'm not (.) brilliant at</p> <p>Interviewer: [ok</p> | <ul style="list-style-type: none"> • Not a good drawer • Ok to put ideas into a bullet point or mind maps |
| IGD22 | <p>IGD22: [Em:: (sound) I'd say: (.) I'm not sure I think I'm more better at sort of sketching rather than doing</p> <p>Interviewer: [sketching yeah</p> <p>IGD22: [more sort of detail thing I</p> | <ul style="list-style-type: none"> • Feel better in rough sketching rather than drawing in detail |

| | | |
|--------------|---|--|
| | <p>think I'm better at sketching and stuff</p> <p>Interviewer: [rough sketching</p> <p>IGD22: [yeah</p> <p>Interviewer: [ok that's fine</p> | |
| IGD17 | <p>IGD17: [hem em (.2) () I think they're not bad</p> <p>Interviewer: [Are you confident in drawing?</p> <p>IGD17: [Yeah I() get in as well I've done more (.) start of (.) secondary school both () getting more and more () we're doing it getting better so</p> | <ul style="list-style-type: none"> • Is not bad • Is confident • More interested in artistic side rather than coding |
| IGD16 | <p>IGD16: [drawing yeah it's just average I guess when I was younger I enjoyed it when I was a little boy (.) yeah just average I guess (.) draw basic things</p> <p>Interviewer: [So for example in in the past they gave you for example for story boarding are you quite confident to sketch your ideas</p> <p>IGD16: [yeah yeah</p> <p>Interviewer: [Is it possible to draw to transfer your ideas on the paper</p> <p>IGD16: [yeah I could do that yeah yeah</p> <p>Interviewer: [oh brilliant ok</p> <p>IGD16: [</p> <p>Interviewer: [</p> | <ul style="list-style-type: none"> • Average • Able to transfer ideas on paper • Confident in basic drawing |
| IGD14 | <p>IGD14: [Em (.5) I think I'm (.) I prefer painting I think I can draw I mean we had a lot of fine art training and things like that .hh so I can draw still, live, anything like that (.) em cartoons</p> | <ul style="list-style-type: none"> • Can draw still, live, cartoons and a bit of more complex things • Is an artistic person and confident |

| | | |
|---------------------|--|---|
| | <p>and I suppose more complex things a bit more above my ability eh</p> <p>Interviewer: [Let's say it in another word. Are you confident enough to transfer your ideas on paper</p> <p>IGD14: [Yeah yeah</p> <p>Interviewer: [So no problem in that area</p> <p>IGD14: [no</p> <p>Interviewer: [ok</p> | |
| <p>IGD12</p> | <p>IGD12: [E::m a bit so so em I can join sort of bits and pieces but normally my drawings are sort of random (.) weird ()</p> <p>Interviewer: [but you feel confident</p> <p>IGD12: [Yeah yeah yeah yeah I don't mind drawing</p> <p>Interviewer: [Did that U-turn experience have any impact and effect on these sorts of skills you have</p> <p>IGD12: [E::n only probably in the sense of (.) I wasn't drawing this much or (.) being creative I was just mechanics is completely different but whilst I was doing that I was writing books at the same time so I've always kept on my hand in the creative aspect to stuff</p> <p>Interviewer: [That's interesting. Would you mind what sorts of stories, books ?</p> <p>IGD12: [Yeahhh I've been (.) hh written two vampire books as () book (laughing)</p> <p>Interviewer: [Are they e::: e sort of</p> | <ul style="list-style-type: none"> • Can join sort of bits and pieces but normally my drawings are sort of random, weird • Feel confident and don't mind drawing • Writing books (two vampire books) • Always keep on my hand in the creative aspect to stuff |

| | | |
|--------------|---|--|
| | <p>serious? published? Anything?</p> <p>IGD12: [no</p> <p>Interviewer: [just for yourself</p> <p>IGD12: [yeah yeah I was possible thinking on publishing one of them there was a competition (.) em which is closing date in December to do (Practicana) competition</p> <p>Interviewer: [right</p> <p>IGD12: [and he just wants people to send in their stories so I (was probably sending one of them in)</p> <p>Interviewer: [Oh good luck</p> <p>IGD12: [Just to see</p> <p>Interviewer: [That is interesting that you have different backgrounds</p> | |
| IGD09 | <p>IGD09: [Aamm (.3) I normally end up with something that looks ok but it normally takes me a lot longer to get there than (.2) I find most people</p> <p>Interviewer: [That's fine. But you are confident to draw your ideas</p> <p>IGD09: [Yeah cause I know that if I need someone or if I need a finished product .hh there will obviously be someone more skilful that can do it for me I just need to get my ideas across really .h and I feel that I do have enough of a ability to get my actual ideas across</p> <p>Interviewer: [Right. This is an interesting point.</p> | <ul style="list-style-type: none"> • Normally end up with something that looks ok but takes a lot longer to get there than most people • Confident to draw cause I just need to get my ideas across really • Know if I need a finished product there will obviously be someone more skilful that can do it for me |
| IGD08 | <p>IGD08: [Em : well : I won't say I'm the greatest drawer but I will draw like :</p> | <ul style="list-style-type: none"> • I won't say I'm the greatest drawer but I |

| | | |
|---------------------|---|--|
| | <p>you know : I do like to draw</p> <p>Interviewer: [Right</p> <p>IGD08: [although it's not to a good degree you know just something to do it doesn't matter I like the consequences. If you enjoy it just give it a shot</p> <p>Interviewer: [Yeah :: Ah in terms of qualifications did you I'm not sure whether before your college your higher diploma did you coming from A levels</p> <p>IGD08: [I came from the secondary school I didn't do like an A level course I just come straight from the college</p> <p>Interviewer: [Any drawing eh courses, modules during these experiences?</p> <p>IGD08: [No I never took () to be honest but I did it was in the school : so like first few years : I had to do it .hh but when you got to choose I just : didn't really think to do it then</p> <p>Interviewer: [Oohoom</p> <p>IGD08: [You know?</p> <p>Interviewer: [Yeah</p> | <p>will draw</p> <ul style="list-style-type: none"> • I do like to draw • If you enjoy it just give it a shot • Familiar with the drawings and familiar with the storyboards as they're both needed for Games |
| <p>IGD07</p> | <p>IGD07: [Yeah</p> <p>Interviewer: [Ok</p> <p>(Embedded in the reply to other questions)</p> | <ul style="list-style-type: none"> • Did a bit of Graphic Design • Had to sketch out logos and stuff on paper before we did the representation on computer |

| | | |
|--------------|---|---|
| IGD06 | <p>IGD06: [Well, my drawing is a bit more friendly and () but I can do very good realistic drawing as well</p> <p>Interviewer: [and you are obviously very confident in drawing</p> <p>IGD06: [very confident indeed. I'm more creative with drawing</p> <p>Interviewer: [yes</p> | <ul style="list-style-type: none"> • Always enjoy drawing when bored • When started doing Games Design I really wanted to do concept art • Liked really good cartoonee • My drawing is a bit more friendly but I can do very good realistic drawing as well • I'm very confident indeed • I'm more creative with drawing characters |
|--------------|---|---|

Interview Question 04

Expectations from the Interactive Game Design course

Emergent Theme: Expectations

| CODE | Student's Reply | Emergent Theme |
|--------------|--|--|
| STU01 | N/A | N/A |
| STU02 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Working in team is some kind of skills I want to develop |
| STU03 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Width of my knowledge base is wider so I can take my skills into more areas that I can do so right now |
| STU04 | N/A | N/A |

| | | |
|--------------------|---|---|
| <p>IT01</p> | <p>IT01: [aa::m:m oom what was the first question sorry?</p> <p>Interviewer: [It was what do you expect to be taught?</p> <p>IT01: [Oh right (.) so I expect to be taught (.) how to design a game (.2) how to (.4) hoo yeah how to design a game the aspects you have to undertake to design a game so not just looking at a characters looking at the sto:ry (.) the interfaces (.) and things like that and (.) yeah I didn't really do this (.) this particular module to aam: progress it as you know a career I didn't do to progress a career cause I'm doing IT it's just one module .h so I was</p> <p>Interviewer: [Sorry I didn't ask I just thought you are a game design student</p> <p>IT01: [no no I'm not</p> <p>Interviewer: [right</p> <p>IT01: [no</p> <p>Interviewer: [so it's more interesting even</p> <p>IT01: [yeah I'm doing Information Technology</p> <p>Interviewer: [ok</p> <p>IT01: [that this is one of my modules</p> <p>Interviewer: [ok</p> <p>IT01: [and I really wanted to do</p> <p>Interviewer: [ok that's brilliant. Sorry I didn't ask</p> <p>IT01: [Oh that's fine don't worry</p> <p>Interviewer: [So what do you expect to do after finishing your own field of</p> | <ul style="list-style-type: none"> • Learn how to design a game : not just looking at a characters but looking at the story and the interfaces |
|--------------------|---|---|

| | | |
|---------------------|--|--|
| | <p>study?</p> <p>IT01: [teaching</p> <p>Interviewer: [teaching. Good luck to you</p> <p>IT01: [thank you</p> <p>Interviewer: [and thank you very much</p> <p>IT01: [that's ok nice to meet you</p> <p>Interviewer: [thank you nice to meet you too</p> | |
| <p>IGD22</p> | <p>IGD22: [In this course I (cough) think expect to like (.) have a like a better () understanding of games design than I did before</p> <p>Interviewer: [right</p> <p>IGD22: [So I like like more familiar with (for example) new programs than I used before so more comfortable around them and (.2) can at least expect to do some (.1) pretty descent work</p> <p>Interviewer: [what skills do you expect to gain when you finished?</p> <p>IGD22: [Em I would like to have a better (cough) (.1) you mean () grasp cause I getting to do a better programming (.) I think at some points I'll have a better grasp of that so I sort of know (.2) about that as well as the other side like drawing stuff</p> <p>Interviewer: [Are you saying that you are looking forward to becoming more skillful in programming</p> <p>IGD22: [Yeah a bit and sort of the</p> | <ul style="list-style-type: none"> • Get a better understanding of Game Design than before • Get familiar to new programs • Do some pretty decent work • Get more skillful in programming and artistic sides |

| | | |
|---------------------|---|--|
| | <p>artistic side and sort (.) like what a game should look like and em</p> <p>Interviewer: [oohoom</p> | |
| <p>IGD17</p> | <p>IGD17: [E::m well hopefully em (.1) get the things in place to (.) go and get a good job in (.) what I want to do and hopefully this course will build up skills I need to try and get there (.2) em (.2)</p> <p>Interviewer: [what job are you targeting?</p> <p>IGD17: [taa well em like the design not the coding aspect more the designing aspect coming up with the ideas writing down coming up with that side more than the actual coding () together</p> <p>Interviewer: [right so are you saying that you see yourself more interested in artistic bit rather than programming</p> <p>IGD17: [yeah yeah more it's more appealing that kind of sort of things than the sitting and coding for ()</p> <p>Interviewer: [oh that's interesting (laughing). Eh what do you expect to experience in this course eh for example in terms of developing your artistic skills and programming because they are both delivered? What do you expect the course to give you?</p> <p>IGD17: [em (.3) well really experience of what software are used (.) out in the real world () used, how do they used together, the kind of</p> | <ul style="list-style-type: none"> • Build up the skills need to get a job in the industry • Gain experience of the software are used in real world • Learn how all kinds of things are used together therefore get prepared to get a job in the industry |

| | | |
|--|--|--|
| | <p>things () they do in the real world then to game design industry so (.) hopefully that will help me so if I do get there that eh be more prepared for it then eh</p> <p>Interviewer: [Can I say that you mean ah software to be able to do with more software-wise are you saying?</p> <p>IGD17: [Yeah well yeah () those skills (.) as well as the (.3) drawing coming with ideas ()</p> <p>Interviewer: [why didn't you choose to go to Art faculty the same eh the same field of study? going to for example Art and Media Design ah where it doesn't involve ah programming much as much as the computing department?</p> <p>IGD17: [Oh I see em (.3) well the main reason for that is cause I thought this would be more focused on the games (.) art design() well when I did in college it was just (.) whole of art thing then there was no real focus on (.) anything in particular (.) I don't know eh (.3) well there was no focus no target like thing like games em any other thing so I thought this is more targeted to that mainly rather than just going off something else and what's we did in college so that kind of really just try narrow it down towards wherever I wanna get to</p> <p>Interviewer: [right that's interesting</p> | |
|--|--|--|

| | | |
|--------------|---|--|
| | thank you | |
| IGD16 | <p>IGD16: [after finishing this course em yeah the em I guess I should be able to to to to come n idea and hopefully you know do something with the idea em create a create a game like for example (if I've asked) to a company if they said would you like to you know work in a team and create something for a certain age group well I think I'll be able to do that whether it'll be just something with the audio or just designing or whether it'd be the coding or something I'd like to learn that yeah I'd like to be able to do all the aspects really been introduced to all of it</p> <p>Interviewer: [ok ah have you got any clear mo o clearer idea about the software and those aspects that you were mentioning</p> <p>IGD16: [Not not right now no cause I () games design</p> <p>Interviewer: [ok May I ask why you choose this university in particular</p> <p>IGD16: [Em: eh hh mainly because I live here I've lived in Cheltenham all my life well most of my life I feel comfortable here I live across</p> <p>Interviewer: [() laughing .ok</p> | <ul style="list-style-type: none"> • Being introduced to all aspects of game design (audio, design, coding) |
| IGD14 | <p>IGD14: [Em (.4) Not really sure (.) I think as any kind of software program would be good (.) ah a game design course obviously would be a game</p> | <ul style="list-style-type: none"> • Any kind of software program would be good |

| | | |
|--|--|--|
| | <p>design job even would obviously be ideal .hh but I think it's been quite difficult</p> <p>Interviewer: [why?</p> <p>IGD14: [I think the game design course is a quite tensive (.2) and I think getting a (.1) such a narrow job () be quite difficult</p> <p>Interviewer: [right</p> <p>IGD14: [Specially at the moment (.) obviously 5 years ago probably would be easier (.) but any kind of software programming job (.2) would be</p> <p>Interviewer: [Am I understanding well? You're concerning about competition in the market?</p> <p>IGD14: [Yeah</p> <p>Interviewer: [Oohoom</p> <p>IGD14: [Yeah</p> <p>Interviewer: [And if not getting to the goal of game design which is as you said ideal what sort of job do you do you think would be suitable after finishing this course?</p> <p>IGD14: [Em Do you mean what kind of company or (.) kind of</p> <p>Interviewer: [no what kind of practices? jobs?</p> <p>IGD14: [Em</p> <p>Interviewer: [Or possible if not game design exactly</p> <p>IGD14: [Eh ok (.3) I think I think social sites things like facebook and anything like that quite interesting .hh but it's more like to do with web so I'm not sure if I could really (.) get into</p> | |
|--|--|--|

| | | |
|---------------------|--|---|
| | <p>something like that</p> <p>Interviewer: [Oohoom</p> <p>IGD14: [And I like (.1) ah:: I was thinking () to find and that could be quite fun</p> <p>Interviewer: [What?</p> <p>IGD14: [It's like a some music service</p> <p>Interviewer: [Ok</p> <p>IGD14: [It's kind of like a radio but you get to choose what you like to listen to and then they play adverts back to you every now and then em I think that could be quite interesting something NEW something (hasn't done) before</p> <p>Interviewer: [right</p> <p>IGD14: [So I don't want be like accounting software and anything like that</p> <p>Interviewer: [Sure (laughing). thanks</p> | |
| <p>IGD12</p> | <p>IGD12: [Em in essence eh how to design games and from</p> <p>Interviewer: [You know there are different aspects to the design</p> <p>IGD12: [yeah</p> <p>Interviewer: [artistic parts, actually the story</p> <p>IGD12: [ok</p> <p>Interviewer: [the all of these things are design</p> <p>IGD12: [Yeah</p> <p>Interviewer: [Are you?</p> <p>IGD12: [my (.) from my preference I prefer the story boarding and the</p> | <ul style="list-style-type: none"> • Want to get on and make some games • Prefer the story boarding and the creative side • Like to do the 3D modeling as well |

| | | |
|---------------------|--|--|
| | <p>creative side and then I like to do the 3D modeling as well (.) not sure if we get taught but I think that's in third year maybe</p> <p>Interviewer: [Have you got any interests in 3D software?]</p> <p>IGD12: [em only I've got some stuff software at home which I sort of experimented with that (.) I believe that at this course it will help me () and make it more effective (.) in the gaming industry really]</p> <p>Interviewer: [right. What are you looking forward to do after finishing this course?]</p> <p>IGD12: [I would LOVE to get a job (.) in the gaming industry (.) Yeah that like (lying ahead) or something like that () I guess]</p> <p>Interviewer: [Ok. It was really helpful thanks very much.]</p> <p>IGD12: [Thank you]</p> | |
| <p>IGD09</p> | <p>IGD09: [Amm (.2) I don't (.2) I don't by any stress imagine that I'm gonna come out of here (.2) and be able to fully create a game for a game console (.1) I'm just kind of (.1) I would be extremely happy if I'm given kind of (.2) the attributes and tools needed for someone to teach me how to do that]</p> <p>Interviewer: [Can you explain more?]</p> <p>IGD09: [Ooa I think if a games company took someone just a random (.1) person and try to teach</p> | <ul style="list-style-type: none"> • if I come out being able to make games that's an added bonus but as long as I'm progressing towards being able to do it • I just need the transferrable skills that can take me to the point where I can actually learn fully to make [games] • If a games company |

| | |
|--|---|
| <p>them how to make a game they obviously wouldn't be able to cause they wouldn't know about all the software that we're being taught here</p> <p>Interviewer: [Oohoom</p> <p>IGD09: [but if I come out being able to fully understand and use all the software that are necessary (.1) without maybe having the skills to fully create a game</p> <p>Interviewer: [you would be happy</p> <p>IGD09: [I would be happy because then maybe a company could come along and say we want you to use these software these programs to do this</p> <p>Interviewer: [() can I reword it? Being provided by the necessary tools is enough.</p> <p>IGD09: [Yeah I just need the transferrable skills that can take me (.2) to the point where I can actually learn fully to (.1) make</p> <p>Interviewer: [Oh. That's a new idea. It's good</p> <p>IGD09: [I mean if I come out being able to make games that's an added bonus but (.2) as long as I'm progressing towards being able to do it</p> <p>Interviewer: [Right</p> <p>IGD09: [I'll be happy pretty much</p> <p>Interviewer: [Thank you very much. Anything else?</p> <p>IGD09: [I can't think of anything</p> <p>Interviewer: [(laughing)</p> | <p>took a random person and try to teach them how to make a game they obviously wouldn't be able to cause they wouldn't know about all the software that we're being taught here but if I come out being able to fully understand and use all the software that are necessary without maybe having the skills to fully create a game I would be happy</p> |
|--|---|

| | | |
|--------------|--|---|
| | <p>IGD09: [(laughing)</p> <p>Interviewer: [thanks very much for coming</p> <p>IGD09: [that's ok</p> <p>Interviewer: [Good luck</p> <p>IGD09: [thank very much</p> | |
| IGD08 | <p>IGD08: [Well hopefully em : drawings might become a little better</p> <p>Interviewer: [Drawings?</p> <p>IGD08: [Become better but in particular I would expect more like plot writing, back stories, the plot of the game for example .hhh I'd really like that to come a bit more for me</p> <p>Interviewer: [Have you designed any games?</p> <p>IGD08: [Emmm</p> <p>Interviewer: [Small games?</p> <p>IGD08: [:::Yeah : like back in (glos college) and one of the assignments was like in a group create this like mini game</p> <p>Interviewer: [Oohoom</p> <p>IGD08: [And that's where : hhh that helped a bit .hh like it wasn't great scale but it did help it provided like .hh I mean you've done work on this before</p> <p>Interviewer: [Right. Ok.</p> | <ul style="list-style-type: none"> • Become better in drawing • In particular I would expect more like plot writing, back stories, the plot of the game |
| IGD07 | <p>IGD07: [Ehh well hopefully I'll have the skills to get a job in the industry</p> <p>Interviewer: [Could you explain more what you mean by skills</p> | <ul style="list-style-type: none"> • Gain skills of the art-based stuff and the programming and all the design and |

| | | |
|--|--|--|
| | <p>IGD07: [Well Eh .hh sort : of the art-based sort of stuff and the programming and all the design and narrative sort of stuff just to bring all together so you've got all the things you need : sort of to all the skills to get a career in gaming.</p> <p>Interviewer: [Ok : ok thanks.</p> | <p>narrative stuff just to bring all together so you've got all the things you need</p> |
| IGD06 | <p>IGD06: [well. (coughing). Sorry</p> <p>Interviewer: [that's all right</p> <p>IGD06: [well. I see myself .hhhh going and studying going and getting job in game design (coughing) that may involve Game Modeling and Game Animation :: or concept art, etc. .hhhhh and I hope that in a the (coughing) future that I can design really good models and show like good art of my work .hhh when I get even higher I might show I like get my own game and I might use the cartoonee graphic style that I used in my own game : and I might use realistic design () other games that I want to make in my own college</p> <p>Interviewer: [Right. That's brilliant</p> | <p>N/A</p> |
| <p>Interview Question 05</p> <p>Viewpoint about relationship of Interactive Game Design course and drawing skills</p> | | |
| <p>Emergent Theme: Necessity of drawing skills</p> | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | <p>STU01: [Well it's quite helpful because if you have got this skill you can basically create like website or</p> | <ul style="list-style-type: none"> • It's quite helpful • Good way to communicate with a |

| | |
|--|--|
| <p>you need to have like .hhh hard to say.hhh cause if you go to a client for example you have to read their minds and you have to put it together just show this is really what you want so you need to have this skill that you have read their mind just to put down on a piece of paper or on a computer (.4)</p> <p>Interviewer: [so are you evaluating these as having drawing skills is like a good way to communicate with a client</p> <p>STU01: [yah(.3)</p> <p>Interviewer: [But what about if someone in this study and in this course doesn't have drawing skills?(.3) Do you think if that person would be in problem? Or</p> <p>STU01: [Not to draw it but. oh how to say?.. not necessarily drawing skills but this visualization as you see things ()</p> <p>Interviewer: [What do you mean by visualization?</p> <p>STU01: [For example it's like you telling me how do I imagine this website you have to make in your mind, to picture of it basically. Not like drawing Art, paint or something but like a website. Something you have to create to make that form as the client want.</p> <p>Interviewer: [Did you get an idea about what I'm studying from that consent form I gave to you?</p> | <p>client</p> <ul style="list-style-type: none"> • If you have got this skill, it's just easier for you • If you have this skill you are more creative |
|--|--|

| | | |
|--------------|--|-----|
| | <p>STU01: [Not really.</p> <p>Interviewer: [Actually I'm basically wondering in my studies if drawing skills and having drawing skills and being able to sketch has any impact on being successful in for example in multimedia design or game design.</p> <p>STU01: [Om. Well the thing is if you have got this skill, it's just easier for you. Because if you have this skill you are kind of more creative.</p> | |
| STU02 | <p>STU02: [Definitely yes. That's kind of why I've chosen to do it.: Looking at sort of technical or how to make something work is what I've kind of have skill in but do coming up with design and being creative and visualizing something for someone else and working in team is some kind of skills I want to develop. em: as I said I'm not very artistic person when it's come to drawing but I can like when it comes to storyboards I can come up with the sketches but it just coming little ways of visualizing what we're trying to do</p> <p>Interviewer: [Can you explain more about what you mean by visualization?</p> <p>STU02: [Em: in terms of we come with a rough idea so for example we came to the idea of visualizing a pond and a dock and for I want say em::: we try to sort of visualize how that would work. So what the frames would look like? So you kind of knew</p> | N/A |

| | | |
|---------------------|---|---|
| | <p>what the story was goanna be but you kind of all pictures that goanna be within coming up with the individual sort of slides for how it's goanna work .</p> <p>Interviewer: [right.</p> <p>STU02: [So what I did I sketched out sort of person is walking toward the park and another one sat down and feed the docks. Ah:: some other members of the team came up with the idea of positioning of where we're goanna be. We're goanna be sat and how we're goanna be sat and how will the docks be attacking us. So am:: where we're goanna be sort of lying on the floor so if we're goanna be attacked. So coming up sort of visualizing the actual:</p> <p>Interviewer: [scene.</p> <p>STU02: [the actual scene, yes.</p> | |
| <p>STU03</p> | <p>STU03: [I'd imagine it would play kind of a big factor in it cause obviously if you're working with other people it's really good way of instantly getting the message over of something that you're trying to describe if it's image-based like for instance what we've done today is storyboarding so you almost got to be able to describe to certain people how things might look or how things might pan out, so being able to draw stuff might be useful as a way of kind of conveying information rather than just writing stuff down and describing</p> | <ul style="list-style-type: none"> • It would play a big factor in it • Being able to draw stuff might be useful as a way of conveying information rather than just writing stuff down and describing it • Drawing and sketching by hand, rather than computer is one of the most biggest things you need to get to do |

| | | |
|---------------------|---|--|
| | <p>it. You know what I mean?</p> <p>Interviewer: [Yah, yah. Do you think if a person doesn't have the skill even in this basic level, would she or he facing a problem in this field of study?</p> <p>STU03: [Depends on if they're able to do it in an alternative way [there]. Wouldn't it?</p> <p>Interviewer: [what do you mean by alternative way? That's interesting.</p> <p>STU03: [ah(.1) I mean if you are able to do it on a computer or get over a certain thing in a different format (.1)</p> <p>Interviewer: [Do you have any idea</p> <p>STU03: [I mean if you are about</p> <p>Interviewer: [To replace something.</p> <p>STU03: [You mean by drawing, by hand, yeh? To actually sketch</p> <p>Interviewer: [Just drawing, either by hand or computer</p> <p>STU03: [It's gonna be ah I recon yeh. Definitely useful to know that you can do that even it's thing like product design.</p> | |
| <p>STU04</p> | <p>STU04: [Em (.1) well I do sometimes I do find it quite difficult when em I've got to I got to create something on the computer and I need to draw it on but now when I come to university I discovered that you can do the trace (.1) where you can draw your own images find that quite helpful</p> | <ul style="list-style-type: none"> • Software and technology are helping to draw (Trace in Flash) |
| <p>IT01</p> | <p>IT01: [I think for game designers</p> | <ul style="list-style-type: none"> • Very important to be |

| | | |
|---------------------|--|---|
| | <p>very important because obviously you got to design the characters .h and then you design the characters then put them into .hh Photoshop and work with them so you've got a basis on what to work with so for a game designer is very important (.) to be able to sketch and stuff</p> <p>Interviewer: [Am I understanding well if I say that you are saying aah having drawing skills ah is necessary</p> <p>IT01: [pretty much</p> <p>Interviewer: [for a game designer</p> <p>IT01: [yeah I think so</p> <p>Interviewer: [ok</p> <p>IT01: [not EXTREMELY necessary .hh but it helps</p> <p>Interviewer: [it helps</p> <p>IT01: [it really helps (.) to have it</p> <p>Interviewer: [ok thanks</p> | <p>able to sketch</p> |
| <p>IGD22</p> | <p>IGD22: [I think if you (.) we need like to do like games design you need to get a bit of artistic (.) .hh skill just like communicating your ideas to other people (.) using visual aids</p> <p>Interviewer: [Oohoom</p> <p>IGD22: [so like (.1) I think it doesn't really matter if you (.) if you just do rough sketching or you do detailed .h work cause if you can it down paper it can help you and others understand what you're trying to do (.1) I think</p> <p>Interviewer: [So can I say it in another word that you you are you thinking it is necessary to have some</p> | <ul style="list-style-type: none"> • Need a bit of artistic skills to communicate ideas by visual aids • No matter by rough sketching or detailed drawing |

| | | |
|---------------------|--|---|
| | <p>level of sketching skills?</p> <p>IGD22: [Em (.1) I think (.) (all for saying that) if you are going to do like programming I don't think it's necessary for that but I think if you're doing some more .hh sort of like designing of that creating the actual game and like think about the story or characters and (.) sort of what the game should look like I think you need at least a (.) bit of skill</p> <p>Interviewer: [oom</p> <p>IGD22: [I think</p> <p>Interviewer: [Ah just mentioning that if you are doing programming or artistic things don't you think that you are going to do both?</p> <p>IGD22: [I think yeah if you are going to do both well yeah I will do you do a bit of both but (.) it would depends on which way you prefer(.) Some people prefer to do sort of more programming some people prefer yes some people prefer a mix (.) so</p> <p>Interviewer: [ok ok thanks very much</p> | |
| <p>IGD17</p> | <p>IGD17: [Em (.) I think there's an element to it yeah you've got the skills there to do it (.) and you everyone is going to look at your work over someone perhaps who is not as good (again) look at that and draw more attention so kind of thing</p> <p>Interviewer: [let's say it in another word do you think is it necessary to be able to draw for game design?</p> | <ul style="list-style-type: none"> • There's an element to it • Got to have the skills to do it |

| | | |
|--------------|--|---|
| | <p>IGD17: [Um (.5) I don't think it's absolutely necessary but (.) in some point you goanna have to (.) need some drawing (.3) but I don't think it's that essential to be that good in it for</p> <p>Interviewer: [Oohoom. So can you describe more about your drawing experiences? What did you do in A Levels in Graphic design A Levels?</p> <p>IGD17: [Em I (.1) did a game like (tower) thing for a () so take photos draw from them use Photoshop with them (go for a piece of exam) and (.2) the I did a bit of character design as well , environments (.) so look at previous ones make up your own and do () () then to another areas</p> <p>Interviewer: [Was it just a classic one on paper or it was meant to be to be transferred on computer?</p> <p>IGD17: [Em (.4) () on paper basically and real you can go on computer but they wanted to see it on paper</p> <p>Interviewer: [They wanted it on paper</p> <p>IGD17: [yeah they didn't (.) computerized it not really bothered () want to see the final (.) thing (outcome)</p> <p>Interviewer: [so you ended up in some paper-based portfolios then?</p> <p>IGD17: [yeah yeah</p> <p>Interviewer: [right</p> | |
| IGD16 | IGD16: [yeah I guess so s::s in a game design in the design (.2) I | <ul style="list-style-type: none"> • Good to be able to draw correctly |

| | | |
|---------------------|---|--|
| | <p>guess if you want to pick an idea across (.) there would be good to to be able to draw correctly I guess em and () storyboard for example and you want to eh (.) you had a basic design of what you want a game to look like to for example em maybe the main page or something due to sketch of that .hh maybe it would be good if you know maybe I suppose ()</p> <p>Interviewer: [Let me put it in other words. Do you think it is necessary to have drawing skills?</p> <p>IGD16: [em::</p> <p>Interviewer: [for this study</p> <p>IGD16: [no I don't think so. No (.) cause no I don't think so</p> <p>Interviewer: [Oohoom. Ok</p> | |
| <p>IGD14</p> | <p>IGD14: [em (.) I think I think you need to be able to draw (.) but I don't think being able to draw really well or being able to draw badly (.) is goanna make much difference if you draw (.) then it's goanna be good for you but if you can't draw at all then () problem but I don't think</p> <p>Interviewer: [Sorry. Would there be a problem or not?</p> <p>IGD14: [well if you can't draw AT ALL I think there would be a problem</p> <p>Interviewer: [Oohoom</p> <p>IGD14: [But I don't think any variance in the abilities is going to be too much of an issue as long as you can draw a bit I think it's fine</p> | <ul style="list-style-type: none"> • You need to be able to draw but being able to draw really well or badly isn't goanna make much [difference] • If you can't draw AT ALL there would be a problem |

| | | |
|---------------------|--|---|
| | <p>Interviewer: [This is a good explanation (laughing) Thank you.</p> | |
| <p>IGD12</p> | <p>IGD12: [E::m I don't think so because (.) em as soon as you could do within (.) games design in itself (.) like I think the games design itself it could be (.) on the story boarding side mostly e and obviously you need drawings to help you but then you've got whole team you could in a sense do drawings for you (.) so as long as you get the point across where what you are looking for (.) or what you see as your characters sorts the landscaping stuff like that (.) if you if your art isn't (.) eh like that at to (top scratch like a) proper life like then I think you get people to do it for you (.) as long as you give them the information (.) across</p> <p>Interviewer: [what level of this that you said give them the information</p> <p>IGD12: [I mean</p> <p>Interviewer: [do you consider. Just rough drawing it would be enough or having drawing doesn't matter at all</p> <p>IGD12: [I think O I think e::h I guess there is some people who do no drawings at all but I think personally that you need to (.) cause obviously you're (in head) you've got exactly what you want people to be like or or the levels so you need to get that across to (.) the team who might be doing the concept art</p> <p>Interviewer: [how how eh how do</p> | <ul style="list-style-type: none"> • The Games Design could be on the story boarding side mostly and obviously you need drawings to help you but then you've got whole team you could in a sense do drawings for you • You've got exactly what you want people to be like or the levels so you need to get that across to the team who might be doing the concept art • You goanna have to do some sort of drawing yourself but then you can do like annotations and just tell them exactly what you foresee ,the detail description |

| | | |
|---------------------|---|--|
| | <p>you think it would be it would happen for someone who hasn't drawing skill, who can't draw?</p> <p>IGD12: [Yeah em I think you goanna have to do some sort of drawing yourself but then you can do like annotations and just tell them exactly what you foresee</p> <p>Interviewer: [the description</p> <p>IGD12: [yes</p> <p>Interviewer: [detail description</p> <p>IGD12: [exactly</p> <p>Interviewer: [right. Can I reword it? You think you are saying that you don't think that having drawing skills is necessary</p> <p>IGD12: [yeah</p> <p>Interviewer: [ok. Thanks</p> | |
| <p>IGD09</p> | <p>IGD09: [Ammm (.3) I think you either need basic skills in aa in drawing to point that actually someone can look at it and say .hh that's a whatever you don't need to have the detail as far as I'm concerned .hh</p> <p>Interviewer: [Right</p> <p>IGD09: [it's need to be up to get across an actual concept .hh either that or you need to be able to put fully into words (.2) what you're trying to do if you don't have those skills</p> <p>Interviewer: [A description of your characters</p> <p>IGD09: [Yeah to someone who can then turn that out into a picture</p> <p>Interviewer: [Aaw</p> | <ul style="list-style-type: none"> • You don't need to have the detail • It's need to be up to get across an actual concept or you need to be able to put fully into words what you're trying to do to someone who can then turn that out into a picture |

| | | |
|---------------------|---|---|
| | <p>IGD09: [As long as (.1) as far as (.1) I'm concerned as long as you have one or the other of those I'm sure you'll be able to .h do as well as someone with maybe fantastic drawing skills</p> <p>Interviewer: [All righ. Thanks very much.</p> | |
| <p>IGD08</p> | <p>IGD08: [Well really (a creative) visual image isn't it? I mean if you are told like this person for example like oh he is such and such tall he's got black hair .h you know that you can only like do it in your mind however if you got like a drawing it helps people to understand better what this guy looks like :: for example like works () as well give description : and if does sketch with it helps you see it a lot better</p> <p>Interviewer: [Oohoom. So you see it as a help. Em</p> <p>IGD08: [It's a visual aid I would say</p> <p>Interviewer: [Yeah</p> | <ul style="list-style-type: none"> • It's a visual aid I would say |
| <p>IGD07</p> | <p>IGD07: [Well, I think it's obviously quite useful because em :: you know Game Design is : based round art and everything isn't it? Em ::: like that if you if you just wanna to if you like be a programmer or something I think you need as much art :: sort of em experience. So it's both ways really.</p> | <ul style="list-style-type: none"> • It's useful • Game Design is based round art and everything • If you like to be a programmer you need as much art experience. So it's both ways really. |

| | | |
|---------------------|--|---|
| | <p>Interviewer: [Right. Let me say it in another way. Do you think if it is necessary to have this skill?</p> <p>IGD07: [No, I don't think it's necessary.</p> <p>Interviewer: [Oohoom</p> <p>IGD07: [Em: I think it's useful::</p> <p>Interviewer: [But not necessary</p> <p>IGD07: [But not necessary.</p> <p>Interviewer: [Ok.: Ah, so how do you describe a person without any idea of drawing surviving in this:</p> <p>IGD07: [E..hm.: I think it would be difficult but it's not : not impossible</p> <p>Interviewer: [Ok</p> <p>IGD07: [() It would be a good idea to like just .hhh start practice sketching anything :: just :: just get an idea</p> <p>Interviewer: [Acquire : some</p> <p>IGD07: [Yeah, just get a bit of skill and so progress in there</p> <p>Interviewer: [Ok. Thanks very much</p> <p>IGD07: [ok</p> | |
| <p>IGD06</p> | <p>IGD06: [Well, (with) my sketching I'd never really (.) I did a lot of drawing when I was a lot younger :</p> <p>Interviewer: [right</p> <p>IGD06: [but when I got to secondary school I never really did drawing :</p> <p>Interviewer: [oohoom</p> <p>IGD06: [but cause I'd like so fun and I loved drawing when I was younger (.) I always enjoy drawing when bored .hh when I did like start doing Games Design I really wanted to do</p> | <ul style="list-style-type: none"> • You have to be good with drawing I think cause it's a part of the work • I don't consider every one doing it because some person has to be good at programming • Creative drawings can show you creative characters in a game |

| | | |
|--|--|--|
| | <p>these like concept art :</p> <p>Interviewer: [right</p> <p>IGD06: [and like cause I like :: cause I got cause I () started () Games I liked really good cartoonee characters</p> <p>Interviewer: [right, and you started : to drawing cartoonish characters yourself</p> <p>IGD06: [Yes</p> <p>Interviewer: [but what is your viewpoint about others (.) eh do you think this having for people this drawing skills,</p> <p>IGD06: [Yeah</p> <p>Interviewer: [is it really necessary for being successful in game design?</p> <p>IGD06: [You have to be good with drawing I think cause it's a part of the work. I don't consider every one doing it because some person has to be good at programming .hh which I'm not good at programming () I've always (fond) of designing cause I've always .h think that it's important because : creative drawings can show you creative characters in a game</p> <p>Interviewer: [Yeah. You're right :: Let's say it in another word. Do you think if a person come to Game Design courses a:::nd doesn't have any drawing skills, would she or he face any problems?</p> <p>IGD06: [hum. Depending on the problems cause () might not be good</p> | |
|--|--|--|

| | | |
|--|--|--|
| | <p>at designing they might be good at something else because one of my friends he doesn't he can't draw what so ever but he can do good programming</p> <p>Interviewer: [right, is he at Game Design?</p> <p>IGD06: [Yeah. Well, he is at different Uni.</p> <p>Interviewer: [And do : do you have any idea if he has problems? Do you see you have different courses for example in this IGD course you take you are asked to draw something, manipulate things. Do you think people like your friend who doesn't, who are not really good in drawing face any problem? Do they suck in?</p> <p>IGD06: [Yeah, Mmm, occasionally. If he get (told) to drawing he can struggle a bit because he can't really draw (my mate)</p> <p>Interviewer: [Do you think is he able, I know he is very, he or she, is very good in other parts like programming</p> <p>IGD06: [Yeah</p> <p>Interviewer: [but do you think if eh your friend has any problem in transferring his or her ideas :: across amm?</p> <p>IGD06: [He doesn't really have much problems with his ideas : because : he's : usually :: he : usually can tell the ideas and like I can like draw them up for him to get in a better</p> | |
|--|--|--|

| | | |
|---|--|--|
| | <p>image and when he sees them (he will tell) how I've done with them and if it's a good idea</p> <p>Interviewer: [right , ok.</p> | |
| <p>Interview Question 06</p> <p>Expectations after finishing this course</p> | | |
| <p>Emergent Theme: Future plan</p> | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | <p>STU01: [To be honest I really want to get a proper, well paid job. I hope with have this course and degree I can change my career.</p> | <ul style="list-style-type: none"> • Really want to get a proper, well paid job |
| STU02 | <p>STU02: [I'd like to be more confident in my skills. Em. That I'm doing things to sort of industry standard as such. Em.</p> <p>Interviewer: [I can guess you are already confident in audio.</p> <p>STU02: [yes</p> <p>Interviewer: [what do you like to be more confident in?</p> <p>STU02: [Em:: in sort of the animation side of things. And em:: being able to::() multimedia I suppose trying to work with more video and work more together online cause like I said I did the audio side of things but it's audio with video with all forms of multimedia all together and just kind of develop () understanding () together.</p> <p>Interviewer: [thank you very much.</p> | <ul style="list-style-type: none"> • Like to be more confident in my skills as industry standard, animation side of things and work with more video |
| STU03 | <p>STU03: [Aah. For me personally I'd like it to open up new avenues or</p> | <ul style="list-style-type: none"> • I would leave it quite open ended, because I |

| | | |
|--|--|--|
| | <p>doors to my current knowledge. Adds to my current knowledge and kind of, so my kind of width of my knowledge base is wider so I can take my skills into more areas that I can do so right now.</p> <p>Interviewer: [like which areas for example</p> <p>STU03: [obviously</p> <p>Interviewer: [How do you see your future? What are you doing by:: affected by this study? ::</p> <p>STU03: [I would leave it quite open ended, because I don't know at the moment anyway, but I'd like to I can imagine myself happily going into areas which would include image, audio, video, animation or combination of any of those things or design, straight design stuff.</p> <p>Interviewer: [right.</p> <p>STU03: [But it would be nice to me to know I could take it into any of those areas if the [job] was suited to me in the first place cause at the moment I am quite specialized in audio</p> <p>Interviewer: [right.</p> <p>STU03: [based stuff. Writing music or anything connected with providing audio for people or actually writing music as a piece of music.</p> <p>Interviewer: [So you see it as broadening your capabilities.</p> <p>STU03: [Yes. If I couple music with image somewhere or animation so</p> | <p>don't know at the moment anyway</p> <ul style="list-style-type: none"> • But I can imagine myself happily going into areas which would include image, audio, video, animation or combination of any of those things or design, straight design stuff |
|--|--|--|

| | | |
|--------------|--|--|
| | <p>working TV for instance you can also working in Radio, working in production companies specializing in video or animation so there is obviously Games design.</p> <p>Interviewer: [yah.</p> <p>STU03: [Any number of things whereas at the moment I find it quite difficult to take my skills to a lot of those because it's just audio and it's not enough image or video design stuff.</p> <p>Interviewer: [well, good luck to you and thanks very much for participating in this study.</p> <p>STU03: [Ok, No problem.</p> | |
| STU04 | N/A | N/A |
| IT01 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • Teaching |
| IGD22 | N/A | N/A |
| IGD17 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • Get a good job in mainly designing aspect of games rather than coding |
| IGD16 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • Come up with an idea and create a game and be ready to work in a company |
| IGD14 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • A game design job would obviously be ideal specially at the |

| | | |
|--------------|--------------------------------------|--|
| | | <p>moment, obviously 5 years ago probably would be easier</p> <ul style="list-style-type: none"> • Social sites things like facebook are interesting • It's more like to do with web so I'm not sure if I could really get into something like that • Some music service would be fun like a radio but you get to choose what you like to listen to and then they play adverts back to you every now and then • Something NEW something hasn't done before, not something like accounting software |
| IGD12 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • LOVE to get a job in the gaming industry |
| IGD09 | N/A | N/A |
| IGD08 | N/A | N/A |
| IGD07 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • Get a job in the gaming industry |
| IGD06 | Embedded in the reply to Question 04 | <ul style="list-style-type: none"> • Getting job in game design that may involve |

| | | |
|--|--|---|
| | | <p>Game Modeling and Game Animation or concept art</p> <ul style="list-style-type: none"> • I can design really good models and show like good art of my work • When I get even higher I like get my own game and I might use the cartoonee graphic style that I used in my own game and I might use realistic design for other games that I want to make in my own college |
|--|--|---|

Interview Question 07

Viewpoints about the necessity of this ability

Emergent Theme: Necessity of Drawing skills

| CODE | Student's Reply | Emergent Theme |
|-------|--|---|
| STU01 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • Ability to visualization is necessary not the ability to draw |
| STU02 | <p>STU02: [I think it's not the most important thing. I think being able to sketch roughly and come up with the initial idea is really is important. Em so:: I don't think being really great artist and being able to draw perfectly is necessarily important for the course:: cause when you're I suppose when you are working with a</p> | <ul style="list-style-type: none"> • It's not the most important thing • Being able to sketch roughly and come up with the initial idea is really important |

| | | |
|--|---|--|
| | <p>client they're kind of giving you an idea they have the sketches or you sketch from what they are saying you can come together on that. They don't have to be particularly precise because you're working as part of a team. I'd like to develop my skills in that sense but as a team we have people who got most skills [in those areas].</p> <p>Interviewer: [How would you see someone who hasn't any idea about sketching even the rough sketching? Do you think that person would come to problem in this field of study?]</p> <p>STU02: [I don't think so. No.]</p> <p>Interviewer: [You don't think so.]</p> <p>STU02: [I think em::: the planning stage is obviously important to do the sketching but I think if:: maybe[if you're not] working in a team yes to an extent::: but If you can: If you're working in a team you have always someone who can do that to an extent but I think ultimately to create a finished product I don't think sketching is the most important thing necessarily.]</p> <p>Interviewer: [You mean. Em. What do you mean by being in a team?]</p> <p>STU02: [In terms of I can do sketches but there is other people who can sketch a lot better than I can.]</p> <p>Interviewer: [right]</p> <p>STU02: [So like I can't draw dock</p> | |
|--|---|--|

| | | |
|---------------------|--|---|
| | <p>very well so I draw a thing that look roughly like a dock and that's kind of you can visualize like that and I think if you drew it too well then you'll be trying to produce exactly what you've drawn from that sketch rather than a quick rough sketch (). I think if we can really have a rough sketch that's fine but it doesn't have to be artistic [anyway]</p> | |
| <p>STU03</p> | <p>STU03: [Very effective but not necessarily 100% necessary. Interviewer: [right STU03: [Cause it all depends on what you are trying to achieve or get across [this phase], doesn't it? So you could get away with not being able to draw at the same time it wouldn't necessarily mean you could get your message across whereas drawing something or could be sketching something down you goanna have to visualize what something may look like after you've designed it for instance. Interviewer: [what do you mean by visualize? STU03: [Well if you think of something let's say you've goanna design a product or like a bottle or label just being able to visualize what's goanna look like before you've done it. Interviewer: [right STU03: [Yeh. So you can sketch the bottle, sketch where the label goes,</p> | <ul style="list-style-type: none"> • Very effective but not necessarily 100% necessary |

| | | |
|--------------|--|---|
| | <p>think about the colors just do a very quick image guide</p> <p>Interviewer: [right</p> <p>STU03: [for someone else to see rather than using () having explain to them the bottle is that big, the label is that big. () just showing them a picture would be quite easy, wouldn't it?</p> <p>Interviewer: [Thank you very much.</p> <p>STU03: [That's what I see, anyway.</p> <p>Interviewer: [That counts. That's what counts really.</p> <p>STU03: [If you take it from product design or anything if you're trying to get something a message over to somebody to them to understand.</p> | |
| STU04 | <p>STU04: [Em::: yes and no (.) I'm not (.2) I don't know cause it's so much technology out there now which can help you [if you are not a great drawer (.2) so</p> <p>Interviewer: [like you've found this tracing thing</p> <p>STU04: [yeah [</p> <p>Interviewer: [helpful</p> <p>STU04: [exactly and that's the there's lot of stuff on Photoshop as well that can help you [</p> <p>Interviewer: [Oohoom</p> <p>STU04: [so (.3)</p> | <ul style="list-style-type: none"> • Don't know because there are lots of technology to help with this |
| IT01 | <p>Embedded in the reply to Question 05</p> | <ul style="list-style-type: none"> • Not EXTREMELY necessary but it really helps |

| | | |
|--------------|---|--|
| IGD22 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • Not necessary if you do programming otherwise at least a bit of skill is needed |
| IGD17 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • Not absolutely necessary or essential to be that good in it • Have to need some drawings in some points |
| IGD16 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • It's not necessary |
| IGD14 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • As long as you can draw a bit it's fine |
| IGD12 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • Is not necessary |
| IGD09 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> • as long as you can put your ideas into word or someone can draw it for you, you'll be able to do as well as someone with maybe fantastic drawing skills |
| IGD08 | <p>IGD08: [Em : Well It's necessary in the way it's () it's just concept art. It doesn't matter how bad it is because it's only just like : this is a rough idea of what : this is going to look like :: so really the concept art it can : not be the greatest visual appearance but if you can tell what it is : just by looking</p> | <ul style="list-style-type: none"> • It's necessary in the way it's just concept art. It doesn't matter how bad it is • Being able to sketch roughly and transfer the idea is enough |

| | | |
|---|--|---|
| | <p>at it .hhh then :: you know</p> <p>Interviewer: [Can I reword it? Are you thinking that aah being able to sketch roughly and transfer the idea is enough</p> <p>IGD08: [Yeah.</p> | |
| IGD07 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> It's useful, but not necessary |
| IGD06 | Embedded in the reply to Question 05 | <ul style="list-style-type: none"> [No] Every one might be good at something |
| <p>Interview Question 08</p> <p>Are you familiar with active learning teaching method?</p> | | |
| <p>Emergent Theme: Active learning</p> | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | <p>STU01: [I don't know what to say (.4)</p> <p>I don't know because I ()</p> | N/A |
| STU02 | N/A | N/A |
| STU03 | <p>STU03: [Aam. No. I'm not quite sure exactly why you are doing or where you specifies</p> <p>Interviewer: [My study is questioning whether this drawing skills and sketching skills have really any effect on being successful in Game Design and Multimedia Design fields em: How do people get on without or with these skills because there are some</p> <p>STU03: [Yeh.</p> <p>Interviewer: [some feelings and some shallow statistics on these things regarding that, yes it is</p> | N/A |

| | | |
|--|--|--|
| | <p>effective, no it might not, but I'm I, my studies take it really serious. Is that</p> <p>STU03: [Yah, yah,yah. In my opinion I think drawing and sketching by hand is one of the most biggest things you need to get to do. Really.</p> <p>Interviewer: [Oohoom.</p> <p>STU03: [I think if you can't do that then I think you kind of missing a big portion of skill (.2) cause you then left just with the computer, wouldn't you? And being only being able to convey the stuff via a computer. I mean obviously it goes hand in hand with just being able to write the stuff down. Doesn't it?</p> <p>Interviewer: [Yah.</p> <p>STU03: [And to describe stuff in words</p> <p>Interviewer: [Yah.</p> <p>STU03: [Not just in computer format. Say if you can draw something, you know, it's just a visual image, isn't it?</p> <p>Interviewer: [Oohoom.</p> <p>STU03: [I can imagine there are a lot of places which do oom, cartoons or animation stuff and a lot of this is designed by hand, to begin with anyway, isn't it?</p> <p>Interviewer: [Yah.</p> <p>STU03: [And [in this] passed to the next stage where they converted into graphic form.</p> <p>Interviewer: [You mentioned about Games Design. You know there is a Game Design study in here as well in</p> | |
|--|--|--|

| | | |
|---------------------|---|---|
| | <p>this University. Why did you choose Multimedia over Games Design?</p> <p>STU03: [Aaamm:: Pure Games Design I think wouldn't be enough for me. I think if it was only that whereas I'm thinking I think I know this course includes sections from the Games Design course. Obviously you can add or change modules anyway in second year. So it gives me the chance to kind of take a year to do the compulsory modules and then maybe twit them if I need to in the second year. But I don't think 100% Games Design is what I want to do anyway.</p> <p>Interviewer: [Right.</p> <p>STU03: [I think I need to do more animation bits as well as more [2][3]D-based stuff as well for general website design</p> <p>Interviewer: [Well:</p> <p>STU03: [I'm thinking, you know. It can be changed so</p> <p>Interviewer: [Sure, sure. Doors are open. (Laughing). Thanks very much. It was really helpful today.</p> | |
| <p>STU04</p> | <p>STU04: [No (.) no (.) no (.)</p> <p>Interviewer: [wouldn't they do within your college? This method?</p> <p>STU04: [no they basically gave you eh an assignment and when you got your assignment (you) was able to do it whatever you just went to a lesson</p> <p>Interviewer: [aah</p> | <ul style="list-style-type: none"> • Puts you under a lot of pressure • Don't prefer it |

| | | |
|---------------------|---|--|
| | <p>STU04: [and you did bits by bits whenever</p> <p>Interviewer: [How do you how do you like this method?</p> <p>STU04: [Em::: (.) it's it's ok but it put you under a lot of pressure (.) yeah</p> <p>Interviewer: [Aahaam</p> <p>STU04: [so</p> <p>Interviewer: [so do you like it would be like your college method?</p> <p>STU04: [yeah (.) yeah I would</p> <p>Interviewer: [Ok thanks</p> | |
| <p>IT01</p> | <p>IT01: [no not really no</p> <p>Interviewer: [Do you like it?</p> <p>IT01: [yeah</p> <p>Interviewer: [the method I m I mean the method</p> <p>IT01: [(.3) yeah</p> <p>Interviewer: [how they deliver this.</p> <p>IT01: [yeah I do like it I like they give you a task (.) and you can .hh go and do it and then if you're not (.) happy with it (.) you:: can tell them and then they can help you (.)</p> <p>Interviewer: [oohoom</p> <p>IT01: [So (.) it's really hand on</p> <p>Interviewer: [right</p> <p>IT01: [I really like that</p> <p>Interviewer: [Thank you</p> | <ul style="list-style-type: none"> • Really hand on • Really like that |
| <p>IGD22</p> | <p>IGD22: [Em (.3) like I Ah it's: like in my old school they used to give (.) we just spen:d a couple of lessons doing one thing (.) but here you just cause a lesson is longer you just</p> | <ul style="list-style-type: none"> • Like it (like the strategy) |

| | | |
|--------------|--|--|
| | <p>doing one so I'd say I'm (.) some sort of used to it but not sort of between</p> <p>Interviewer: [How do you describe that? Do you like it?]</p> <p>IGD22: [I do like it (.) yeah I do]</p> <p>Interviewer: [Oohoom]</p> <p>IGD22: [I do like (the strategy)]</p> <p>Interviewer: [ok]</p> | |
| IGD17 | <p>IGD17: [Em (.2) no not that thing really no didn't do anything .hhh well sometimes they came in and say it is the stuff (.) draw in and then we'll looking in at the end but () as far as (]</p> <p>Interviewer: [I'm saying that the style of teaching here is new to you]</p> <p>IGD17: [well yeah yeah in a way yeah]</p> <p>Interviewer: [right]</p> | <ul style="list-style-type: none"> • It's new in a way |
| IGD16 | <p>IGD16: [No. no when I was .hh em the qualifications I've done before at Gloscat they were (.) it was purely out of the book really based on my own time as (.) pretty much teaching yourself really]</p> <p>Interviewer: [ow]</p> <p>IGD16: [so no you could do it when you want it as well () other sides trying to do it quite quickly but .hh no it was more it was more laid back actually]</p> <p>Interviewer: [ah how do you describe this method? Do you like it?]</p> <p>IGD16: [this method? Yeah I do like it (.) Force you to learn I guess they</p> | <ul style="list-style-type: none"> • Like it • It force you to learn • Make you push yourself and try |

| | | |
|---------------------|--|--|
| | <p>want you to do something in a time period (.) na: yeah you've got to push yourself and try try to learn</p> <p>Interviewer: [Ok. Thanks for sharing that with me.</p> | |
| <p>IGD14</p> | <p>IGD14: [Em (.1) not really no (.) with the art I did before it was very vague (.) it was very sort of (giving) you like a one word and just tell you to go away and do what you want about it (.) em (cough)</p> <p>Interviewer: [Do you have any example?</p> <p>IGD14: [Well the the exams we did were always very vague say have a word like emotion (.) and then they just let you do whatever you wanted on emotion (.) whereas here I think there is more structure to think you have a (.) have a goal and you have some () you fill in which is I think it's easier that way It's nice to having sort of focusing on rather than just being let to do whatever</p> <p>Interviewer: [So do you find it more , easier?</p> <p>IGD14: [Yeah</p> <p>Interviewer: [this way</p> <p>IGD14: [Yeah I think if you have too much freedom (cough) it makes you a lot more ah daunting</p> <p>Interviewer: [oohoom</p> <p>IGD14: [I think you'll get more worried about it cause you are not reassured what you're supposed to be doing</p> | <ul style="list-style-type: none"> • Not familiar with it • The art did before was very vague, say have a word like emotion and then they just let you do whatever you wanted on emotion • At this Uni there is more structure to think, you have a goal • It's easier this way • It's nice to having sort of focusing on rather than just being let to do whatever • Too much freedom makes you a lot more daunting and you'll get more worried about it cause you are not reassured what you're supposed to be doing |

| | | |
|---------------------|---|--|
| | <p>Interviewer: [right</p> <p>IGD14: [whereas if they tell you it has to be like this ()</p> <p>Interviewer: [nice one</p> | |
| <p>IGD12</p> | <p>IGD12: [E::m I think it is new (.) Yeah but we put on spot to come up with (.) some (.)</p> <p>Interviewer: [How do you think about it. The method</p> <p>IGD12: [E:: I do like it (.) em because it makes you really think on your toes and you got just come up with a concept really quickly and do all the background stuff you need to and then present it to people</p> <p>Interviewer: [right</p> <p>IGD12: [e::m but at the same time you can also (.) be () too much cause I know like on our module and our courses there is quite a lot of people who aren't really interested in games but they have to take the module (.) so if you don't already have the game creative kind of thinking some people might find that really hard</p> <p>Interviewer: [right</p> <p>IGD12: [so (.) yeah I think it just depends on the person really I mean I quite like doing it cause I like being creative so</p> <p>Interviewer: [But do you know people that don't enjoy it because it is so spontaneous</p> <p>IGD12: [I don't know if they don't enjoy it I just (.) I (.) when we've been put into teams just like you've got to</p> | <ul style="list-style-type: none"> • It's new • I do like it cause I like being creative • It makes you really think on your toes and you got just come up with a concept really quickly and do all the background stuff you need to and then present it to people • Some people might find that really hard • It just depends on the person really |

| | | |
|---------------------|--|--|
| | <p>get to know who you are with (.) and a couple of them sort of said like I've only I have to do this module so I don't really know anything about games (.) so they don't (.) you know they come up with ideas but they it might take them a while and I don't think maybe appreciate (.) having to be put on the spot</p> <p>Interviewer: [right. This is a good id this is a good spot</p> | |
| <p>IGD09</p> | <p>IGD09: [Emm. I would say it's a lot more .hh kind of direct here it's a more kind of (.1) back in high school it was kind of ahh I don't know how actually to explain it (.2) It was they'd start (off) something and then just leave you to go with it in a kind of go (off) on your own tangents and may be not come up with what you meant to</p> <p>Interviewer: [In high school?</p> <p>IGD09: [Oohoom. But here it's kind of (.3) you still can express yourself but it's kind of more (.5) kind of closely</p> <p>Interviewer: [Structured?</p> <p>IGD09: [Yeah structured and what you are actually trying to get as a finished product. It's like they give you more of the goal to reach than they do in high school.</p> <p>Interviewer: [Right .hh aa in another sense they the:::y in here they ehh provide you with a problem or a storyboard, anything and</p> | <ul style="list-style-type: none"> • It's a lot more direct here at Uni • In high school they'd start something and then leave you • Here you still can express yourself but it's structured and what you are actually trying to get is a finished product • It's like they give you more of the goal to reach than they do in high school • I don't think I'd come up with anything if I was asked to do the tasks that are given here in high school teaching way |

| | | |
|--|---|--|
| | <p>spontaneously they ask you to come up with an idea and do something. there is some more active bit to it</p> <p>IGD09: [yeah.</p> <p>Interviewer: [Did you have the same experience in back in high school?</p> <p>IGD09: [Aah. No High school was a kind of (.3) there was eh Yeah I don't cause here when they what we're doing with () pads we were given kind of (.5) saying () we need a game aimed eight to ten that helps them learn and then we start () and quite short amount of time which I think (.1) helps quite a lot of people because it meant that had a deadline .hh amm to come up with quite a (.1) intricate idea</p> <p>Interviewer: [Right</p> <p>IGD09: [In relation to what we had to do but in high school it was more (.5) you don't really have to come with as much of a finished product</p> <p>Interviewer: [Right, but you like this aspect of teaching here that it is strained in a short limit of time?</p> <p>IGD09: [Yeah. I think if the same thing had happened in high school I wouldn't have been able to come up (.1) what was in if I was given the same task in the teaching way in high school .h I wouldn't have been able to come up with an anything as (.3) creatable in anywhere em anywhere nearer a short time.</p> <p>Interviewer: [Sorry I didn't get you</p> | |
|--|---|--|

| | | |
|---------------------|---|--|
| | <p>IGD09: [Aam. If I basically the task that we've been given (.2) if it was given to me in the way they taught in high school</p> <p>Interviewer: [Here you mean?</p> <p>IGD09: [Yeah</p> <p>Interviewer: [Ok</p> <p>IGD09: [Em</p> <p>Interviewer: [Aaa aaa I thought you are saying vice versa</p> <p>IGD09: [what I mean like the tasks that are given here if I was (.1) asked to do that in more high school teaching way I don't think I'd come up with (.1) anything really</p> <p>Interviewer: [ok. Thank you. Good point</p> | |
| <p>IGD08</p> | <p>IGD08: [I'm familiar with some of them. I'm familiar with like the drawings and I'm familiar with the storyboards as they're both needed for Games like drawings for (apparent) storyboards how it's gonna pan out .</p> <p>Interviewer: [Oohoom</p> <p>IGD08: [And I've : come across them before.</p> <p>Interviewer: [But I meant the style of teaching</p> <p>IGD08: [The style of teaching?</p> <p>Interviewer: [The :: for example they come to class and eh define some sort of activity that you do. Did you do the same sort of :: models in your previous education?</p> | <ul style="list-style-type: none"> • Familiar- did something similar before |

| | | |
|---------------------|--|--|
| | <p>IGD08: [Yeah. Something like that. Oom</p> | |
| <p>IGD07</p> | <p>IGD07: [Em: I think more (.) it was more work on assignment so you had to do it like either 6 weeks or something</p> <p>Interviewer: [right</p> <p>IGD07: [There's never really one sort of session thing like here</p> <p>Interviewer: [So is it a new experience do you think?</p> <p>IGD07: [Yeah, it's quite a new experience</p> <p>Interviewer: [How do you like it?</p> <p>IGD07: [Oh. I I enjoy it. I think it's really fun</p> <p>Interviewer: [Ow</p> <p>IGD07: [Yeah</p> <p>Interviewer: [Okey</p> | <ul style="list-style-type: none"> • It's quite a new experience • I enjoy it • It's really fun |
| <p>IGD06</p> | <p>IGD06: [Yeah. I get it huhuhuhuhu</p> <p>Interviewer: [Did your previous educational system ah: use some: some methods like them?</p> <p>IGD06: [well. The methods that we used at my college they used like well they used like several designs like digital graphics I can understand that because I did that at college and like web animation I understand that because I did that at college as well .hh but like .hh most of the time because our courses are really messed up but</p> <p>Interviewer: [How?</p> | <ul style="list-style-type: none"> • I understand it • It's very good to learn about it |

| | | |
|---|--|--|
| | <p>IGD06: [well. Two teachers left the course : left the course and like they got different jobs and then like left so many of students stranded</p> <p>Interviewer: [from previous college you mean</p> <p>IGD06: [yeah ()</p> <p>Interviewer: [what I really mean, meant was that : the method they use in here is something like active: active things they</p> <p>IGD06: [Aoh</p> <p>Interviewer: [spontaneously they introduce something and you should do it eh just in that session. Are you familiar with this system?</p> <p>IGD06: [Yes I do. I understand it and it's very good to learn about it.</p> <p>Interviewer: [ok.</p> | |
| <p>Interview Question 09</p> <p>Do you play Games? What Games do you prefer?</p> | | |
| <p>Emergent Theme: Game preferences</p> | | |
| <p>CODE</p> | <p>Student's Reply</p> | <p>Emergent Theme</p> |
| <p>STU01</p> | <p>N/A</p> | <p>N/A</p> |
| <p>STU02</p> | <p>N/A</p> | <p>N/A</p> |
| <p>STU03</p> | <p>N/A</p> | <p>N/A</p> |
| <p>STU04</p> | <p>STU04: [Em I I do and don't I'm not really (.) a major gamer no</p> <p>Interviewer: [right. So what do you call a good game if if you want to play?</p> <p>STU04: [Em:: one you can't turn off</p> | <ul style="list-style-type: none"> • Don't play games • Good games should have good tasks, good graphics, a lot of actions and keep you busy |

| | | |
|--|---|--|
| | <p>Interviewer: [what what would really fascinate you? Is there any particular artifacts that you like [to see in games?</p> <p>STU04: [Good graphics</p> <p>Interviewer: [Good graphics</p> <p>STU04: [Good graphics and a lot of action</p> <p>Interviewer: [Oohoom</p> <p>STU04: [so you're always busy (.) It's no good to have a boring game when you've got nothing to do really</p> <p>Interviewer: [well what is boring game really?</p> <p>STU04: [Where you got walk around (.) find what you've got to do it's better to have tasks</p> <p>Interviewer: [Do you for example are you</p> <p>STU04: [seeing aiming for something</p> <p>Interviewer: [can I clear myself? For example do you call puzzle games a boring game?</p> <p>STU04: [No if you do know you've got to do something</p> <p>Interviewer: [right. Do you like amm RPG games? Or role playing model games?</p> <p>STU04: [Em not really no</p> <p>Interviewer: [Oohoom aam I'm just interested to know oom besides having a good graphic which is obviously your main interest aow what would you call what game should have to make you sit down</p> | |
|--|---|--|

| | | |
|-------------|---|--|
| | <p>and play?</p> <p>STU04: [Good tasks</p> <p>Interviewer: [ok. Thanks</p> | |
| IT01 | <p>IT01: [Aam: I'm such a () when it comes to games. I love playing kid's games I like really easy games so like .hh although I do play adventure games as well I've started I've recently started playing World of Warcraft (.)</p> <p>Interviewer: [Oohoom</p> <p>IT01: [on the Internet it's quite cool .h but my favorite game would probably have to be .h Fighting Force it's a play station game original play station so PS1 (.)</p> <p>Interviewer: [right</p> <p>IT01: [Really awesome .hh really simple all you got to do just ()out people and get to the end of the level really simple</p> <p>Interviewer: [(laughing)</p> <p>IT01: [absolutely love it. You can have multiplayer's it's brilliant</p> <p>Interviewer: [Right why do you enjoy simple games?</p> <p>IT01: [Ah I just don't like things to be complicated (.) I think gaming shouldn't be complicated .h You should be able to (.2) defeat things and get pass objects .hh and things like that</p> <p>Interviewer: [ah actually you have different ideas</p> <p>IT01: [well good</p> | <ul style="list-style-type: none"> • Love playing kid's games • Like really easy games although I play adventure games • Don't like things to be complicated • Gaming shouldn't be complicated • Like simple characters, having story behind, knowing objectives and how to get things in position • Don't play VERY violent games (scared from childhood) |

| | | |
|--|---|--|
| | <p>Interviewer: [yeah it's really good and I would like to know more about ideas about how what you call good game in terms of what is what does really fascinate you in terms of display? Is it color?</p> <p>IT01: [yeah I like color</p> <p>Interviewer: [Is it character?</p> <p>IT01: [I like simple characters. I like having story behind:: like what I'm going to do so I know what my objective is, how I got this in position (.) and what I need to do (.) in order to defeat (.3) () and X or (.) something (.3) yeah</p> <p>Interviewer: [ok that's interesting. Thanks</p> <p>IT01: [that's ok</p> <p>Interviewer: [yeah and any particular artifact fascinate you in games?</p> <p>IT01: [what do you mean?</p> <p>Interviewer: [aam I know you like kid's games but aa again how would you describe em what what game don't you play?</p> <p>IT01: [I don't play VERY violent games</p> <p>Interviewer: [Oohoom</p> <p>IT01: [so like I don't know Call of Duty</p> <p>Interviewer: [right</p> <p>IT01: [Medal of Honor and things like that I used to Medal of Honor with my brother when I was a kid .hh that's () like a war veteran and you have to kill people (.) SO scary</p> | |
|--|---|--|

| | | |
|---------------------|--|--|
| | <p>Interviewer: [(laughing)]</p> <p>IT01: [(laughing) I used to get so scared and run away and just scream because it was so scary .hh and that was like when I was seven so (.)(laughing) it was just bad experience I just don't like game ()</p> <p>Interviewer: [(laughing) thank you it's interesting</p> | |
| <p>IGD22</p> | <p>IGD22: [I do. yes</p> <p>Interviewer: [what games are you interested in?</p> <p>IGD22: [em (.4) () specific one (sort of you mean)</p> <p>Interviewer: [oh however you like to describe it</p> <p>IGD22: [de::he I think I like quite a lot of different games like strategy (.) () adventure things like that em (.3) you know the (.2) my () just got a () 2001 game (.) which is like turned out to be my favorite games so far just cause it's () graphics is good it's really good to play so () like competitive edge as well</p> <p>Interviewer: [right em from artifact viewpoint what fascinate you in games?</p> <p>IGD22: [Em (.5) well I quite like I like the story as it progresses through the game (.) and like and (as I said) the graphics as well cause I () things well in the newer games like the graphics are the (.3) sort of () I get into it</p> <p>Interviewer: [By better graphic you</p> | <ul style="list-style-type: none"> • Quite a lot of different games like adventure and strategy games • Good graphics, competitive edge and story • Prefer single player games |

| | | |
|---------------------|---|---|
| | <p>mean more realistic graphics or just better quality of any sort of graphic?</p> <p>IGD22: [I think better quality</p> <p>Interviewer: [Oohoom</p> <p>IGD22: [of graphics</p> <p>Interviewer: [Em are you more interested more in playing single games or multiuser games over Internet?</p> <p>IGD22: [Em (.3) I would say more into single (.) player games but I do play like a couple of (.) multi (.)player ones before</p> <p>Interviewer: [ok</p> | |
| <p>IGD17</p> | <p>IGD17: [Yeah () when I got a bit of free time ()</p> <p>Interviewer: [what is your favorite game?</p> <p>IGD17: [It's aam woof racing games the sport football games aem (.3) little bit of first player shooting games as well</p> <p>Interviewer: [play station games?</p> <p>IGD17: [yeah yeah</p> <p>Interviewer: [Any particular game like the name appealing to you?</p> <p>IGD17: [Em () Formula 1</p> <p>Interviewer: [Formula1?</p> <p>IGD17: [so</p> <p>Interviewer: [what aspects of game design the games you are playing with actually fascinate you?</p> <p>IGD17: [Em (.1) well () I think it's the challenge of moving up then cause it's just start at the bottom and got to</p> | <ul style="list-style-type: none"> • Play when have a bit of free time • Interested in racing games, sport football games, a little bit of first player shooting games, Formula1 • Interested in the challenge to get to the top and win and the way they look |

| | | |
|---------------------|---|---|
| | <p>the way that challenges you (.) to get to the top and win and gets there</p> <p>Interviewer: [any particular part of artifacts for example eh design-wise?</p> <p>IGD17: [(3) How they look you mean things?</p> <p>Interviewer: [Yeah how they look for example the weapons the aah these sort of things. Any particular thing in game eh particularly fascinates you?</p> <p>IGD17: [Aam well () the cars are the one thing</p> <p>Interviewer: [cars?</p> <p>IGD17: [yeah the way they look (coughing) and you want they've () they () look really good so that's kind of ish well that's kind of how are they done that kind of thing</p> <p>Interviewer: [ok</p> | |
| <p>IGD16</p> | <p>IGD16: [I do I'm not as much as I used to yeah I do enjoy games yeah</p> <p>Interviewer: [right what sort of game fascinates you?</p> <p>IGD16: [Ah I like (.) I like adventure games (when) you have to think em ho you have to use your brain and then hem hem make something to work to get somewhere in the game and I also like:::m yeah I want to () advanced like may b:::e e an action game () like a war game for example I like those I do like sport games like Snooker I quite like that well I like () challenging</p> <p>Interviewer: [So don which em the</p> | <ul style="list-style-type: none"> • Don't play as much as used to • Like adventure games, games that make you think, Action games, Sport games like Snooker • Like challenge • Don't like easy games' like keep advancing • Wouldn't play a game with poor graphics • Want a wide variety of weapons, good characters, good character skills, good |

| | | |
|--------------|--|--|
| | <p>main idea that fasci fascinates you in a game is challenge or</p> <p>IGD16: [yeah yeah you won't like it just be easy and play () just you like to keep advancing don't you just keep getting somewhere</p> <p>Interviewer: [make it more difficult</p> <p>IGD16: [hoom</p> <p>Interviewer: [ok and is there any artifact that you prefer in games that makes you more interested in?</p> <p>IGD16: [A:::m</p> <p>Interviewer: [what do you call a good game?</p> <p>IGD16: [A good game well a good game well I like I actually like I guess if it looks good visually if it's a eh eh it's difficult to explain really for em like good graphics I think everyone likes good graphics</p> <p>Interviewer: [can I say in this way that you don't go for a game that doesn't have good graphics</p> <p>IGD16: [no I wouldn't no (.) just got yeah if it's</p> <p>Interviewer: [what about the weapons and</p> <p>IGD16: [yeah you wanna wide variety of weapons like em maybe eh: a good character () a good character skills , skill levels maybe em .hh ah just like the surroundings what you can do with the controls how much</p> <p>Interviewer: [ok. Ok thanks very much</p> | <p>surroundings and good controls</p> |
| IGD14 | IGD14: [Yeah | <ul style="list-style-type: none"> • Puzzle games |

| | |
|--|---|
| <p>Interviewer: [What sorts of games fascinate you?</p> <p>IGD14: [Eh puzzle games. I like puzzle games quite a lot</p> <p>Interviewer: [Any current games that you can name? or you're engaged in?</p> <p>IGD14: [Em (.2) We're playing Half Life quite a lot</p> <p>Interviewer: [Half Life</p> <p>IGD14: [Yeah</p> <p>Interviewer: [Ok. What's eh what sort of artifacts fascinates you? Are you interested in when playing games? What do you call a good good game?</p> <p>IGD14: [It has to make you think (.) I think (.) I think the they actually obviously the game play itself what how you're going to solve thing how you're actually going doing it has to make you think (.) but I think the characters as well the backstory and how they () together it has to make it has to be something that (.1) sort of ah (.) not sure how to describe it (.) It has to make you it has to (drive) you think about the characters, think about how everything's happening why everything's happening (.) I think that's</p> <p>Interviewer: [Do you mean the challenge bit or something</p> <p>IGD14: [well yeah but</p> <p>Interviewer: [intellectual eh</p> <p>IGD14: [Yeah</p> | <ul style="list-style-type: none"> • Playing Half Life quite a lot • It has to make you think about the characters, about how everything's happening, why everything's happening (more to do with the backstory and the characters stories and the kind of world in general) • Don't think the kind the artistic style is goanna make or break a game, it can add things it can make it a bit worse but it's not TOO much of a difference • Generally I prefer single player games • Online is much faster and much more difficult if you're specially prefer like puzzle game |
|--|---|

| | | |
|--|--|--|
| | <p>Interviewer: [engagement</p> <p>IGD14: [I think more to do with the backstory and eh the characters stories and (.) you know the kind of world in general</p> <p>Interviewer: [right</p> <p>IGD14: [I think it's quite interesting</p> <p>Interviewer: [Any particular fascinations in terms of ah artistic taste</p> <p>IGD14: [Em not particularly no I don't really mind</p> <p>Interviewer: [Oom</p> <p>IGD14: [I don't think (.) I mean obviously you can you can add a lot if you choose the RIGHT kind of style (.) but I don't think it's goanna make too much of difference (.) I don't think the kind the artistic style is goanna make or break a game I think (.) it can add things it can make it a bit worse but it's not (.) TOO much of a difference</p> <p>Interviewer: [Are you fascinated in playing multiuser games?</p> <p>IGD14: [yeah</p> <p>Interviewer: [On the Internet?</p> <p>IGD14: [yeah</p> <p>Interviewer: [Do you prefer that um single games or</p> <p>IGD14: [Em (.) I think generally I prefer single player (.) yeah I think online is much eh (.1) is much faster (.1) it's much more difficult if you're specially prefer like puzzle game (.) it's much more difficult to play with</p> | |
|--|--|--|

| | | |
|---------------------|--|---|
| | <p>other people cause you have to organize and you have to sort of talk to them all the time you have to getting and doing exactly the right thing (.) so it's much more difficult</p> <p>Interviewer: [so you prefer to have your own time</p> <p>IGD14: [yeah (laughing)</p> <p>Interviewer: [ok (laughing)</p> | |
| <p>IGD12</p> | <p>IGD12: [em at the moment I've been playing Mass Effect2 (.) that's my sort of (.) I love RPGs which is like sort of a big open world and you are customizing your characters and stuff like that .hh I don't really like sport games they're quite boring so</p> <p>Interviewer: [Ah could you explain more about it's obvious that you have some particular interests in the characters and the environments you like to see in games. Could you explain more?</p> <p>IGD12: [e::m oky toke em well I like (.) what sort of I like about it sort of thing</p> <p>Interviewer: [yeah what really fascinate you?</p> <p>IGD12: [em (.) I really (.) what I really like in a game is if it (.) if you need to develop a character so you can change how exactly how the character look (.) anything like that then when you can interact with (.) like other characters in the game and you choose what they say and</p> | <ul style="list-style-type: none"> • Love RPGs which is like sort of a big open world and you are customizing your characters and stuff like that • Playing Mass Effect2 at the moment • Don't really like sport games they're quite boring • Quite like to feel you are part of the game itself by being able to change exactly how the character look, interact with other characters in the game and choose what they say and choose your decision and your actions and consequences so get really immersed into it • Normally play single games • Only play a multiplayer |

| | | |
|--------------|--|--|
| | <p>choose your decision and your actions and consequences .hh I love that kind of interaction in the game cause I think it really (.) get really immersed into it and feel like you are part of the game itself (.) that's what I quite like about it (.)</p> <p>Interviewer: [right</p> <p>IGD12: [that sort of game level there are many games that do that (though)</p> <p>Interviewer: [Are you interested in multiplayer games on the Internet particularly or just single games?</p> <p>IGD12: [I normally play single games (.) I only play (.) a multiplayer games with my house mates and we're sort of just all beyond one sort of X box (.) essentially (.) I don't play with the Internet anything like that</p> <p>Interviewer: [Ok. Right. Ah it was really nice. Thank you</p> | <p>games with my house mates with one X box essentially</p> <ul style="list-style-type: none"> • Don't play with the Internet |
| IGD09 | N/A | N/A |
| IGD08 | <p>IGD08: [Yeah. My favorite games it's it's pretty mix to be honest I like fighting games however I got like I do like certain like :: old games you know like 2D style :: like</p> <p>Interviewer: [Can you name can you name some games? :: that you like?</p> <p>IGD08: [Aah. Sonic () em :: Tekken .hh Small Arms () .hh you know just so just really in particular I do like fighting games but overall I'd like sort</p> | <ul style="list-style-type: none"> • Pretty mix but prefer fighting games and certain old games like 2D style • Play games that I enjoy and like the looks of it • A mixture of things should be good like story, appearance, controls and not having repeating stuff |

| | | |
|---------------------|--|--|
| | <p>of like a mix I like anything if it's if I enjoy it if I like the looks of it then I just play it</p> <p>Interviewer: [What do you enjoy the most from a game? Is it the look? The weapons? The</p> <p>IGD08: [It's really a mix : of things like .hh for me it's like if it's got a good story, if it's got a good appearance however like the controls are .hh like sort of outdated and if they're : not good enough like repeating stuff it's not () the game</p> <p>Interviewer: [Oohoom</p> <p>IGD08: [In general I do like the whole mixture of things to be good</p> <p>Interviewer: [So the good game should be a GOOD game for you.</p> <p>IGD08: [Yeah. Or at least enjoyable and fun.</p> <p>Interviewer: [Aah ::: Thanks very much.</p> | |
| <p>IGD07</p> | <p>IGD07: [Any. They're all brilliant hehhhh</p> <p>Interviewer: [Eh</p> <p>IGD07: [I'm not really fussed I just (play on)</p> <p>Interviewer: [Anything come :: to the market</p> <p>IGD07: [Yeah anything really I mean I suppose : in particular I like racing games that sort of my main : any racing game I love racing games</p> <p>Interviewer: [You're more interested in</p> | <ul style="list-style-type: none"> • They're all brilliant I'm not really fussed I just (play on) • I love racing games • Interested in games that are challenging • Prefer hard games (always put the difficulty up to the max) |

| | | |
|---------------------|---|---|
| | <p>IGD07: [Yeah</p> <p>Interviewer: [Ok</p> <p>IGD07: [any any games great really</p> <p>Interviewer: [Any any particular artifacts fascinate you more?</p> <p>IGD07: [eh</p> <p>Interviewer: [Any particular elements in the game?</p> <p>IGD07: [Well I suppose games to sort of interests me is got to be challenging</p> <p>Interviewer: [Okey</p> <p>IGD07: [So if if it's hard then I prefer it</p> <p>Interviewer: [Really?</p> <p>IGD07: [Yeah. I always put the difficulty up to the max and stuff</p> <p>Interviewer: [Ok</p> <p>IGD07: [I like challenge heh</p> <p>Interviewer: [hehe I like that</p> | |
| <p>IGD06</p> | <p>IGD06: [I play like a lot various games. I play like Encharted, Resistance, (Grafton), Little big planet .hhh emm () Clan, I play :: Fifa, I play : what are the games that I play? Well, I play :: No More Heroes, I play Call of Duty (obviously), I play like I give every game an () test () etc. but (I don't go to game say MMORPGs) I don't like World of War Craft what so ever</p> <p>Interviewer: [ok</p> <p>IGD06: [and I like The Sims: cause it's just like () because of the families</p> <p>Interviewer: [ok. I like that. And ehh I</p> | <ul style="list-style-type: none"> • Play various games • Give every game a test • Don't go to game say MMORPGs and World of War Craft cause they do the same things • Like The Sims because of the families • Do like war games and actions games • Like a game that looks really creative: how they design the characters and make it |

| | | |
|--|---|--|
| | <p>can sense what sort of games do you like. Family based, not war</p> <p>IGD06: [well I do like war games actually. I'm into like oom war games like FPSs. I like family games but I like more like actions games</p> <p>Interviewer: [ok: ok. What most interests you? What is the most interesting things to you ah... based on artifacts?</p> <p>IGD06: [what what do you</p> <p>Interviewer: [What fascinates you in games?</p> <p>IGD06: [well the game. The reason why I like a game is because it looks really creative how they design like the characters and like how they make it like virtual and like make you play it</p> <p>Interviewer: [right. Can I reword it? Did you mean that you feel more creative when you play games or you enjoy the creativeness inside the game?</p> <p>IGD06: [I enjoy the creativeness inside the game and like how fun it can be cause when I play Call of Duty I just enjoy how () how you get feel like when you're playing like in a World War II environment</p> <p>Interviewer: [oohoom</p> <p>IGD06: [There's I realize how how it was like when I played different characters from different countries</p> <p>Interviewer: [oohoom</p> <p>IGD06: [Yeah. Cause I really ()</p> | <p>virtual and make you play it</p> <ul style="list-style-type: none"> • Enjoy the creativeness inside the game • Like how fun it can be (in Call of Duty it's like you're playing in a World War II environment, realize how it was like when playing different characters from different countries) • Like adventure game or adventure shooter because they use heavy amount of creativity like puzzles in the game |
|--|---|--|

| | <p>playing is very different in most games. Because I don't like when these games like just the same things like I've seen one game like I don't like World of War Craft because I don't, it's just the same thing. Just MMORPG that people are addicted to</p> <p>Interviewer: [oohoom</p> <p>IGD06: [When I play like Encharted which is like an adventure game or adventure shooter cause I like shooters I found out that they use heavy amount of creativity cause they used like puzzles in the game</p> <p>Interviewer: [ok</p> <p>IGD06: [which got me in a situation that thought well, this is good</p> <p>Interviewer: [oohoom</p> <p>IGD06: [Yeah</p> <p>Interviewer: [ok. Thanks a lot aahh I wish you the very best of luck in this educational system and your studies.</p> | |
|--|---|----------------|
| <p>Interview Question 10</p> <p>Is there anything else you want to tell me?</p> | | |
| CODE | Student's Reply | Emergent Theme |
| STU01 | N/A | N/A |
| STU02 | N/A | N/A |
| STU03 | N/A | N/A |
| STU04 | <p>STU04: [() not really anything else would like to say</p> <p>Interviewer: [ok then good luck</p> | N/A |

| | | |
|--------------|---|--|
| | | |
| IT01 | <p>IT01: [I don't think I do unless there's anything else you want to ask?</p> <p>Interviewer: [Oom, No do you have any suggestions about delivering this course? Do you like it or anything else?</p> <p>IT01: [I really like it. I think it's done really well</p> <p>Interviewer: [Oohoom</p> <p>IT01: [I don't think there's anything else I can</p> | N/A |
| IGD22 | <p>IGD22: [Yeam (.4) they definitely just about the course that was it (.) that I think their teaching style is quite good for it (.) cause I did just cause they give you like a certain few things to do in a (certain)() of time give you guides how to do it (.) what time how much time basically you're expected to spend on it and also cause they give you () stuff to do outside of them ()</p> <p>Interviewer: [ok</p> <p>IGD22: [so you can (.) sort of () the skills ()</p> <p>Interviewer: [you like that?</p> <p>IGD22: [yeah</p> <p>Interviewer: [ok. Ah what about em any any suggestions or ideas about gaining this drawing skills if you think is good to have?</p> <p>IGD22: [Em (.2) I think there was a (.) there should be like rather than just using () EVERY single time and</p> | <ul style="list-style-type: none"> • Let paper-based sketches be a sort of presentation as well as PowerPoint-based ones so you can give it your own touch which seems more real than computer screen |

| | | |
|---------------------|--|------------|
| | <p>if (.) like if you are () designing like a say mini game in fact like just like a presentation that you could do like a (.) paper (based) and sketching so if like (.) just to make it seem like give it your own touch and if you like seem more real rather than just having on computer screen where things might where things might not look as you wanted to</p> <p>Interviewer: [Can I reword it in this way am I understanding well that for example instead of presenting things presenting your storyboard on something like powerpoint you could do it by your own sketching and</p> <p>IGD22: [yeah</p> <p>Interviewer: [ok</p> <p>IGD22: [things like that way feels more natural and you get things the way you want it and em(.) it's less frustrating. Sometimes can only things work at a time let's say</p> <p>Interviewer: [yeah that's a good idea actually. Thanks very much. Anything else?</p> <p>IGD22: [no</p> <p>Interviewer: [cheers</p> | |
| <p>IGD17</p> | <p>IGD17: [Em hem I don't know no we had much () as far as it goes to learn ()</p> <p>Interviewer: [right. ok</p> | <p>N/A</p> |
| <p>IGD16</p> | <p>IGD16: [A:::m no. that's really everything I guess em</p> | <p>N/A</p> |

| | | |
|--------------|--|-----|
| | <p>Interviewer: [any particular thing that you like to see in</p> <p>IGD16: [well I'd like to just no that's pretty much everything really</p> <p>Interviewer: [ok thanks very much</p> | |
| IGD14 | <p>IGD14: [Eh I don't I was just curious are you a fourth year here? Or you () outside the University? So you're doing a game course or you've done a games course?</p> <p>Interviewer: [No. I've done multimedia course</p> <p>IGD14: [Ok</p> <p>Interviewer: [eh couple of years ago</p> <p>IGD14: [all right</p> <p>Interviewer: [in the same University</p> <p>IGD14: [yeah</p> <p>Interviewer: [and I've eh now engaged in a research it is based on in the University not outside</p> <p>IGD14: [ok</p> <p>Interviewer: [ok</p> <p>IGD14: [so you're kind of kind of know what we're doing you know our course</p> <p>Interviewer: [yeah kind of</p> <p>IGD14: [Ok</p> <p>Interviewer: [I'm not out of the space</p> <p>IGD14: [yeah hehe yeah</p> <p>Interviewer: [ok</p> <p>IGD14: [yeah</p> <p>Interviewer: [Anything you like to suggest or</p> <p>IGD14: [Em no I can't no I can't think</p> | N/A |

| | | |
|--------------|---|--|
| | of anything | |
| IGD12 | <p>IGD12: [E::m I think (.) I'm not too sure of what we're doing in the other years (.) but I quite like to get (.) into designing games earlier on (.) I know that obviously like game from the (mentor 's) module they've got a (.) you've got to think of design and stuff like that e:m I'm quite hands on I just wanna sort of get on and make some things make some games (.) eh but whether or not that would fit in how they'd deliver it (.) I'm not sure</p> <p>Interviewer: [Oohoom</p> <p>IGD12: [I think you obviously need to be (.) taught how to walk before you can just go ahead and run make the games themselves so (.) yeah</p> | N/A |
| IGD09 | <p>IGD09: [There is nothing I can think of it really. Eh. Emm</p> | N/A |
| IGD08 | <p>IGD08: [Story. I'd feel that there isn't really much (call) for it although (they will do) touch on it : I would like if they at least have a like half semester course for it</p> <p>Interviewer: [Right</p> <p>IGD08: [You know like developing the characters (.) I mean if a game it relates to drawing I guess, like if you have the appearance :: it's like the appearance can't work without the description and vice versa : like these sort of relying on each other in</p> | <ul style="list-style-type: none"> • I would like if they at least have a like half semester course for story and developing the characters • It's like the appearance can't work without the description and vice versa |

| | | |
|---------------------|--|--|
| | <p>away :: if you have one thing without the other :: doesn't work as well</p> <p>Interviewer: [Eh can I reword it? Are you enjoying more if there was some focus on storytelling and working on the story? techniques of story making?</p> <p>IGD08: [I would like that yeah I mean</p> <p>Interviewer: [Oom this is a good idea actually</p> <p>IGD08: [I mean you've seen like the courses here :: it doesn't have like an actual course to story</p> <p>Interviewer: [Hoom</p> <p>IGD08: [They do like touch on it but it's amongst one the other courses .hh I'd I would really like it more if I say next year : even if it was just like a for one semester I wouldn't mind if there was like course for story development ::: That's all what I want to see</p> <p>Interviewer: [Thanks very much</p> | |
| <p>IGD07</p> | <p>IGD07: [Yeah. Ehh :: I mean like I said it might be a good idea if they had like a few sort of : actual eh sketching or sort of art-based tutorials or something so that everyone gets a little bit of : art sort like a basic (.) understanding of art and sort of sketching so they can like transfer those skills over to what we're doing at the course at the moment</p> <p>Interviewer: [Based on the rough</p> | <p>To have sketching or sort of art-based tutorials right at the beginning so that everyone gets a little bit of basic understanding of art and sort of sketching so they can transfer those skills over to what we're doing at the course at the moment</p> |

| | | |
|--------------|--|-----|
| | <p>idea that you already have about the course the modules that you are going to take when do you think this is appropriate to happen?</p> <p>IGD07: [Em. well I think I mean right at the beginning just I mean not not anything massive just a few sort of basic classes</p> <p>Interviewer: [Right</p> <p>IGD07: [Just to give you a basic idea to sort of sketching and designing in general</p> <p>Interviewer: [Oohoom. Good idea, thanks very much.</p> | |
| IGD06 | <p>IGD06: [I'm ok. Thank you.</p> <p>Interviewer: [Thanks very much.</p> <p>IGD06: [ok.</p> <p>Interviewer: [Cheers.</p> <p>IGD06: [()</p> <p>Interviewer: [Good like.</p> | N/A |

Appendix O: 2011-12 Students' First Interview Transcription

| 2011-12 Students' First Interview Transcription | | |
|---|---|--|
| Interview Question 01 | | |
| Background (A Levels)/ Artistic background | | |
| Emergent Theme: Background | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | <p>MAT10: [Em I:: (.2) in my college I did the similar course, I did Games Design A-Levels and BTEC</p> <p>Interviewer: [ok</p> <p>MAT10: [and before that just normal secondary school. Em basically normal secondary school. Was a (proper) school for a little bit but basically just a secondary school.</p> <p>Interviewer: [Can I ask about the nature of the course</p> <p>MAT10: [Em (.) It was: (.) it was very similar to Lisp but more design more based on the design (.) aspects</p> <p>Interviewer: [artistic (parts)?</p> <p>MAT10: [Em (.2) a lot of artistic side a lot of essay writing as well which is different from this course. This course is more practical (.) but we</p> <p>Interviewer: [what about programming?</p> <p>MAT10: [Em, We did small amount of programming but I really never enjoyed programming</p> <p>Interviewer: [so can I reword it like</p> | <ul style="list-style-type: none"> • A-Levels and BTEC in Games Design • Very similar to Lisp but more based on the design aspects • A lot of artistic side • A lot of essay writing as well which is different from this course (this course is more practical) • Writing scripts about games and did a whole design document to generally convey the idea of game ideas • Did small amount of programming but I really never enjoyed programming |

| | | |
|--------------|--|--|
| | <p>this: you are more into artistic side of game</p> <p>MAT10: [yeah, yeah definitely artistic and writing side (??) just generally the designing side yeah</p> <p>Interviewer: [ok</p> | |
| MAT11 | <p>Interview not recorded</p> | <ul style="list-style-type: none"> • A-Levels and BTEC in Games Design • Very similar to Lisp but more based on the design aspects • A lot of artistic side • A lot of essay writing as well which is different from this course (this course is more practical) • Writing scripts about games and did a whole design document to generally convey the idea of game ideas • Did small amount of programming but I really never enjoyed programming |
| MAT01 | <p>MAT01: [em (.) I went to school in Gloucester before I did e (.) the sixth form then I did my A-Levels</p> <p>Interviewer: [right</p> <p>MAT01: [and I did e (.) IT, Graphics and:: Maths and in first year I was studying () that was for the second</p> | <ul style="list-style-type: none"> • A-Levels in IT, Graphics and Maths • Know a bit about storyboarding from English in GCSE |

| | | |
|--------------|---|---|
| | <p>year</p> <p>Interviewer: [oohoom. So you had some interdisciplinary areas IT, Graphics and Maths. Ah, did you involve in drawing or storyboarding?</p> <p>MAT01: [No</p> <p>Interviewer: [no. do you have any idea about that?</p> <p>MAT01: [pardon?</p> <p>Interviewer: [do you have any idea about this?</p> <p>MAT01: [em (.) a little bit cause we did some:: storyboarding sometimes in English but not often it sounds like in GCSE times</p> <p>Interviewer: [in English?</p> <p>MAT01: [yeah</p> <p>Interviewer: [what for?</p> <p>MAT01: [oh I can't remember it's ages ago haha</p> <p>Interviewer: [ok. Don't worry</p> | |
| MAT02 | <p>MAT02: [em (.1) well (.) for A-Levels I did IT (.1), Fine Arts, English Literature and started doing Maths but I dropped it () first year.</p> <p>Interviewer: [that's quite interesting because you've done some Art</p> <p>MAT02: [yeah I thought that would like mess of you're an your analysis. Is it? Cause I</p> <p>Interviewer: [No no no</p> <p>MAT02: [cause I've done technical bits as well</p> <p>Interviewer: [no. it's brilliant. It is brilliant cause all students here</p> | <ul style="list-style-type: none"> • A-Levels in IT, Fine Arts, English Literature • Started doing Maths but dropped it |

| | | |
|--------------|--|---|
| | eventually have to do both. Ah::: anyways. | |
| MAT03 | <p>MAT03: [well, I'm 25 (.) em I've sort of been out of education for a good 6 years, I've been a ????? so I haven't I haven't really even to write much over () so yeah I haven't em (.) so my standard () quite good at drawing and stuff like that () but I don't see it as an issue to be honest</p> <p>Interviewer: [Ah, do you remember what A-Levels you did?</p> <p>MAT03: [em I did (quite) I did a em eh:: what was called then? Travel and tourism and then .hhhh what (.1) () I didn't do anything in relation to web design or gaming</p> <p>Interviewer: [ok</p> <p>MAT03: [but about a couple of years ago I did a (whole and only) course on web design eh (.) which was expensive but em ey kind of cause I always had interest in it kind of () a year ago and then I decided the job wasn't for me so I wanted to come back to education to see some</p> <p>Interviewer: [you said you were a postman?</p> <p>MAT03: [yes I was, yeah, yeah</p> <p>Interviewer: [ok</p> <p>MAT03: [I mean</p> <p>Interviewer: [it's quite interesting</p> <p>MAT03: [yeah you can't really go in the job I mean it's alright for few years, the wages are ok and</p> | <ul style="list-style-type: none"> • Mature student (out of education for 6 years) • A-Levels in travel and tourism • Did a course on web design about a couple of years ago |

| | | |
|--------------|--|---|
| | <p>everything then you see ????? there for 50, 60 years in the same job</p> <p>Interviewer: [but you keep fit</p> <p>MAT03: [yeah yeah it's true</p> <p>Interviewer: [laughing</p> <p>MAT03: [yeah yeah definitely it keeps you fit</p> <p>Interviewer: [yeah</p> | |
| MAT25 | <p>MAT25: [yeah e:::m well I spent two well I've been in Cheltenham for a year I've changed courses last year I started Fine Art and Photography</p> <p>Interviewer: [oh right</p> <p>MAT25: [and I changed to this course this year. I didn't enjoy Fine Art and Photography</p> <p>Interviewer: [ok. But they've come to the Park you know? (laughing)</p> <p>MAT25: [yeah, before I did Art and Design in college</p> <p>Interviewer: [ok</p> <p>MAT25: [specializing in Graphics and Photography (.) em (.1) and before that?</p> <p>Interviewer: [yeah what sort of modules you passed in you're a-Levels and GCSE?</p> <p>MAT25: [A-Levels I did IT, Art, Food, Technology and Philosophy and Ethics and::: I did the best in Philosophy and Ethics but I didn't enjoy it</p> <p>Interviewer: [ok</p> <p>MAT25: [so that's why I kind of didn't do that em:: (.3) that's it</p> | <ul style="list-style-type: none"> • Did Fine Art and Photography last year at the same university • Was really keen on Photography but I wanted to learn how to apply it • Did Film Photography because it's not really relevant like modern day • Didn't enjoy Film Photography so changed courses • A-Levels in IT, Art, Food, Technology and Philosophy and Ethics (did the best in Philosophy and Ethics but I didn't enjoy it) |

| | | |
|--------------|--|--|
| | <p>Interviewer: [ok MAT25: [yeah (laughing)</p> | |
| MAT26 | <p>MAT26: [my educational background? Interviewer: [yes please. MAT26: [when did I my primary school? Interviewer: [no, just A-Levels and (.) MAT26: [oh A-Levels (.1) well I did a national BTEC national award in ICT in college Interviewer: [ok MAT26: [which got me my point to come to university Interviewer: [oohoom MAT26: [and it's pretty much I've actually done A-Levels () Interviewer: [it's pure ICT? MAT26: [yeah. Well I did a A-Level to business administration (.) Interviewer: [ok MAT26: [course as well</p> | <ul style="list-style-type: none"> • BTEC national award in ICT in college and A-Level to business administration |
| MAT27 | <p>MAT27: [aam: (.) I went ah:: to college to do A-Levels and em I didn't really () I went to Microsoft IT Academy and then (.) em I've just working and now I am here Interviewer: [ok. What was your area of activity in Microsoft? MAT27: [aa::m it was learning how to be a desktop support technician .hh so it's just the matter of how to fix and build up computers () Interviewer: [ok. Did you have any Art background? Any module in your GCSE or A-Levels?</p> | <ul style="list-style-type: none"> • Didn't want to do A-levels originally • Was encouraged to do photography as easiest last thing by my teachers which was quite artistic but I didn't enjoy it • Went to Microsoft IT Academy • Worked in Microsoft IT Academy- focused on learning how to be a desktop |

| | | |
|---------------------|---|--|
| | <p>MAT27: [aam:: (.) originally I didn't want to come to University (.) so I didn't pick any A-Levels and my teacher one of teachers said you'd () to pick a 3rd A-Level, it was quite late into the () so they forced me to do photography I shouldn't say () but yeah said you should do photography it's easiest thing to jump into (.) so that was quite artistic but I didn't enjoy it</p> <p>Interviewer: [so you are a more techy person</p> <p>MAT27: [yeah</p> <p>Interviewer: [ok</p> | <p>support technician (it's just the matter of how to fix and build up computers)</p> |
| <p>MAT23</p> | <p>MAT23: [aam well (.) I'm doing Computing here (.) so not really Games Design () just as a module</p> <p>Interviewer: [oh right. Ok.</p> <p>MAT23: [really aa::m (.2) do you mean I did A-Levels</p> <p>Interviewer: [yeah</p> <p>MAT23: [at Chosen Hill secondary school just</p> <p>Interviewer: [what I'm more interested in is what modules, what subjects you take.</p> <p>MAT23: [ok em (.2) just I'm doing Computing that's CO120,doing IT just IT120 and Games and e:</p> <p>Interviewer: [sorry in you're a-Levels</p> <p>MAT23: [alright (.) em I did Computing there and I did (.2) I did Maths and Chemistry</p> <p>Interviewer: [right</p> | <ul style="list-style-type: none"> • A-Levels in Computing, Maths and Chemistry • Arts in GCSE |

| | | |
|--|--|--|
| | MAT23: [I did a: at GCSE I did Arts | |
| Interview Question 02-01 Information about the Interactive Game Design course (Why did you choose <u>this subject</u> ?) | | |
| Emergent Theme: Course choice | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | <p>MAT10: [Em, I had some friends on the course the year before me, on this course the year before me so they make the ()</p> <p>Interviewer: [oh brilliant. So you had a good feedback then</p> <p>MAT10: [yeah, yeah</p> <p>Interviewer: [ok</p> | <ul style="list-style-type: none"> • Previous education |
| MAT11 | Interview not recorded | N/A |
| MAT01 | <p>MAT01: [Em (.) because (.) I was interested in coding and stuff</p> <p>Interviewer: [ok. Have you any previous backgrounds in IT before?</p> <p>MAT01: [em we've spent () in ICT before yeah</p> <p>Interviewer: [ok. What do you mean by coding?</p> <p>MAT01: [like HTML</p> | <ul style="list-style-type: none"> • Interested in coding like HTML |
| MAT02 | <p>MAT02: [Em (.) I just thought it was it would be interesting cause my mum, she has her own (.) website but she em she has like another company () she just create her own website thing but she has her own business of it (.) I saw it is really interesting because em (.1) like sometimes she let me design</p> | <ul style="list-style-type: none"> • Thought it would be interesting influenced by a mum having a business website and let me design little things • Want to know more |

| | | |
|--------------|--|---|
| | <p>(banner) and things just little things like that I thought it's quite cool and also (.) em I would like to know more about computers cause it's my , it's what I () what I'm doing with my computer</p> <p>Interviewer: [ok</p> | <p>about computers</p> |
| MAT03 | <p>MAT03: [e::m to be honest it was the only one that gave me unconditional offer. I had interviews to go to at Southampton and Northampton I think it was eh::: but em well I like I know Cheltenham reasonably well cause I live in Hereford which is about 40 minutes away so I've been here a few times. It's a nice campus and everything (.) eh so I just decided on this one really</p> <p>Interviewer: [ok, thank you</p> | <ul style="list-style-type: none"> • Always had interest in it • Decided my job wasn't for me so I wanted to come back to education |
| MAT25 | <p>MAT25: [em well I did Graphics Design and Photography (.) was really keen on Photography ah (.) I learned a lot but I wanted to learn how to apply it</p> <p>Interviewer: [ok</p> <p>MAT25: [so like (.) it's not much you can really do with photography and what I was doing last year was film photography .hh so it's not really relevant like modern day (.) so I wanted to learn something that I can actually apply</p> <p>Interviewer: [so can I reword it that you like to practice in some more</p> | <ul style="list-style-type: none"> • Quit Film Photography course because I wanted to learn something that I can actually apply |

| | | |
|---|--|--|
| | <p>modern way of things</p> <p>MAT25: [yeah</p> | |
| MAT26 | <p>MAT26: [em while I did Web Design at college (.) part of my ICT course and I really enjoyed it and got a () it and wanted to do it as a career so I really liked it</p> | <ul style="list-style-type: none"> • Did Web Design at college as part of my ICT course and I really enjoyed it and wanted to do it as a career |
| MAT27 | <p>MAT27: [Em (.1) I wanted to do Web Design cause that's a good career to get into but I thought (.) I think you can do Web Design (separate) not too sure () you could do that but Multimedia just get me something (.) you know something fun to do (.) something good to learn and it also got the (hard work) of Web Design so I'm seeing the fun side of that with the media section with video in that</p> | <ul style="list-style-type: none"> • Wanted to do Web Design cause that's a good career to get into but I thought I can do Web Design separately • Chose Multimedia to get me something fun to do and good to learn media section with video in that |
| MAT23 | <p>MAT23: [aam eh well I live locally here and</p> <p>Interviewer: [fair enough</p> <p>MAT23: [and the Chosen Hill is only a few miles away from here actually</p> <p>Interviewer: [right ok</p> <p>MAT23: [Chose here because it's closest</p> | N/A |
| <p>Interview Question 02-02</p> <p>Information about the Interactive Game Design course (Why did you choose <u>this University</u>?)</p> | | |

| Emergent Theme: University choice | | |
|--|---|---|
| CODE | Student's Reply | Emergent Theme |
| MAT10 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • Had some friends on the course the year before |
| MAT11 | Interview not recorded | <ul style="list-style-type: none"> • Allow me to choose several courses • It's not very artistic • Asked low level • Enjoy slow pace |
| MAT01 | N/A | N/A |
| MAT02 | N/A | N/A |
| MAT03 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • It was the only one that gave me unconditional offer • Had interviews to go to other places but I know Cheltenham reasonably well and live 40 minutes away • It's a nice campus |
| MAT25 | Embedded in the reply to Question 02-01 | <ul style="list-style-type: none"> • already a student there just change courses |
| MAT26 | N/A | N/A |
| MAT27 | N/A | N/A |
| MAT23 | Embedded in the reply to Question | <ul style="list-style-type: none"> • Live locally |

| | | |
|--|---|---|
| | 02-01 | |
| Interview Question 03 Evaluation of artistic abilities | | |
| Emergent Theme: Perception of artistic skills | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • Have to draw ideas out, label things to say what is wanted to be show • Be more comfortable to do lots more diagram stuff to convey ideas • Can't write really detail script to convey ideas • More into artistic and writing (designing) side |
| MAT11 | Interview not recorded | <ul style="list-style-type: none"> • Not artistic on paper • Never big fan of drawing so didn't go to Animation • Enjoy 3D and digital graphics |
| MAT01 | <p>MAT01: I recon I sort of writing rather than drawing</p> <p>Interviewer: [aren't you comfortable with even roughly drawing?</p> <p>MAT01: [yeah, I'm good with that but (.)</p> <p>Interviewer: [you don't use it.</p> | <ul style="list-style-type: none"> • comfortable with rough sketches but don't use it often • Prefer writing |

| | | |
|--------------|--|--|
| | MAT01: [not often. | |
| MAT02 | <p>MAT02: [I don't () very good. I can't think very well the course is about but (.)I can't just use sketches very well</p> <p>Interviewer: [Right. Are you comfortable in transferring your ideas through sketching?</p> <p>MAT02: [if it's a rough sketch?</p> <p>Interviewer: [yeah.</p> <p>MAT02: [yeah. Just say if it's a storyboard then, yeah I think I'm () that quite good (.) what more helpful than just writing it down</p> <p>Interviewer: [ok. What do you mean by storyboard?</p> <p>MAT02: [Like. aah (.) when you're making ideas (.) em I think it's helpful if you write somethings down like what's actually happening and so you can draw it as well so you can picture what's that in your head</p> <p>Interviewer: [right</p> <p>MAT02: [and so you can show other people what's happening in case they don't understand you so I think it's quite hard to (.1) convey what you are actually you actually think you want to do just by writing it</p> <p>Interviewer: [right. So you are sketching person</p> <p>MAT02: [yeah I think (.1)</p> <p>Interviewer: [quite rare talent</p> <p>MAT02: [thank you.</p> | <ul style="list-style-type: none"> • Can't just use sketches very well but comfortable with rough sketching • If it's a storyboard then I'm quite good • It's more helpful than just writing it down • It's quite hard to convey what you are actually think you want to do just by writing it • It's helpful if you write what's actually happening and so you can draw it as well so you can picture what's that in your head and so you can show other people what's happening in case they don't understand you |
| MAT03 | MAT03: [em:: .hhh I think (.) yeah I do | <ul style="list-style-type: none"> • I do it quite well |

| | | |
|---------------------|--|--|
| | <p>it quite well a lot better than I would have done it if I come out of college when I was 19 if I come straight to Uni cause I think I think I'm more mature. I think I can do it better now</p> <p>Interviewer: [do you think with a stickman you are fine</p> <p>MAT03: [yeah yeah I do, I think obviously obviously today was a bit simple to () our ideas</p> <p>Interviewer: [I am stickman drawer (laughing)</p> <p>MAT03: [oh really? (laughing)</p> <p>Interviewer: [don't worry</p> <p>MAT03: [yeah I mean back in school I I did enjoy drawing I mean my (friend) called my mum she's quite a good drawer herself and yeah but it means it's a skill which I haven't used</p> <p>Interviewer: [for a while</p> <p>MAT03: [yeah</p> <p>Interviewer: [ok. Thank you</p> | <ul style="list-style-type: none"> • It's a skill I haven't used for a while |
| <p>MAT25</p> | <p>MAT25: Not (.) very (.) great (.) It depends like we have doodling () I was just doodling when I'm home I can draw sort of little cartoony things but if I'm asked to go and draw still life I can't do that</p> <p>Interviewer: [but if someone asks you or if in a module they ask you to just transfer your ideas to your group</p> <p>MAT25: [yeah</p> <p>Interviewer: [are you comfortable with that?</p> <p>MAT25: [eh:: yeah I think I could do</p> | <ul style="list-style-type: none"> • Not very great • It depends: I doodle when I'm home and I can draw sort of little cartoony things but if I'm asked to go and draw still life I can't do that • Comfortable to transfer my ideas by drawing - by practice I can do that |

| | | |
|---------------------|---|---|
| | <p>that it e:: practice definitely but yeah</p> <p>Interviewer: [ok. Have you any em experience with storyboarding? Especially you were doing Fine Art?</p> <p>MAT25: [Not really</p> <p>Interviewer: [ok</p> <p>MAT25:[no</p> <p>Interviewer: [do you have any idea about that?</p> <p>MAT25: [well it's just () what you want to do in order</p> <p>Interviewer: [oooom</p> <p>MAT25: [so (.1)</p> <p>Interviewer: [ok</p> | <ul style="list-style-type: none"> • Don't have any idea about storyboarding |
| <p>MAT26</p> | <p>MAT26: [eh:: (.2) I don't I don't think really know to be honest I don't have any artistic skills really</p> <p>Interviewer: [but I don't mean some big hooaaa things. I mean some drawings and doodling, rough sketching (.) are you comfortable with those?</p> <p>MAT26: [em (.) yes () it's () what sort of things you put on there and where to like place some stuff like that (.) so</p> <p>Interviewer: [ok. So can I say it in this (.) if I reword it that you're comfortable with rough sketching as long as you can transfer your ideas</p> <p>MAT26: [yeah somethings yeah. I don't mind not transferring it () I don't mind just draw it and leave it like that</p> <p>Interviewer: [ok</p> <p>MAT26: I don't mind ()</p> <p>Interviewer: [ok do you prefer to</p> | <ul style="list-style-type: none"> • Don't have any artistic skills • Don't mind if my drawings don't transfer my ideas • Don't mind just draw it and leave it like that • Can describe ideas better than draw them |

| | | |
|--------------|--|--|
| | <p>describe what you mean to your colleagues, group works or draw things or visualize it?</p> <p>MAT26: [()] to describe it</p> <p>Interviewer: [ok</p> <p>MAT26: [I can describe it better than I can draw it (.) so</p> <p>Interviewer: [ok</p> | |
| MAT27 | <p>MAT27: [aa::m I'm probably one of those people just through through writing</p> <p>Interviewer: [through writing</p> <p>MAT27: [yeah through writing</p> <p>Interviewer: [by describing</p> <p>MAT27: [describing yeah</p> <p>Interviewer: [ok thank you.</p> <p>(Embedded in the reply to other questions)</p> | <ul style="list-style-type: none"> • A more techy person • Can't draw at all • For storyboards I know just basic drawing with a stick figures trying to get my ideas across • Would like to draw cause then I could draw my idea • Just try and do best I can • Feel much better to have the box for writing in it |
| MAT23 | <p>MAT23: [em: (.1) I'm a little bit confident I guess but</p> <p>Interviewer: [In your GCSE did you have to draw?</p> <p>MAT23: [Yeah I had to draw a lot yeah</p> <p>Interviewer: [how did you feel about that?</p> <p>MAT23: [Aam (.2) I don't know really (.) must (.) a long time ago aam (.2)</p> | <ul style="list-style-type: none"> • Feel a little bit confident in drawing- don't think to be particularly good at drawing • Had to draw a lot in GCSE • Drawing is not my thing |

| | | |
|---|--|--|
| | <p>just a (.1) I don't think I'm particularly good at drawing really</p> <p>Interviewer: [ok it was (.) can I say it like this: 'you didn't think that it was your thing!'</p> <p>MAT23: [it's not my thing (.) no I don't think so</p> <p>Interviewer: [ok</p> | |
| <p>Interview Question 04</p> <p>Expectations from the Interactive Game Design course</p> | | |
| <p>Emergent Theme: Expectations</p> | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | N/A | N/A |
| MAT11 | Interview not recorded | N/A |
| MAT01 | N/A | N/A |
| MAT02 | <p>MAT02: [I think aah (.) there was a module where em (.) Nina((Name of the tutor)) said we'll be creating our own characters</p> <p>Interviewer: [oohoom</p> <p>MAT02: [em storyboard I think through first semester and then () into a movie or game or something like that throughout the year I think that's interesting and then all the other things as well it's () how to do it so I guess I would em I'm most interested in creating my own thing</p> <p>Interviewer: [ok. It's a good thing</p> | <ul style="list-style-type: none"> • there is a module that the tutor said we're going to design our own characters, storyboard through first semester and then into a movie or game throughout the year which is interesting • Most interested in creating my own thing |
| MAT03 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • still open to a whether web design |

| | | |
|---|---|--|
| | | bit or the games design bit |
| MAT25 | N/A | N/A |
| MAT26 | N/A | N/A |
| MAT27 | N/A | N/A |
| MAT23 | N/A | N/A |
| Interview Question 05 | | |
| Viewpoint about relationship of Interactive Game Design course and drawing skills | | |
| Emergent Theme: Necessity of Drawing skills | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | <p>MAT10: [Em (.) It depends what part of the industry you are trying to get into (.) if you want to be a designer (.2) you need to be able to convey your points:: one way or another whether it's through writing or drawing so either one would be (.) good but I guess if you want to be a concept artist you need to be able to draw and programming is more () yeah</p> <p>Interviewer: [do you think if these sections are really (.2) apart from each other?</p> <p>MAT10: [Em (.2) no:: I think you can go from one to the other, can't you? It's just (.) you aim to go for one, don't you? You never (.1) aim to be all of them, do you?</p> <p>Interviewer: [but as you will see you</p> | <ul style="list-style-type: none"> • It depends what part of the industry one is trying to get into • In a designer position ideas can be conveyed either through drawing or writing • To be a concept artist you need to be able to draw |

| | | |
|--|--|--|
| | <p>even in this course they (.) the general idea is to ask you to be all of them</p> <p>MAT10: [all of them, yeah. (.) oh yeah, learn about them</p> <p>Interviewer: (.)</p> <p>MAT10: [you'll, you'll, you'll sort of choose your favorite, won't you?</p> <p>Interviewer: [yeah and design your own games at the end of the course</p> <p>MAT10: [yeah</p> <p>Interviewer: [so you need to know a bit</p> <p>MAT10: [you'll understand each other, cause if you'll understand each process helps (.) with creating work for each, cause if you're (.) a concept artist it helps to know how (.) the animators and modelers are goanna interpret your drawings</p> <p>Interviewer: [oohoom</p> <p>MAT10: [when you're designing (.)</p> <p>Interviewer: [but taking drawing skills and storyboarding skills as a tool of communicating ideas do you think a person should have it?</p> <p>MAT10: [Em (.2) it's useful but I don't think it's if you can write really well, if you can write really details then you don't need to be able to draw but some people(.) like myself I don't I'm not confident with words, so I prefer to draw a diagram to explain what I'm doing something like that</p> <p>Interviewer: [can I ask you about or what you mean by writing?</p> <p>MAT10: [Em</p> | |
|--|--|--|

| | | |
|--|--|--|
| | <p>Interviewer: [Is it like literature or</p> <p>MAT10: [E E em if just if I'm trying to like convey e:: like an opening cut scene for a game some some people can write really detail script and write out .hh really clearly what they're trying to convey with it</p> <p>Interviewer: [like a () scenario</p> <p>MAT10: [yeah yeah but I can't do that. I'd have to draw it out, label things to say what I wanted to show</p> <p>Interviewer: [Is it what you meant they try to teach you in previous levels</p> <p>MAT10: [Em</p> <p>Interviewer: [by writing?</p> <p>MAT10: [yeah</p> <p>Interviewer: [cause the impression I got was like writing literature</p> <p>MAT10: [Oh no, it was more:: yeah we did lots of script writing</p> <p>Interviewer: [ok</p> <p>MAT10: [writing scripts about games and we did() a whole design document so (.1) about writing to just generally convey the idea of our game ideas</p> <p>Interviewer: [oh right, did it involve diagrams and charts inside or</p> <p>MAT10: [em</p> <p>Interviewer: [or are there different things?</p> <p>MAT10: [Em (.) you could do but like I said some people were happy just to write and () showing what they wanted to do for writing but I did lots more diagram stuff cause I felt more</p> | |
|--|--|--|

| | | |
|--------------|---|-----|
| | <p>comfortable conveying my ideas that way</p> <p>Interviewer: [but not drawing</p> <p>MAT10: [oh no not drawing yeah diagrams and drawings</p> <p>Interviewer: [ok. Thank you very much. So if can I conclude it for myself from your sayings that if you have if you can draw roughly it would be fine. You don't need</p> <p>MAT10: [yeah. You don't need amazing skills.</p> <p>Interviewer: [ok</p> <p>MAT10: [Just enough to convey your ideas</p> <p>Interviewer: [ok. Thanks very much. Good luck with your ()</p> | |
| MAT11 | Interview not recorded | N/A |
| MAT01 | <p>MAT01: [oom (.) not really necessarily drawing skills. I recon it's more for written skills</p> <p>Interviewer: [what skills?</p> <p>MAT01: [written skills</p> <p>Interviewer: [written skills. How?</p> <p>MAT01: [em (.) plan out what's goanna happen there</p> <p>Interviewer: [describe it</p> <p>MAT01: [yeah</p> <p>Interviewer: [ok. Can you compare people who transfer ideas through drawing with people who are more describing. Which one do you think would be</p> <p>MAT01: em (.) I recon more describing is better</p> | N/A |

| | | |
|--------------|---|---|
| | <p>Interviewer: [better</p> <p>MAT01: [yeah</p> <p>Interviewer: [ok. Thank you.</p> | |
| MAT02 | <p>MAT02: [I know it's really important properly plan things cause I have (.1) I've done not plan things properly and lose loads of time so () really badly so I usually take a (.1) at least quarter of the time making sure everything is planned properly which is why this thing we just did ((the multimedia project at the induction session)) is a bit too short to be honest</p> <p>Interviewer: [yeah</p> <p>MAT02: [if I had more time I can</p> <p>Interviewer: [I feel the same</p> | <ul style="list-style-type: none"> • Don't have to do it very well • Using a stick or symbols still comes across quite well • It is useful |
| MAT03 | <p>MAT03: [yeah I think so ((people without drawing skills can transfer their ideas to other people)). I mean today ((Induction session)) we were doing that em project and em () quite basic drawings with stick figures and stuff, but I mean you know you get the ideas there .hhh and yeah I don't think it (.) it em () anyway keep it () get round it really</p> <p>Interviewer: [how do you have any</p> <p>MAT03: [Ehh (.2) ah (.) I suppose it's just it's just a viewpoint ()</p> <p>Interviewer: [this getting around it is interesting to me</p> <p>MAT03: [em:: yeah I just have a haa::h speak your ideas I suppose (.2) I don't I don't really see you have</p> | <ul style="list-style-type: none"> • Don't see it as an issue to be honest |

| | | |
|---------------------|---|---|
| | <p>to be a good drawer to (.2) to (.)</p> <p>Interviewer: [to communicate your ideas</p> <p>MAT03: [yeah, yeah (.) yeah</p> <p>Interviewer: [do you believe at least you should be a rough drawer</p> <p>MAT03: [oh yeah yeah I think there is there is a (.) it helps if you a if you a confident drawer</p> <p>Interviewer: [let's put it in other words: do you think if someone cannot draw any at all would have any problem?</p> <p>MAT03: [hoom I guess there might be a little bit of struggle then em:: (.1) em .hhh yeah cause I mean you have to (.) get () use somehow and obviously () so much it does help if you could draw some stuff or draw things down ()</p> <p>Interviewer: [ok</p> | |
| <p>MAT25</p> | <p>MAT25: [aah :: I think you need them like I'm (.) I'm gonna practice I think it's important that ee you can do things clearly but you () basic understanding</p> <p>Interviewer: [what do you mean? Can you make it more clear for me?</p> <p>MAT25: [aam (.) I don't know (laughing)</p> <p>Interviewer: [aam let's put it in this way</p> <p>MAT25: [ok</p> <p>Interviewer: [if someone comes to Games Design or Multimedia Web</p> | <ul style="list-style-type: none"> • Don't have to be able to draw |

| | | |
|--------------|---|--|
| | <p>Design</p> <p>MAT25: [ok</p> <p>Interviewer: [and wants to create a character</p> <p>MAT25: [aahaa</p> <p>Interviewer: [and have the idea but cannot draw</p> <p>MAT25: [ok</p> <p>Interviewer: [and transfer his or her idea what would happen then?</p> <p>MAT25: [aa:: you just use computer I don't think () people are relying on computers now you can use drawing software on computers (.)</p> <p>Interviewer: [how? Do you have any example or idea about that?</p> <p>MAT25: [not really</p> <p>Interviewer: [but you are hopeful that there would be some software that</p> <p>MAT25: [I've used a couple of software (.) bits and pieces</p> <p>Interviewer: [like what?</p> <p>MAT25: [Freehand</p> <p>Interviewer: [right</p> <p>MAT25: [I've never used () Indesign ((Adobe software)) like page layouts and drawing but like that () software</p> <p>Interviewer: [would you think by this software someone can overcome this?</p> <p>MAT25: [yeah, you don't have to be able to draw</p> <p>Interviewer: [ok, ok.</p> | |
| MAT26 | MAT26: [I think it is important to be able to draw ideas down and draw | <ul style="list-style-type: none"> • Being able to draw is just a bonus |

| | | |
|--------------|--|-----|
| | <p>stuff as well</p> <p>Interviewer: [oohoom</p> <p>MAT26: [cause it gives you like an idea of what sort of thing you'll be () of drawing of whatever you're doing ()</p> <p>Interviewer: [how do you think about people who do not or cannot draw?</p> <p>MAT26: [.hhh () if people cannot draw as long as they can describe what they're goanna do I suppose doesn't really matter. I don't suppose it's any difference</p> <p>Interviewer: [ok</p> <p>MAT26: [when they can describe it properly</p> <p>Interviewer: [so you see it as a bonus not as a necessity</p> <p>MAT26: [yeah as a bonus yeah</p> <p>Interviewer: [ok thank you</p> | |
| MAT27 | <p>MAT27: [e: I can't draw (.) at all (.) it's I when have to do the storyboards and doing it a stick figures I know just basic drawing trying to get my ideas across. I would like to draw cause then I could draw my idea like a (.)</p> <p>Interviewer: [you said: "I can't draw" but you can draw stickman</p> <p>MAT27: [yeah, true</p> <p>Interviewer: [you know when you say I can't draw maybe you say I cannot draw still life or for example a landscape but are you comfortable with rough sketching?</p> <p>MAT27: [oh yeah</p> <p>Interviewer: [just to communicate</p> | N/A |

| | | |
|---------------------|--|---|
| | <p>your idea</p> <p>MAT27: [yeah I can (.) yeah I can get sketch down just not (.)</p> <p>Interviewer: [do you feel you are struggling when you want to say something visually?</p> <p>MAT27: [yeah (.) yeah</p> <p>Interviewer: [how do you like to describe your idea, to transfer your idea?</p> <p>MAT27: [well there was a an example you know (.) and in a storyboard just a I had to try draw out kicking a football down to the lake .h and I didn't know how to do that so I just draw two stick figure, the ball in the air and then like a line they would follow to the lake that's how (.) I basically just trying and do best I can</p> <p>Interviewer: [oohoom. Do you feel comfortable with this level of communicating</p> <p>MAT27: [Yeah</p> <p>Interviewer: [do you feel that your idea is communicated?</p> <p>MAT27: [aam (.2) I feel (.) that having the box for writing in it (.) and I feel much better with that</p> | |
| <p>MAT23</p> | <p>MAT23: [aam (.1) I think drawing is a key part of this and should even if I'm not good should do it anyway () drawing hoom yeah</p> <p>Interviewer: [but seeing other people, have you got any idea now that's a couple of weeks you are</p> | <ul style="list-style-type: none"> • Drawing is a key part of it |

| | | |
|--|--|--|
| | <p>coming to the University ah(.) getting the feeling of, although you are doing Computing you have chosen this module, so you must have some feelings about things that are going around in the area</p> <p>MAT23: [yeah I'm quite eh (.2) quite I like Games a lot (.) so I like programming for Games</p> <p>Interviewer:[right</p> <p>MAT23: [I am () interested in the 3D Art for Games as well and animation</p> <p>Interviewer: [right. Do you play Games?</p> <p>MAT23: [yeah I do</p> <p>Interviewer: [can I ask what sort of Games?</p> <p>MAT23: [I was mostly first person shooters</p> <p>Interviewer: [ok. So can I say what you said like this: 'a person who wants to do Games Design need to be skilled in drawing.'</p> <p>MAT23: [em (.) I don't think so (.) no (.) they don't need to be skilled in drawing aam (.2) really (.1) if you're not very good at drawing you can still draw something you know</p> <p>Interviewer: [ok. So can I say it like this: 'being able to draw roughly would be enough.'</p> <p>MAT23: [yeah</p> <p>Interviewer: [but do you think that the person needs to communicate the idea in whatever means?</p> <p>MAT23: [aam (.1) maybe not I mean</p> | |
|--|--|--|

| | | |
|---|--|--|
| | <p>that a mind map saying every detail of this character</p> <p>Interviewer: [ok</p> <p>MAT23: [I think could do that yeah</p> <p>Interviewer: [ok ok thanks very much</p> | |
| <p>Interview Question 06</p> <p>Expectations after finishing this course</p> | | |
| <p>Emergent Theme: Future plan</p> | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | N/A | N/A |
| MAT11 | Interview not recorded | N/A |
| MAT01 | MAT01: [being a web developer or designer or something like that. | <ul style="list-style-type: none"> being a web developer or designer or something like that |
| MAT02 | N/A | N/A |
| MAT03 | <p>MAT03: [Em:: well I'm still I'm still open to a (.) whether cause it's obviously Multimedia Web Design whether to go to a web design bit or the games design bit cause I was looking at the course yesterday and the games bit seems quite good</p> <p>Interviewer: [yeah</p> <p>MAT03: [but I mean what we are doing this year is good anyway cause it incorporates the games stuff as well</p> <p>Interviewer: [yeah</p> <p>MAT03: [so at the end of this year then I'll have more idea what I want to do I suppose but it's something in the industry like that web design or</p> | <ul style="list-style-type: none"> At the end of this year I'll have more idea what I want to do It's something in the industry like that web design or gaming |

| | | |
|--|--|---|
| | gaming or something like that Interviewer: [good luck with everything MAT03: [thank you. Yeah, thanks. | |
| MAT25 | MAT25: [em: (.) I don't know it would be nice to have an option to (.) be self-employed if I wanted to be Interviewer: [oohoom MAT25: [so I try to learn everything that I possibly can (.) so I have the best chance of getting a good job Interviewer: [ok. Good luck with that | <ul style="list-style-type: none"> • I don't know • It would be nice to have an option to be self-employed if I wanted to be • I try to learn everything that I possibly can so I have the best chance of getting a good job |
| MAT26 | MAT26: [well after I've done my () Interviewer: [yeah as a career MAT26: [to go (.) well be a web designer hopefully Interviewer: [ok | <ul style="list-style-type: none"> • Be a web designer hopefully |
| MAT27 | MAT27: [just aa: (.) a web designer or (.) something to do with () e:: but that's like it's not (.) it's not stable job like something I can just walk into a job it's not fewer jobs so Interviewer: [sure MAT27: [one of them would (.) Interviewer: [ok | <ul style="list-style-type: none"> • Be a web designer |
| MAT23 | N/A | N/A |
| Interview Question 07 Viewpoints about the necessity of this ability | | |

| Emergent Theme: Necessity of drawing skills | | |
|--|----------------------------------|---|
| CODE | Student's Reply | Emergent Theme |
| MAT10 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • it's useful but if you can write really well and in details then you don't need to be able to draw • For people not confident with words drawing a diagram to explain what they're doing is a tool |
| MAT11 | Interview not recorded | <ul style="list-style-type: none"> • Definitely need drawing |
| MAT01 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • Not necessarily important • Describing what's gonna happen in written is better |
| MAT02 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • It's really important to properly plan things • Usually take at least quarter of the time making sure everything is planned properly |
| MAT03 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • People without drawing skills can transfer their ideas |

| | | |
|--------------|----------------------------------|---|
| | | <p>to other people by basic drawings like stick figures and also round the problem</p> <ul style="list-style-type: none"> • Being able to sketch roughly is enough |
| MAT25 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • Think you need the skills • It's important to do things clearly • Use computers and drawing software if can't draw • Don't have much idea about software but has used Freehand and Indesign a bit |
| MAT26 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • It is important to be able to draw ideas down and draw stuff as well • People who cannot draw as long as they can describe what they're goanna do it doesn't really matter • It's not any difference when they can describe it properly |
| MAT27 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • People who can't |

| | | |
|--|--|--|
| | | draw should communicate their ideas through writing and describing |
| MAT23 | Embedded in reply to Question 05 | <ul style="list-style-type: none"> • There is no need to be skilled at drawing • If you're not very good at drawing you can still draw something you know • Being able to draw roughly is enough • A mind map saying every detail of this character would do |
| Interview Question 08 | | |
| Are you familiar with active learning teaching method? | | |
| Emergent Theme: Active learning | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | N/A | N/A |
| MAT11 | Interview not recorded | N/A |
| MAT01 | N/A | N/A |
| MAT02 | <p>MAT02: [Em because I did Art at A-Level we did that kind of thing a lot and I have done storyboard (.) storyboarding and that kind of way before</p> <p>Interviewer: [you are comfortable</p> <p>MAT02: [yeah planning for pieces of work or for (.2) cause I can do</p> | <ul style="list-style-type: none"> • Did it a lot in the Art A-Level for example for storyboarding |

| | | |
|--|---|--|
| | <p>drawing and writing as well cause I have to plan for my English Literature so I know how to do both but (.1) I think both have their own uses I think they probably equally as important</p> <p>Interviewer: [would you please explain more?</p> <p>MAT02: [well</p> <p>Interviewer: [what do you mean by equally</p> <p>MAT02: [Cause drawing you can em (.2) you can see what you are going to look like but with writing you actually explaining what it is and you can't get that across quite with drawing a lot</p> <p>Interviewer: [oohoom</p> <p>MAT02: [you can actually technically see what it is what you're doing with it, how you're making it</p> <p>Interviewer: [can you put yourself in the shoes of people who cannot draw , or cannot just transfer the ideas</p> <p>MAT02: [I don't think it () I don't think you have to do it very well you can just use a stick or something like for our storyboard we just did a square for symbolizing a table and it still comes across quite well</p> <p>Interviewer: [oohoom</p> <p>MAT02: [so I think it is useful (.) cause we knew em (.1) we knew before you when what kind of scenes we wanted () do you want it like a bus stop or the reception area (.) and we knew like what ()</p> <p>Interviewer: [and your experience in</p> | |
|--|---|--|

| | | |
|--------------|---|--|
| | <p>storyboarding do you feel there would be an emphasize in the sequence of things happening</p> <p>MAT02: [yeah that was</p> <p>Interviewer: [even when you are sketching roughly, would that matter to consider?</p> <p>MAT02: [I don't think it would matter if if you had to present () storyboard then you could go over it and make it neat or whatever I think you still get your point across</p> <p>Interviewer: [even you don't take into consideration the sequence of things happening</p> <p>MAT02: [oh yeah (.) That's another thing. With the writing you can say .hhh this is this em (.) like (.1) cause in the story you have to have a (.) a beginning and then something goes wrong and then the resolution at the end so you can make it clear that was happening. So that helps as well when you're writing () it's get harder to get across what's actually happening when you're drawing so you need them both</p> <p>Interviewer: [ok</p> <p>MAT02: [so the sequence I think is important when you're writing ()</p> <p>Interviewer: [ok, ok. Thank you.</p> | |
| MAT03 | N/A | N/A |
| MAT25 | <p>MAT25: [yeah it was good. I mean like none of us know each other (.) so</p> | <ul style="list-style-type: none"> • It is good • It is nice to get to |

| | | |
|--------------|---|---|
| | <p>it's nice to get to know each other</p> <p>Interviewer: [yeah</p> <p>MAT25: [and do something together rather than just sitting there awkwardly</p> <p>Interviewer: [yeah</p> <p>MAT25: [so that's good</p> <p>Interviewer: [and do you like this method of doing things</p> <p>MAT25: [it's nice to try it rather than being told about it</p> <p>Interviewer: [ok. ok. I like your idea</p> | <p>know each other and do something together rather than just sitting there awkwardly</p> <ul style="list-style-type: none"> • It's nice to try it rather than being told about it |
| MAT26 | <p>MAT26: [yeah I think that's better so it get people to meet each other (.) and it's good ways to like start your ideas off so if you're going to designing sort of company it's about to put your ideas out just like that</p> <p>Interviewer: [ok</p> <p>MAT26: [so it's quite good idea just like we did</p> <p>Interviewer: [do you like active learning style?</p> <p>MAT26: [yeah yeah I just enjoyed it I think it's quite good to like this (.) pick something and just go doing it really</p> <p>Interviewer: [did you do it in past?</p> <p>MAT26: [I did in college yeah before</p> <p>Interviewer: [ok so you are familiar with that</p> <p>MAT26: [yeah</p> <p>Interviewer: [ok</p> | <ul style="list-style-type: none"> • It's a better style so it get people to meet each other • It's good ways to start your ideas off • If you're going to designing company it's about to put your ideas out just like that • I enjoy it • It's quite good to pick something and just go doing it • Did it in college before |
| MAT27 | <p>MAT27: [ah:: yeah</p> <p>Interviewer: [do you like it?</p> | <ul style="list-style-type: none"> • Did this style in GCSE |

| | | |
|--|--|--|
| | <p>MAT27: [did () in GCSE so this is kind of (.1) kind of similar just like I was back in GCSE</p> <p>Interviewer: [was it a good feeling or bad one?</p> <p>MAT27: [no yeah it's nice I enjoyed that ()</p> <p>Interviewer: [the practical</p> <p>MAT27: [yeah I do like practical</p> <p>Interviewer: [ok brilliant. Thank you.</p> | <ul style="list-style-type: none"> • It's nice and enjoyed the practicality of it |
| MAT23 | N/A | N/A |
| Interview Question 09 | | |
| Do you play Games? What Games do you prefer? | | |
| Emergent Theme: Game preferences | | |
| CODE | Student's Reply | Emergent Theme |
| MAT10 | N/A | N/A |
| MAT11 | Interview not recorded | N/A |
| MAT01 | N/A | N/A |
| MAT02 | N/A | N/A |
| MAT03 | N/A | N/A |
| MAT25 | N/A | N/A |
| MAT26 | N/A | N/A |
| MAT27 | N/A | N/A |
| MAT23 | Embedded in the reply to other questions | <ul style="list-style-type: none"> • 1'st person shooter |
| Interview Question 10 | | |

| Is there anything else you want to tell me? | | |
|---|---|----------------|
| CODE | Student's Reply | Emergent Theme |
| MAT10 | N/A | N/A |
| MAT11 | Interview not recorded | N/A |
| MAT01 | N/A | N/A |
| MAT02 | <p>MAT02: [Actually I thought when I was doing Maths and IT, I thought some other things (.) like the whole thing was kind of similar in Art and English, I thought that was quite similar you can tell of it the technical and creative (.) but I think I enjoyed it more and to be honest I really () cause I know that they'll be useful in a in CV</p> <p>Interviewer: [ok</p> <p>MAT02: [They'll be more useful than (.) well, I don't know. I suppose anything is useful but English would be more useful than</p> <p>Interviewer: [what</p> <p>MAT02: [something is not as well-known (.) like as (.) cause it's quite a core subject in GCSE as well</p> <p>Interviewer: [ok. but after you took those modules how did you feel about them apart from they fulfill your CV?</p> <p>MAT02: [Em :: I think after I finish I might realize that was probably more creative than technical cause I did struggle in Maths so I had to drop them (.) so em (.2) and in IT (.) I think I did ok in but I wasn't getting the</p> | N/A |

| | | |
|--------------|--|-----|
| | <p>highest marks I could I just I got () in the end</p> <p>Interviewer: [why didn't you choose to go to an Art faculty?</p> <p>MAT02: [I just (.) I know that I'm more creative but (.) I'm not actually that good at it</p> <p>Interviewer: [that artistic?</p> <p>MAT02: [yeah</p> <p>Interviewer: [you feel you're more technical creative</p> <p>MAT02: [Yeah, I think I'll probably a mixture of both</p> <p>Interviewer: [ok. Good luck with that.</p> | |
| MAT03 | <p>MAT03: [a::: hoom I don't think so no</p> <p>Interviewer: [thank you very much. Have fun.</p> <p>MAT03: [cheers. bye</p> | N/A |
| MAT25 | N/A | N/A |
| MAT26 | <p>MAT26: [No I really don't</p> <p>Interviewer: [ok thank you</p> | N/A |
| MAT27 | <p>MAT27: [aah right aam (.3) no to be honest I'm afraid [laughing]</p> <p>Interviewer: [laughing] ok thank you.</p> | N/A |
| MAT23 | N/A | N/A |

Appendix P: LinkedIn Discussion: “Hand sketching, does anyone else do it?”

| Discussion 1: Hand sketching, does anyone else do it? | | |
|---|---|---|
| Participant Code | Discussion Content | Emergent Themes |
| Part01 | <p>I have used Whiteboard sketches / drawings for meetings. I also use hand sketches for my own thinking, planning, designs etc. Personally, there is hardly any other tool that I rely on as much as hand sketches.</p> <p>However, for presentations to a larger group, I use either a digital mock-up of these, or scan the hand sketches & still use them digitally - sometimes with digital annotations, so that they can be emailed / put on a projector. I do work a lot with remote teams, so I guess digital content is a necessity.</p> <p>I just attended a talk by Jason Fried of 37signals (co. that makes basecamp, highrise etc.) as part of Design Research Conference 2009, & he was talking about how their entire team uses really thick sharpies for all their mockups & sketches.</p> <p>I also know of some Information Architect that rely a lot on these, at least for initial brainstorming.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|--------|---|--|
| | | |
| Part02 | <p>Yep, I almost always start with pen & paper sketches, and I also have a stack of 11x17 at my desk. It feels far more efficient in early brainstorming stages to help decide on a general direction or concept, and also is far more useful when brainstorming in meetings. Once a basic direction is decided upon, then I get into digital wireframes.</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| Part03 | <p>Hand sketching is always the first step as it's easier to carry around a pen and paper without any need for a power source and it faster to draw by hand than using Visio for instance.</p> | <ul style="list-style-type: none"> • Hand sketching |
| Part04 | <p>Yes, hand sketching gives you a feedback no other media can deliver at present.</p> | <ul style="list-style-type: none"> • Hand sketching |
| Part05 | <p>I never go to a meeting without my sketchbook! (or anywhere else really)</p> <p>I read about the 37Signals sharpie 'rule' - great point. Thick marker means you can't get hung up in details! Just get the bigger idea down and iterate without the fidelity of a finer point.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| Part06 | <p>Definitely!</p> <p>All my projects start with simple sketches, then get translated into digital wireframes or photoshop</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|--------|---|--|
| | <p>designs (depending on the task). I evolve designs by scribbling on top of a printout (usually printed in black and white) with a red pen as I get feedback and new ideas.</p> | |
| Part07 | <p>Absolutely... and I see in this thread at least two distinct purposes, though often in context or presentation the intention is misunderstood:</p> <p>First, sketching as a process whether solo, or as a collaborative process;</p> <p>Second, as a visual deliverable serving to communicate a recommendation or decision.</p> <p>I use the term 'sketching' primarily as a process, the outcome of which may be presented in digital wireframes with IA, or sharpie on paper, or unfolded on a whiteboard live to clients and team.</p> <p>I see sketching as an invaluable process, even more so as I deepen study in theories of cognition, learning, neurology, and accessing more unconscious brain activity for the creative process. I research methods to reveal what we don't know we don't know; meaning how do we get out of unconscious habits into new territory.</p> | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|--------|---|--|
| | <p>I find it vital that sound project timelines allow for early iterations, or collaborative sketching time - to recognize that user experience strategy, information architecture, wireframe explorations are a process, not a diagram.</p> | |
| Part08 | <p>We like to get around a table and draw on a sheet torn off from a flip chart pad. Everyone draws, annotates and makes connections as ideas emerge. The sheet acts as shared space, group memory and permanent record.</p> | <ul style="list-style-type: none"> • Hand sketching |
| Part09 | <p>Being "Hand Made Maps" we use hands from beginning to end on every project. Drawing makes you slow down, and gives time to think whilst working - in fact it aids day-dreaming, which is the way to have another idea...</p> | <ul style="list-style-type: none"> • Hand sketching |
| Part10 | <p>I've found that sketching by hand is by far the quickest way to get ideas out of my head. It's also great for the early creative and logistical development stages of a project within my team.</p> <p>Presenting hand drawn sketches to clients is bit trickier. While our clients have appreciated seeing the organic process behind our approach to their branding, they expect a more formal presentation when it comes to</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |

| | | |
|--------|--|---|
| | wireframes and design sketches. | |
| Part11 | <p>Very cool! a lot of great responses. My work mostly deals with large corporate settings and teams. I've found that when you have a BA that has written use cases with a large set of complex business rules. It's very quick and easy to sketch out a high level rough concept. Most of the time you'll get "yeah, something along those lines."</p> <p>Can people post links to some scanned sketches? There might be a technique in just a sketch that can be adopted by someone else. Denim is still available to play with: http://www.id-book.com/interactive_denim.htm</p> <p>I use Axure and brought that to the company I'm at now. Its easy for people to pick up and start using. Its a different story to show the business something totally different then a PDF from Fireworks.</p> <p>We'll cool. I'm glad to see that we all feel the value in hand sketching. Would anyone care to share a part of theirs?</p> <p>Bummer, I should have checked the links. Grrr. I played with it for a bit. It was cool but back then didnt see the value in it. LOL</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|--------|---|---|
| | <p>Cliff,</p> <p>Let me know if you need help with Axure or anyone else for that matter. I happen to have the ear and a direct number for their lead guy.</p> | |
| Part12 | <p>You bet. It is a fast and flexible "technique", and you don't have to be able to draw particularly well to get ideas across to someone. As others have said, though, if I need to present ideas to an audience outside my web team, I would probably go to a digital mock-up.</p> <p>Has anyone seen Balsamiq (http://www.balsamiq.com/products/mockups)? It is a rich internet application version of pen and paper, with lots of pre-made components. I have played with the demo, but haven't really integrated it into real work. It hasn't really grabbed me. Again... pen and paper suffice for rapid iterations! I suppose that the only problem might be sharing them remotely / electronically (well, without scanning them, I guess).</p> | <ul style="list-style-type: none"> • Hand sketching • Drawing skills level • Digital tools |
| Part13 | <p>I have seen results from Balsamiq. They were quite effective. This was in a local IxDA meetup, and I'd say easily half the people in attendance swore by it (and none swore at it).</p> <p>Years ago, there was a product called Denim that produced easily</p> | <ul style="list-style-type: none"> • Digital tools |

| | | |
|--|--|--|
| | <p>modified digital images from sketches done with a stylus on a tablet PC. Its beauty was not just that it captured the roughness of the sketch but also that you could project the image on a wall and get much the same type of group collaboration being described above. And, of course, you could save each stage, so a "what if..." moment that turned out to be a bad idea wouldn't wreck the work already done.</p> <p>Tony, I found that page about Denim, too, but neither of its links to the site with the actual software works. Googling the name of that site's owner (Group for User Interface Research, California-Berkeley) leads to the Berkeley Institute of Design, which has no mention of Denim on its site. Unfortunately, I suspect Denim is long gone as a supported product.</p> <p>Glad to hear Axure is easy to use. That's the software that has been chosen for me to work with, so I will be learning it soon.</p> <p>Tony, believe it or not, DENIM lives! A friend who didn't even know I was interested in it pointed out to me that it's available here:</p> <p>http://dub.washington.edu:2007/projects/denim/download/</p> | |
|--|--|--|

| | | |
|--------|---|--|
| | Thanks for the offer about Axure. I haven't been able to start playing with it, but hope to soon. | |
| Part14 | <p>Could be really handy...</p> <p>http://connectasketch.com/</p> <p>We employ sketching in our design process every day and with great results. Whiteboard sketching helps our design teams get our ideas out fast and refine them before spending too much time in wireframe production.</p> <p>We've had a team start to publishing sketches out to a client in a photo stream so that they can be more involved in the daily progress of the project. So far, it has been a big hit and generated a lot of positive energy. There's a new hand sketch to prototype solution in beta. Keep your eyes out for Connect-A-Sketch</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| Part15 | <p>Like many others, I find hand sketching the quickest, cheapest, flexible and most portable form of communication and design. It also has a social nature in a way- makes it so easy to break ice with customers and peer.</p> <p>I regularly mediums such as white boards, sketch pads and index cards. One very interesting idea that my last boss came up with was to</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |

| | | |
|--------|---|---|
| | <p>use a camera with eye-fi memory card (http://www.eye.fi/) to instantly upload the pictures on to Flickr. That made it easy to share within the team, not worry about losing or erasing stuff and also document them for posterity.</p> <p>In this context, you may be inspired by books like 'Sketching User Experiences' by Bill Buxton and 'Back of the Napkin' by Dan Roam.</p> | |
| Part16 | <p>I have found the Pulse Pen from Livescribe to be a fantastic tool for conceptual sketches - http://www.livescribe.com/Smartpen/index.html</p> <p>It allows me to capture my thoughts in audio, and syncs it with the sketch, using it's inbuilt video camera - the resulting Flash .swf file can be embedded at any secure location or uploaded to an access-controlled community page.</p> <p>While not exactly collaborative sketching tool in the real sense, it helps set the stage for initial discussions.</p> <p>Also, I have used it during collaborative discussions, where each of the participants gets an opportunity to sketch out alternatives, or amend the initial sketch - all of this gets captured in</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|--|--|--|
| | synced audio and video, and you never have to wonder as to how some of the design decisions were made... | |
|--|--|--|

Appendix Q: LinkedIn Discussion: “Are you using a sketchbook for your UI sketches?”

| Discussion 2: Are you using a sketchbook for your UI sketches? | | |
|--|--|--|
| Participant Code | Discussion Content | Emergent Themes |
| ATT02 | <p>I always have a ream of 11x17 sitting right next to me and two boxes of fine point sharpies, blk and red. If I wanna get crazy I'll use blue, lol.</p> <p>2- Loose paper? Why? It's fast to conceptually sketch when sitting there with a client and/or stakeholder. It's cheap, a ream of paper and a few pens, what \$8 compared to the hardware and software you need.</p> <p>I've found that clients like sitting there, in some cases asking to use the pen themselves and convey their ideas to me. It really becomes a collaborative effort and the client really feels like they took part in what was being created.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| ATT03 | <p>To be honest, I'm not so great with the analog tools. That being said, my iPad comes in handy when I want to quickly sketch something out.</p> | <ul style="list-style-type: none"> • Digital tools |
| ATT04 | <p>Loose paper! Throw away the</p> | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|---|---|
| | ones that don't matter, organize the ones that do. Plus they're easily scannable when I get into my biannual digitize-paper routine. | <ul style="list-style-type: none"> • Meetings/ presentation |
| ATT05 | Can't start my thinking process without basic sketching. | <ul style="list-style-type: none"> • Hand sketching |
| ATT06 | I have a 9x12" Canson Sketchbook with perforated pages for easy removal if needed. The best of both worlds (If you're not using an iPad). I also carry pencils, erasers (important) and a few colored pens for annotation once something feels firmer. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT07 | I have always relied on a notebook, sketchbook, etc. to start documenting my thought process before they make it to the digital world. I taught for a few years at a local art school and stressed to my students the importance of a sketchbook in an artist's everyday life. Many times I referred to them as journals so they understood that ideas are not always drawings, but also words. I think it a crucial part of the process, that many folks tend to forgot about. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT08 | I've always drawn rough ideas onto A4 paper first, then as the ideas develop so does the degree of complexity of the concept. It's better to have the | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|-------|--|--|
| | <p>direction sorted out before you sit down at your computer and look blankly at the screen. The benefit is, if you are sketching ideas in front of a client you then start to give equal ownership of the development of the concept to them, you then begin to work in partnership with that client and ideas become valued.</p> | |
| ATT09 | <p>As much as I hate to waste paper, I always start with a sketchbook and a Micron.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT10 | <p>I use paper prototyping as an efficient way to quickly design structure, discuss it with folks on my team and clients.</p> <p>Sketchbook is essential to stay organized. I'm kind of messy so before using sketchbooks my desk was full of sheets of paper.</p> <p>Couldn't find anything</p> <p>Have a look on this video it shows my design process: http://youtu.be/-7VtiOBVfCE</p> <p>2-@Jakub nobody said that sketch should be delivered as result of UX thinking our clients are paying for. Paper prototyping is part of process. Important and common.</p> <p>Honestly though I don't think that paper prototype look unprofessional:</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |

| | | |
|-------|---|---|
| | http://bit.ly/wgnwR8 It was made with UXPin notepad. | |
| ATT11 | I personally like using a graph paper pad or drawing sketch pad for initial idea brainstorming. I've tried using iPad apps, but nothing beats old fashioned paper, especially will trying to see a bunch of ideas laid out all at once | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT12 | We all have our own methods, but for me the paper&pen never worked. iSomething or smartphone does the job. In my case I just deed a very simple app for drawing with some basic shapes for my own use :) | <ul style="list-style-type: none"> • Digital tools |
| ATT13 | i still use paper as first way to make a pre-draft of the sketch. i do not use a specific paper or moleskine or notepad. i think the idea can be caught wherever it comes. | <ul style="list-style-type: none"> • Hand sketching |
| ATT14 | I use a notebook just to get the thoughts out of my head and on to paper. However, I recently just brought the new Asus Transformer Prime to use Adobe Proto, an incredible wireframe and mock-up tool. But I'm not using it as much as I would like b/c Adobe's Creative Cloud doesn't support Android 4.0. :(So the designs are stuck on my tablet for now. Once | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|-------|--|---|
| | <p>Adobe fixes the problem I will use it primarily for my wireframes or mock-ups.</p> <p>As far as doing sketch work in front of clients, I try to keep that to a bare minimum. I research the clients needs before I meet them and then take detailed notes during the discovery process. Next I go back to my lab come-on with three progressively better designs to lead the client to decide on the third best design.</p> | |
| ATT15 | I use a plain A4 paper ;) | N/A |
| ATT16 | It's the best solutions for the beginners or for the first prototyping steps. I guess it's the fastest and cheapest option. | <ul style="list-style-type: none"> • Hand sketching |
| ATT17 | <p>For collaboration it often works best to go to the whiteboard, for the larger scale. I keep a set of narrow whiteboard markers in my bag, so there's no worry about the room only having a faded green marker.</p> <p>I used to use whatever was around for paper, but since I travel a lot, I've gone back to a dedicated pad. I got marker paper because I am picky about drawing tools, and had the Kinkos spiral bind it. Not hard to tear out pages if needed, but</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|--|--|--|
| | <p>mostly I can scan/copy them from the book.</p> <p>I also carry a set of markers with me for that. I use the Zig markers, as they are small and are nice ink; most others I like (Prisamacolor) are too bulky to carry around. And Sharpies are kinda crappy ink so don't draw that clean to me. Best marker: gray. Use it like a pencil for sketching, but it's still permanent and doesn't interfere with process.</p> <p>I also carry some templates (circles, squares) and a lightweight plastic ruler. I usually freehand, but sometimes you have to neaten up stuff.</p> <p>I find clients and other designers like to see sketching, but far fewer than I'd expect want to contribute to anything smaller than whiteboard. Even if they are "ooh, and that could be..." and I offer them the tools, they shy away. Too bad really.</p> <p>2-Past few days I have been doing some fresh concept stuff and just remembered how much I like "digital sketching." Grab the tablet (well, I use it for</p> | |
|--|--|--|

| | | |
|--|--|--|
| | <p>everything) and a vector program like AI or INDD, and draw the idea out.</p> <p>Really good for me as I tend to transition to higher fidelity, so can mix and match and slowly move to a final drawing. Or add legible words while keeping the sketch in place. And, nice to be able to grab sketch bits and flip, remove, change color, etc.</p> <p>Right now I am also using it as vector sketches are tiny. Send a PDF and it's sharp and a few kb. Try that with a scanned sketch or a photoshopesque raster drawing.</p> <p>But no, not the A answer. Just another tool in the box.</p> <p>3-I know a few folks who use LiveScribe. Seen them use it for sketching, though it's designed to be a note-taker, so... there you go. It's in like version 3 or so; mature product.</p> <p>Seen them for sale at office supply stores, so maybe find one with a kick-ass return policy and try it.</p> <p>This thread (briefly) discusses how it works or not for</p> | |
|--|--|--|

| | | |
|-------|---|---|
| | <p>sketching: http://www.livescribe.com/forums/showthread.php?t=5822</p> <p>Plenty of discussions, so search for it. I have non-zero but pretty minimal use of one.</p> | |
| ATT18 | <p>Work small = think small. Big and scruffy works best for me, I wish I could use sketch books it would be much easier to transport.</p> | N/A |
| ATT19 | <p>I use plain A4 papers and a lot of templates, for example a vertical browser template or 6-up templates ...</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT20 | <p>For sure! Creating small undetailed sketches let you iterate layout very quickly. But soon after that (when adding details) it becomes more efficient to use a mock-up tool in my opinion, because you don't need to sketch everything again after a change.</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT21 | <p>I find paper a little prehistoric. If someone showed me an UI sketch just on a paper and I would be paying them I would not be very happy. Nowadays there is a lot of sophisticated software designed just for this purpose... I would go for it if I was you :]</p> <p>2-@Marcin Treder - true, maybe</p> | <ul style="list-style-type: none"> • Digital tools |

| | | |
|-------|--|--|
| | <p>I was too straightforward when thinking about it, I believe that the strength of software made sketch is in its way of sharing and adding comments also you can make it functional right away.</p> | |
| ATT22 | <p>I'm sure if someone handed a client a final design in the form of a sketch it'd not be well received. But as part of the design process it seems invaluable. I say this as an outsider though. I saw an interesting talk at Interaction 12 in Dublin stating that sketching and drawing should be incorporated throughout the design cycle and not just at the concepting stage. It's a quick and efficient way to explore alternative design routes during iterations.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| ATT23 | <p>I use Sketchbook for web designers http://www.vcarrer.com/2009/02/sketchbook-for-web-designers.html (Free A4 paper that looks like browser window)</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT24 | <p>I sketch a lot to get ideas out. Also, I'll often put components and content on sticky notes, then arrange them around a piece of graph paper to get a sense of placement and hierarchy.</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|-------|---|---|
| | <p>@Jakub: sophisticated software cannot hide bad thinking, but low-tech 'software' can reveal great thinking.</p> <p>2-For those who like to sketch, and need a 970 px grid (a very flexible format), you can download a template I created here: http://mmcwaters.com/2011/03/23/free-wireframe-sketch-template/</p> | |
| ATT25 | <p>Sketching is essential for me when in the brainstorming phase. I love having a small sketchbook around.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT26 | <p>Has anyone tried using the Wacom Inkling for sketching? http://www.wacom.com/en/Products/Inkling.aspx</p> <p>I was considering trying one out because I really like to do quick sketches before doing wireframes and sometimes you end up recreating a drawing. The pen lets you attach a transmitter to a notebook and import the pen strokes into Illustrator. The pen has rather average reviews, which is making me want to wait for V2 of the pen. It does however make me hopeful of one day having a good sketch pad and</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|-------|---|---|
| | then being able to make use of my sketches. | |
| ATT27 | <p>I have a sketchbook, but I mainly use it for taking notes.</p> <p>The important thing about sketching is to feel like you can come up with lots of ideas, quickly and easily. Sketching on paper feels a tad wasteful, and because it's hard to "undo" I find myself being a lot more careful when sketching ideas on paper, which to me defeats the purpose.</p> <p>Omnigraffiti allows me to come up with ideas faster than I can sketch them on paper (especially with UI stencils). I never have to fret about lines not being straight, and the fact that the sketch is already being shown in a medium that it will be perceived on is a big bonus as well.</p> <p>To each their own, but for me I prefer "sketching" in Omnigraffiti.</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT28 | <p>always start with pencils, roughing out in sketch form, thumbnails scratch pads etc. is highly efficient and allows you to work out of the "box".</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT29 | I scribble on any paper, reaffirm | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|---|---|
| | <p>the concept in my mind and then work it into a wire-frame on the PC. I am faster on a computer than paper. Also over time I have built up a library of different sketch elements that I can quickly reference, edit, rehash, discard.</p> | <ul style="list-style-type: none"> • Digital tools |
| ATT30 | <p>Lots of interesting comments here. I use both, sketchbook and loose paper. Loose paper with sharpies and a few gray markers let me develop very compelling sketches quickly—sometimes right in front of the client. My sketchbook is more for archival thoughts and diagrams usually captured during meetings or over lunch.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| ATT31 | <p>I always have a pad of graph paper. Even my loose thoughts must be in a grid.</p> <p>My OCD knows no bounds.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT32 | <p>Axure... many times i prefer to sketch like a pencil artist.</p> | <ul style="list-style-type: none"> • Digital tools |
| ATT33 | <p>I do both paper sketching and on screen. I like to use my tablet to augment layouts and designs. It works well with Webex too.</p> <p>2-That looks interesting. I use a wacom Inuos. I can definitely see the benefits of having that during meetings or just messing around with ideas.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|-------|--|---|
| ATT34 | <p>Have any of you guys tried the Wacom Inkling? http://www.wacom.com/en/Products/Inkling.aspx</p> <p>I haven't seen it firsthand, but the idea of being able to sketch on real paper while it is being recorded digitally sounds really sweet.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Drawing skills level • Digital tools |
| ATT35 | <p>Any piece of paper I have at my disposal. The main thing for me is to get ideas down as quickly as possible. Capture, sort, share, edit then to high fidelity.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT36 | <p>I use iDesk for ipad. It's really good for simple sketches and wireframing.. You can try the free lite version first and see if it suits you...</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT37 | <p>used to use 11x17 sheets, moved on to whatever is handy :) seems like a lot of designs get worked out on the whiteboards, now. very easy to use in a group, and everyone can add / erase elements easily.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT38 | <p>A3 paper and coloured pencils, other people laugh but personally it's both a satisfying and freely expressive way of putting thoughts down and honing multiple ideas quickly.</p> <p>Paper is also a brilliant</p> | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|---|---|
| | collaborative tool, take a pen or pencil for your collaborator and hand it to them at the beginning, A3 is big enough for two. | |
| ATT39 | I think it's more a case of organisation. I do find myself going through a lot of sheets to get the ideas down. It's good to have little breaks to file your ideas and also go back through and annotate. It's the looking back through which is where I tend to spot certain aspects that really become useful. Be messy...but be organised! I only move onto digital once the idea is fleshed out. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT40 | Yes definitely, it is really important to keep your creativity. Using analog tools instead of trying to create only on the computer. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT41 | I use a sketchbook 90% of the time because 90% of the time inspiration hits while out and about. I carry a sketchbook at all times because of this. Admittedly a tablet is starting to be experimented with and with positive results. However, being paranoid about theft, most days I'll to throw a \$10 sketchbook in my bag before a \$500 device. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT42 | I never move without a Moleskine (extra large, squared like this | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|--|---|
| | http://www.moleskine.com/catalogue/classic/cahier/cardboard_kraft_cover/set_of_3_squared_cahier_journals_kraft_extra_large.php) and a pencil | |
| ATT43 | <p>Without over stating the obvious, it's always a personal preference. Personally, I always start with a sketchbook or whiteboard. To me the whiteboard always works better when your collaborating with a large group, which I do frequently. I find that when you have to do some rapid prototyping, paper and whiteboards allow to quickly convey ideas at an early stage.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT44 | <p>Oh I can't force myself into this at all. I do all on the computer. It saves me tons of time. I absolutely CANNOT present paper sketches to stakeholders, 'cause my "clients" are not creative types. They need to see how it works (low-fidelity) and how it feels (high-fidelity). Paper would not fit in my case. However, I noticed a very interesting thing. Once I start scribbling, I get fresh ideas faster. I think paper is crucial for brainstorming new ideas and approaches, while digital is vital for traditional & conservative stuff. This is my case.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |

| | | |
|-------|---|---|
| ATT45 | I use mockup software for my wireframes, but I must admit that ideas on paper come up more quickly. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT46 | The paper seems cheapest, but cant help wonder on how to manage all those sheets another point worth mentioning the constant evolvment in in wireframes(my last app project wireframe was done over a period of one month with every day new improvements) , not sure how this makes easy drawing up in paper, duplicating it in an actual clickable interface and redoing this for every change? | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT47 | I usually use B4 or A4 papers to tumbnail sketches with pen or pencil first. Then I move on sketchbook with color markers. | <ul style="list-style-type: none"> • Hand sketching |
| ATT48 | I love to use pencil and paper, it forms the base of any UX work i take part in. I believe UIstencils would be worth looking in to... http://www.uistencils.com/ Great way to flesh out your concepts before hitting digital. Hope this helps. | <ul style="list-style-type: none"> • Hand sketching |
| ATT49 | Generally I use A4 plain sheet of papers, use blue and sometimes green and red ball point pen. But when in huge doubt I use pencil. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|-------|---|---|
| | <p>I use sketchbook templates sparsely if the design is too small or only indications. Otherwise I prefer plain A4 sheets. To carry I just stick bind it.</p> <p>I also use my own app for plain drawing using a tablet or pad, while I want to see a much larger and clearer view of my idea or when I need to collaborate with teams in multiple locations.</p> <p>The best one is plain a4 sheets and then my plain drawing app :)</p> | |
| ATT50 | <p>I use graph paper or whiteboard when I'm at the office. On-the-go, nothing beats the convenience of a sketchpad. For a while I've put off buying an iPad as I haven't found any justifiable reason to get one, but I may have to look into this "using it as a sketch pad" business. It could bridge the gap between the sketchpad I carry with me, and the whiteboard in the office.</p> | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation • Digital tools |
| ATT51 | <p>This is a great question! I labor over what I am going to sketch on: paper or notebook/sketchbook. I am such a notebook/sketchbook junkie</p> | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|-------|--|--|
| | <p>that I always think I ruin it the moment I put a mark on it! I usually have a ream of paper open and my Copic sketch markers nearby. I hate wasting paper in general but sketching doesn't fall under that rule :)</p> <p>@Tony I go a little nuttier than you with colors: black, blue, red, dark gray, light gray, yellow and clear blend.</p> <p>I've been using my iPad a lot as well lately. Check out apps called Sketchshare or Bamboo Paper. Of course you need a stylus as well but it's still a lot of fun.</p> | |
| ATT52 | <p>Great thread...For me, pen and paper are the fastest way to get the initial concepts down. A piece of plain (unruled) paper is full of limitless potential. Whiteboards are great in group settings for the same reason.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT53 | <p>Loose, loose papers...everytime, everywhere...with everithing can leave a track on them ! For the rest there is notebook... :-)</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT54 | <p>In most cases I use color pencils and pens plain A4 paper (it is always available and fits in the bag) but I also use A3 papers when I have to integrate pieces or work on a more complex</p> | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|---|---|
| | <p>concept.</p> <p>I like to highlight concept and pieces in my pencil sketches when they are "winners".</p> | |
| ATT55 | <p>I keep a stack of 8.5x11 paper that I've pre-printed with a 1/4" dot grid (to keep everything lined up) and a couple of spare lines at the top to identify the project, date, etc. as a nod to organization. Its handy for when I have an idea, or someone drops by to discuss a project. I also have a set with browser, smartphone and iPad templates pre-printed.</p> <p>What I need to do is keep a stack on my bedside table for those late night inspirations.</p> | <ul style="list-style-type: none"> • Hand sketching |
| ATT56 | <p>I also use A4 and A3 pads, and sketches can be pretty rough and ready but I do lots of them to get first ideas together. And I usually avoid layouts of full pages and focus on sketching out iterations of the key elements before I look at how they sit together.</p> <p>I also invested in a nice sketchbook recently but my sketches can be so disorganised I haven't found myself using it.</p> | <ul style="list-style-type: none"> • Hand sketching • Drawing skills level • Digital tools |

| | | |
|-------|--|---|
| | I recently bought Inking, which you have to see to believe. It's proving to be a really fast for creating rough sketches on paper and moving to lo-fi wireframes for prototyping. I highly recommend checking it out. | |
| ATT57 | I use a plain A4 paper ;-) | <ul style="list-style-type: none"> • Hand sketching |
| ATT58 | UX @sticky notes are great - http://www.uxstickynotes.com/ | N/A |
| ATT59 | Having started my working career as a draftsman, I try to force myself to use Photoshop, Pencil or any other digital medium when flushing out a design. Its hard to commit when paper and pencil is so easy to obtain and highly portable. I do hope better mobile apps are written when I need to quickly capture ideas when a computer isn't handy or nearby. Still working on making the shift. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT60 | To be honest, I use whatever is handy at the time. Not much of a standard methodology I'll admit, but it's true. Right now I'm using a regular old 1 subject, ruled notebook. But +1 for plain paper. It's quick, accessible and cheap! | <ul style="list-style-type: none"> • Hand sketching |
| ATT61 | To start having some ideas i just need a block of paper and a pencil or a pen...easy to carry | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|---|--|
| | any place... | |
| ATT62 | I use Balsamiq mock-ups. A lot of the developers I work with use it as well to give me preliminary sketches/designs. I find it useful for collaborating back and forth amongst several people (they can all edit the files, rearrange elements, etc.). | <ul style="list-style-type: none"> • Digital tools |
| ATT63 | No. I use a whiteboard or go straight to iMockups on my iPad. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT64 | I'm in the sketch-book crowd. When using a device, sometimes the process of the device will get in the way of visualizing the idea. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| ATT65 | I walk into meetings with my large pads of News Print, 14 x 17 and larger, with an assortment of pencils. Clients love it and enjoy participating, and I love walking away with all the sketches from the meeting. People take photos of the drawings for their own records. | <ul style="list-style-type: none"> • Hand sketching • Meetings/ presentation |
| ATT66 | I normally use an iPad or computer as I have several templates and stencils I've developed for rapid prototyping—rarely do I use a pad of paper. However, when I'm "ideating" or working thought he conceptualization stage I normally have a 36"x36" sheet of thick paper I place on the top | <ul style="list-style-type: none"> • Hand sketching • Digital tools |

| | | |
|-------|--|--|
| | <p>of my desk and everything else goes on top. This way I can free form whatever I have in my head and then move it to digital form.</p> <p>And I always carry about 10 pens/pencils in my computer bag... just in case I need to "ideate" with colleagues. I also have a whiteboard with Red, Green, Blue, Brown, Orange, Yellow and Black markers in my SJ office and other additional colors (and whiteboard) at my home office.</p> <p>(I buy the paper from printers and have full pallets sheets cut down to half-sheets.)</p> | |
| ATT67 | <p>Something familiar with sketching stuff out on paper. Not having a palette to choose components from gives me the freedom to come up with new things, and so the focus becomes creativity rather than problem solving with a limited set of tools.</p> | <ul style="list-style-type: none"> • Hand sketching |

Appendix R: LinkedIn Discussion: “The Importance of Sketching”

| Discussion 3: The Importance of Sketching | | |
|---|---|---|
| Participant Code | Discussion Content | Emergent Themes |
| MEM02 | <p>I think the power in the technique is even a bit underrepresented in this article. Having spent the earlier part of my career in graphic design... I've always been comfortable with early sketching and what is essentially quick prototyping (showing early stage work to prospective customers).</p> <p>When I worked to build sketching into our process (in the corp world) it was to empower the staff with visual thinking tools and to quickly work through initial concepts at a higher level. White board or pencil/paper techniques allow you to explore (both individually or in a group effort) and risk with minimal downside. A common hesitation revolves around it looking 'pretty', which is insignificant in early work flow, process, and page composition explorations. Those are presentation concerns.</p> <p>The other cultural message we tried to send outside of the creative/ui/fed group is that design is a process of researching, thinking, sketching, validating... and that process takes up most of our time (hopefully).</p> | <ul style="list-style-type: none"> • Hand sketching • Drawing skills level • Digital tools |

| | | |
|-------|---|--|
| | Documenting the results as deliverables (wireframes or visual mocks) should be a smaller portion of the time spent. Designers should spend most of the energy thinking, and the rest (if any) building documents. | |
| MEM03 | Great article, thanks . | N/A |
| MEM04 | <p>I totally agree with MEM02's point and the "critical" remark on the author's underestimation of the REAL VALUE of sketching. In other words, the article is only a trivial contribution towards a recognition of the significance of sketching as a truly creative technique. Some of the most important aspects of freehand sketching relate to the "rough" presentation and the positive impact of sketching on the depth of exploration.</p> <p>First, the rough nature of sketches readily communicates the unfinished state and invites refinement and changes of conceptual and structural attributes captured so far. Second, the tendency to redo a sketch a number of times allows designers to explore a multitude of options with a broader scope in variation, as opposed to tweaking the same design on-screen. Both of these aspects are backed by formal test studies and research.</p> <p>Additionally, and IMO most importantly for "creative" and innovative work, freehand sketches constitute a technique with a unique quality of</p> | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|--|---|--|
| | <p>externalising ideas "in the head" in a manner that isn't possible using computerised tools. The technique of sketching, including freehand work on-screen, is a motor activity alone, which is free from a cognitive load of intentional manipulation and control. The mechanical aspect of sketching, allows for elicitation of ambiguous and intuitive representation of unresolved structures in a progressive refinement process as the sketch emerges towards a more refined state.</p> <p>The last point may appear to be rather esoteric, however, this paradigm has been studied at length in context of architectural practice, where a process of sketching is best recognised and attributed for its strengths. The situation is best described by recognising that when an architect draws a line, it is rarely a result of a conscious intention to represent a specific element, but rather an ambiguous mark which is consequently interpreted as one of the boundaries of the element or indeed an ornamental part. In my view, this process is analogous to capturing structures and their relationships in UX tasks.</p> <p>BTW Bill Buxton, one of my HCI heroes, is a devoted advocate of development through sketching and an author of a great UX book: "Sketching</p> | |
|--|---|--|

| | | |
|-------|--|---|
| | User Experiences". | |
| MEM05 | MEM04 Thanks for the book. Sketching is an automatic part of figuring out what you want, it often can be a valuable document to show to the team to give them an idea of what elements need to be represented. It can open some ideas that you might want to use in a wireframe environment. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| MEM06 | I just want to second MEM04 here: I think Buxton's book should be mandatory reading for all professionals in our field. | N/A |
| MEM07 | I third the Buxton book recommendation - and would add Back of the Napkin by Dan Roam. This is also rather nice http://konigi.com/book/sketch-book | N/A |
| MEM08 | Good discussion. Sketching is a underappreciated skill which everyone has, and which has many benefits. It's hard to see a downside to sketching, but I have one. I notice that many people seem to use a technique that I call "sketching a pile of features," where you sketch physical layouts rather aimlessly--hoping to discover a good design by accident. I appreciate the value of sketching in exploration, but it seems like the explorations need to be more deliberate, more focused on effective interaction, achieving user goals and | <ul style="list-style-type: none"> • Hand sketching |

| | | |
|-------|--|---|
| | fulfilling scenarios, and less focused on physical layout and jamming in features. | |
| MEM09 | Cool to see this at this particular moment. I just gave a talk to an agile group today about rapid prototyping and recommended his very thing: start with marker and paper well before wireframing. (And test early and often with users and paper prototypes!). Thanks for setting out so well the 'why' of sketching as important. | <ul style="list-style-type: none"> • Hand sketching • Digital tools |
| MEM10 | Agree this is a good discussion. I like MEM08's input quite a lot - sketching can be a real boon in getting focused on the 'what needs to happen in which order?' and "how ought it progress for THESE users doing THESE tasks?" type questions early on. Sketching can include all this type of brainstorming and will naturally evolve into consideration of screens, controls and content, all in the sketches. | <ul style="list-style-type: none"> • Hand sketching |

Appendix T1: Summary of Interview Transcription with Experts – Expert 1

| Summary of Interview Transcription with <u>Expert 1</u> | |
|--|----------------|
| Background Experience | |
| Expert 1's Reply | Emergent Theme |
| <p>I'm a senior lecturer. Always worked in Art and Design industry but before I go to advertising and Multimedia (1994-5 the first group of Multimedia in the UK) - There were very few software. We started with very basic version of Director and then Flash. I used to think about TV use of them because I worked in broadcasting company before.</p> <p>2001 I started teaching after a good career time during the .com boom with Art and Design students. Education seems to be always backward comparing to industry so when I left industry to Education it was odd. Most of my colleagues in industry were from IT background or A-Level directly and since the technology change very fast what I was advantageous was the fact that I had Art foundation background and also compare to graphic designers I had multimedia training.</p> <p>When I came back to Education as lecturer I didn't find it difficult to lead a course actually because I knew what was happening in the industry.</p> <p>I was working for 2 year for recruiting and employing the graduates and I could almost tell by the university, which university does the</p> | N/A |

| | |
|---|--|
| <p>better job which was very interesting so when I accepted a job as lecturer I know what I wanted to do.</p> <p>By looking at the portfolio I can tell what the students have learned and what their tutors have taught. That's why I wanted to be a lecturer in a way. So I work hard so my students have interesting updated portfolio because that is like my face and in our small world my colleagues back in industry recognise my work.</p> | |
| <p>Evaluation of Games Design Course at the University of Gloucestershire</p> | |
| <p>Expert 1's Reply</p> | <p>Emergent Theme</p> |
| <p>In University of Gloucestershire I am working with Games Design students for a few weeks. I haven't had a chance to look at their portfolios but I can tell by looking at the style of it, obviously the course is very structured and all the modules links very well. Artistically obviously they are struggling. But technically very good. I think it is due to their background rather than University.</p> <p>Our course was called Interactive Media and Animation kind of thing therefore I couldn't get artistic students all the time because they didn't need to have Art and Design foundation course anymore as the prerequisite but when they joined in and mingled in the Art environment they changed a lot that's the same as that I can't change my students to be programmers in that environment. I really do believe that the atmosphere has a great influence because it is a group thing. It is like monkeys. They learn from each other in the group, copy and mimic the</p> | <ul style="list-style-type: none"> • art school lessons • teamwork • students' psychological profiles |

skills and their main focus also change. You will be surprise to see how one tutor can influence the whole group. You can very quickly see the influence in the students' portfolios.

Nowadays the students are surrounded by all these designs, looks and trendy and this kind of things. I don't say they are immersed because some of them make me worried because they cannot adapt to, they cannot be really flexible but they just do feeling chased so they just ended up copy without thinking of the process, without reflection time.

I my case I do really pursue my students to find their personal identity rather than just get skilful. Again it very much depends to the course philosophy. Some people are all busy, chasing, copying, try to be like other friends but that can be really confusing.

I think this is not much a case in this department with Games Design students or perhaps in other technical departments. In here there is less emphasis on individualism and more quality control feel to it. I think it's good and bad. In that way you pull everybody up and everybody's going together in the same level. At the same time there is not much room to allow flexibility to allow some person to go completely different direction. You can't do that because there's so many student numbers here. Sizes are really huge. It is very much different experience in Art departments because we have something we call 'the one pathway' which is just a single honours in something that means they [] almost

| | |
|---|--|
| <p>blueprinted which means I know exactly who is attending the module while here a lot of students are mixed. I met quite a lot of students who's doing Networking degree but they were among the Games Design and Multimedia students. It is actually a good idea for level 4 students to take a games module (IGD110) because they get a kind of idea where they can branch out. I'm personally like a Games kind of direction. I saw some teaching material of GD110, such a good material about character development, Storyboard, the concept art. I think it's very good.</p> <p>For us it is 'one pathway' method. Basically we get 25 students and they are there under my control throughout four, three years and I've laid out the program for them already. It's not about them picking, choosing but here it's more like they can pick and mix modules. So as a tutor you don't have really total control of what path the individuals take.</p> | |
| <p>Interviewer: explained the whole idea of the research and the theme got from interview with 2010 students initial interview and how one student with poor drawing skills was excited by getting the skill in using tracing tool in Flash.</p> | |
| <p>Expert 1's Reply</p> | <p>Emergent Theme</p> |
| <p>But imagine how much time consuming is to do drawing on computer. I'm surprised that none of your students in interview were worried about lack of drawing skills. I think sometimes ignorance is the blessing! I think the influence of environment and the tutor is the key.</p> | <ul style="list-style-type: none"> • art school lessons |
| <p>Interviewer: but whatever the environment or the tutor, if someone</p> | |

doesn't have drawing skill it wouldn't happen over a night.

| Expert 1's Reply | Emergent Theme |
|--|---|
| <p>Obviously the drawing skill is the basic thing. For me it's all about the composition of it or observation. That's what I've tried hard to improve their drawing. It's ok if they just draw a stickman for their storyboard. That's fine. Problem with them is that nowadays youngsters they don't observe because they're so into their own world they don't really get to observe how leaves will fall from the tree and that kind of thing.</p> <p>Tracing things is fine but again how they trace certain things if they don't recognise that will work within their limited space or not. So you kind of have to train them ...</p> <p>What is what I normally do:</p> <ol style="list-style-type: none">1- I do lots of classical painting that start with your composition. It's about training them to recognise good things. I think that takes time. I try to make them kind of, because quite often the young ones don't know what is good and what is bad in compositions or even in having opinion – they really don't have much opinion. If they say 'oh, I don't like it', they can't say why they don't like it. You can see this from classrooms everywhere. So it's about the vocabulary you need to give to them.2- So I try to teach them like different language, so at least they can express how they feel when they look at certain objects. So I do that for a few weeks.3- I make them come up with the story. In | <ul style="list-style-type: none">• visual awareness• other techniques• art school lessons• students' psychological profiles• cultural effect |

simple story writing there are certain elements that has to be there so you introduce them how to write short story. But if you give them theoretical part of it and how to write literature, they'll never get it because nowadays they don't read a book not like my generation. So what I do I start with single images and make a before and after stories.

I think students these days more play games and they are more consumers. I was playing with a child on PlayStation to play guitar and I was amazed of so much options they can ever imagine; different hair styles for like a 100 hairstyles, 100 different eye colours and etc. It's good or bad. For me I was amazed because there is template there for this kid who has nothing to do with art, but he knew about what styles are for whatever groups.

I also think they're so used to being instant, quick solutions so they're impatient. They wouldn't really put that much detail out. They want it quick because they're used to be in that kind of environment.

I can tell you something about Japan. In Japan how they're trained is very different. Japan is being known for the technology but when you look at their education to be a designer they start from 12 or 14. They set their mind up and that's how they're trained and they insisting on not using any technology. So when they felt happy and fluent with their hands then they move on to using computing tool.

| | |
|---|--|
| Interviewer: In Art departments they have a chance to have modules to explore the art foundation but in Computing departments there is not such opportunity. | |
| Expert 1's Reply | Emergent Theme |
| It is not the case at all. Because we are in Art and Design it doesn't mean that we have separate modules for drawing. For a first year first modules I use the big chunk of the 12 weeks' time on the foundation things and then introduce them to the software. From my own experience I never learned software from my tutor at all. It was more like me learning. | <ul style="list-style-type: none"> • other techniques • art school lessons |
| Interviewer: I guess based on my own experience we don't have much opportunity to do those things in IT branches like Games Design or Multimedia. We are more supposed to do every bit all together. | |
| Expert 1's Reply | Emergent Theme |
| It's the same with my modules. That's why it's so difficult there are lots of extra tutorial going on. We have to talk about composition, this and that and etc. but I have to say I was very much over technical driven software workshop to here meanwhile over there I wouldn't do much software workshop. | <ul style="list-style-type: none"> • art school lessons |
| Interviewer: Mention the big difference between the same modules in different departments. | |
| Explain that in web-design domain, Japanese, non-design students were helped to prepare visualisations of web pages by researchers developing a learning process using worksheets called 'image plots' with standard design templates as teaching materials (Ariga and Watanabe, 2008). | |
| Expert 1's Reply | Emergent Theme |
| I have tried that method too (with introducing templates for certain looks and themes like Japanese studies). | N/A |

| | |
|--|---|
| | |
| <p>Interviewer: Mention the LinkedIn discussion on the matter of drawing and explain about intervention session themes for 2010 students and the issue that if it cannot help the students' skills at least it can help with making awareness about the importance of acquiring drawing skills.</p> | |
| Expert 1's Reply | Emergent Theme |
| <p>Exactly that helps. I do the same thing. You see this lecturer job is unbelievable. It's just the influence you give out to a group, it's not just the lecturing time at all. I might take this one too seriously maybe it's because I'm coming from a different culture as well. For me being a teacher or lecturer sets kind of lifetime example and that's how you change society. Something that I always try to teach my students is beyond computing, beyond drawing education for me. You have to set a kind of mood for your class.</p> | <ul style="list-style-type: none"> • effectiveness of Art workshop |
| <p>Interviewer: have you particularly see this problem with drawings and ever wanted to tackle that with different style for example different teaching method?</p> | |
| Expert 1's Reply | Emergent Theme |
| <p>Yes. In our department in case they are shy about storyboarding because they can't draw and they say 'I can't draw'. It's like singing. No one say I'm singing unless they are extremely good so they don't know what they have so I'm curious what I can actually bring out from them. That's how it's started but if you look at a painter or illustrator there is a talent that you have to be born with it but that's when we are talking about professional painting or illustration. But within our subject for the storyboard, it is important but to be honest you know that there are professional storyboard artist. It's a job. You know it's not going to be my students going to</p> | <ul style="list-style-type: none"> • confidence • students' psychological profiles • cultural effect |

| | |
|--|--|
| <p>be doing it all the time. In a Game making company a professional does that.</p> <p>About being shy they might be shy in drawing their ideas but they are not shy in having ideas or stories. People in this country are brought up as if every idea they have is important. And although they read very less compare to previous generations they still read more compare to other countries. They still read Shakespeare at school and they actually analyse it. I think their education foundation is very good but what they haven't got is just recognising whether they're good or not. The confidence thing may lead to shyness!</p> <p>What I do is that I think the encouraging is very important. I make my students feel they have that talent even though I know they haven't. This is my role. And I try to pick something good in their storyboard even if it is with stickman to boost their confidence. You'll be surprise how that lead to mega impact so they're not shy anymore.</p> <p>Also they have to be able to trust you as a lecturer. If they think you are not a very good lecturer they wouldn't listen even if I tell them they are very good. I think Games Design and Multimedia tutors do that in this department and I feel the respect feeling going on among student.</p> <p>I think the very interesting thing is that the modules are tightly linked together and the training in different modules all emphasised in</p> | |
|--|--|

| | |
|---|--|
| <p>the others to students keep the habit.</p> <p>I think cultural differences in education play a big role. It's easier for people in western countries to come up with ideas freely whereas Chinese, Japanese, Korean and Iranian struggle with that but they are very good with technical parts and structure and practice. I think before answering the issue of drawings and the students' skills in it there are lots of other external elements affecting their idea generating and how they are influenced by examples they've seen or the educational culture they've come from.</p> | |
| <p>Summary</p> | |
| <ul style="list-style-type: none"> • A senior lecturer in Art and Design. • Before: <ul style="list-style-type: none"> • Advertising and Multimedia broadcasting company. • Coming back to Education and leading the course was not difficult if you know what is happening in the industry. • working for 2 year for recruiting and employing the graduates • One can tell what the students have learned and what their tutors have taught by looking at their portfolios • The course is very structured and all the modules links very well. • Artistically obviously they are struggling. • Technically very good. • It is due to their background rather than University. • For “Interactive Media and Animation” course in Art department Art and Design foundation is not pre-requisite either. • The atmosphere has a great influence because it is a group thing. • When students join Art environment they change a lot. One can't change students in Art environment to be programmers. • Learning in groups make students copy and mimic the skills and their main focus also change. • Tutor can influence the whole and the influence is reflected in the students' portfolios. | |

- Nowadays the students are surrounded by all these designs, looks and trendy but some cannot adapt to and be flexible which makes them feel chased so they just ended up copy without thinking of the process, without reflection time.
- The course philosophy and class sizes determines whether to pursue students to find their personal identity or just get skilful.
- Finding personal identity is not much a case in Games Design in technical departments.
- At UoG there is less emphasis on individualism and more quality control feel to it.
- Positive side: pulling everybody up and everybody's going together in the same level.
- Negative side: there is not much room to allow flexibility to allow some person to go completely different direction.
- At UoG students from different fields take Games Design modules.
- Positive: a good idea for level 4 students to get a kind of idea where they can branch out.
- Negative: by picking and mixing modules by students tutors don't have total control of what path the individuals take in contrast with Art 'the one pathway' which is just a single honour in In Art departments allows individualism.
- Teaching material of IGD110 about character development, Storyboard, and the concept art is very good.
- Drawing on computer is very time consuming.
- It's due to ignorance if students are not worried about their lack of drawing skills.
- The drawing skill is the basic thing.
- It's ok to just draw a stickman for storyboard.

Problem:

- Problem is all about the composition of it or observation.

Reason:

- Youngsters are so into their own world.

Tools:

Tools such as 'Tracing tool' is only effective if one can recognise what will

work within their limited space or not which needs train.

Solution at Art schools:

- Lots of classical painting that starts with composition which focuses on training students to recognise good things. That takes time.
- Youngsters don't have much opinion in explaining why they like or dislike things. So it's all about giving them the vocabulary by teaching them like different language, so they can express how they feel when they look at certain objects for a few weeks.
- Making students come up with the story.
- Nowadays students don't read books so they don't get the theoretical part of how to write literature and short stories, so the technique can be starting with single images and make a before and after stories.
- Students these days more play games. Negative: they are more consumers. Positive: they are provided so many options they can ever imagine.
- Students are so used to being instant, quick solutions so they're impatient. They wouldn't really put that much detail out. They want it quick because they're used to be in that kind of environment.
- Although Japan is being known for the technology, to be a designer they start from 12 or 14 and being trained insisting on not using any technology. So when they felt happy and fluent with their hands then they move on to using computing tool.
- In Art departments they don't necessarily have modules specific to drawing. They specify the first available modules to work on foundations and introduce software in later part of those modules.
- Learning software is a self-learning issue.
- Similar to technical Games Design department there are a lot of materials to cover in Art departments too therefore there are a lot of extra tutorials going on.
- Workshops in Art departments are less technical (software) driven than Games Design like UoG.
- The Intervention is exactly what helps because it is about the influence of the lecturer who can set a mood for the class even if it is a short time.
- Being shy about storyboarding and saying 'I can't draw' is like singing. No one say I'm singing unless they are extremely good.

- Since not everyone is extremely good in drawing they don't know what they have therefore they lack in confidence.
- It's the tutor job to be curious what s/he can actually bring out from students. Encouraging is very important by making students feel they have that talent even though they haven't and picking something good in their storyboard even if it is with stickman to boost their confidence.
- Students have to be able to trust the lecturer. If they think the lecturer is not a very good they wouldn't listen even if the lecturer encourage them and tell them they are very good.
- For a professional painter or illustrator there is a talent that one has to be born with.
- In Game making companies there are professional storyboard artist. It's a job.
- It is important to be honest that it's not going to be these students going to be doing storyboarding all the time.
- At UoG Games Design modules are tightly linked together and the training in different modules all emphasised in the others so students keep the habit.
- I think cultural differences in education play a big role.
- Before answering the issue of drawings and the students' skills in it there are lots of other external elements affecting their idea generating and how they are influenced by examples they've seen or the educational culture they've come from.

Appendix T2: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 2

| Summary of Interview with <u>Expert 2</u> on Storyboarding Assessment Criteria | |
|---|---|
| Interviewer: explain the data and show the presentation of students work samples. | |
| Expert 2's Reply | Emergent Themes |
| <p>My first impression from the final week presentation is grappling with the technology in getting their information down in a digital medium. The module I had in this last semester was "Concept and Idea Development" which is about coming up with the new ideas and getting them across in the form of concept art and revisualisation and it's kind of like this only less storyboarding. They had to digitise it as well and handed it in the .pdf format. The students were given pretty much freedom to do that. They could go for:</p> <ul style="list-style-type: none"> • Creating it entirely in the traditional medium (paper) and then they scan it, give it a brush up in Photoshop, and then hand it in in that way • Go for complete digital painting • Mock it up in 3D • Use Photoshop collage of digital photography <p>It's interesting that your students are suffering exactly the same as my students were even they were stage2 and they've had observational drawing classes. All my students struggle with the</p> | <ul style="list-style-type: none"> • nature of the course • problem |

| | |
|--|-------------------------------|
| environment. | |
| <p>Interviewer: explain about the specification of software that is supposed to help learning how to storyboard.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>I would argue that it would be a good idea to kind of focus these into two or three different areas. One would definitely be about work flow. This is what students here are really grappled with. For instance IGD06 work flow is to do well in the paper and not so much in the digital. IGD08 has tried to force everything in the paper. It is a good idea to let them select their work flow, to let them work where their strengths are whether it is through some kind of aptitude test or asking about preferences or true or false statements such as: "I found it easy to draw with pencil" and "I know how to use a flowchart" and things like that so they can work with yes and no so it would get them the idea that what their ideal workflow might be such as to draw their characters on paper and scan them in, to put their data into excel or to use something like Photoshop to do the final layout cause you have the visual data like the characters and you've got the hard data such as flowcharts kind of more linear data which is information and not necessarily particularly visual. Oh, you've got traditional art and then data and then presentation of ideas (how you use them on a slide) these are three processes of 3 areas that you can use to get your information across and then you can go and use them to make a game. And I wonder if you want to check where students feel more comfortable and they can identify where they need the most help. For IGD08 it is how to show hard data in a visual way.</p> | <p>N/A</p> |

| | |
|--|---|
| | |
| Interviewer: How to consider this possibility that students do not know their strength themselves? | |
| Expert 2's Reply | Emergent Themes |
| This should happen after intervention because that intervention shows them what their strengths are. | N/A |
| Interviewer: If this software is supposed to be used as an intervention what should it give them? | |
| Expert 2's Reply | Emergent Themes |
| <p>first you should identify what you care about and as I said it would be putting them into a sort of:</p> <ol style="list-style-type: none"> 1. Artistic representation 2. Data representation 3. Presentation or collation of that data in a clear way 4. Find ways of asking students questions or getting them to demonstrate things that will allow them to [] whether through peer marking, or through a test and get marked by a tutor or another third party <p>My students come with a sort of ability like week3 of the presentation. Although their drawing are cute but very tighten and not artistically expressive and they are given like 24 weeks of interventions in semester1 and 2. Because it happens over a long time it is kind of ingrained within the system.</p> <p>Introducing the threshold concept by Meyer and Ray Land. It is sort of when you understand it you can't go back not to understand it! The threshold concept for graphical ability and artistical ability is really a difficult one. The impression I get from the intervention is this is a very very quick dipping your</p> | <ul style="list-style-type: none"> • response • effectiveness of Art workshop |

| | |
|---|--|
| <p>toe into threshold concept and I'm not sure if that threshold has been breached by the time they get to week 11.</p> | |
| <p>Interviewer: What group of students do you have the drawing modules for?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>we have 2 courses here. We have BA in "Graphics for Games" and a BSc in "Interactive Systems and Video Games Design". For games-only the BA students do the drawing and the BSC students do the programming. We are already trying very much to split our students into creative and technical even both courses have a lot of cross overs. We make that distinction quite early so when it comes to later modules certainly with group works our students []</p> <p>None of our students need to have art background (just basic UCAS points) so some of students have literally not learned how to hold a pencil and this is how we start in week 1. For our BA students we have 3 semesters of drawing.</p> | <ul style="list-style-type: none"> • nature of the course • students background • problem • response |
| <p>Interviewer: Explained that our students don't have the opportunity to have these drawing modules and explain Expert 4's point of view about the fact that art skills can't happen over 11 weeks.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>This is very true. What this indicate is that the software would be only one part of a larger system so I would imagine that it would work as a diagnostic tool because it can't fix things, it doesn't have the time but it does have the time to diagnose and you use the software as a diagnostic tool to find major areas that really need looking at and then from that software you might want to output some kind of diary</p> | <p>N/A</p> |

| | |
|---|-------------------------------|
| <p>system or weekly reminder whether it goes in a smart phone calendar or Google calendar or anything like that sort of says with the diagnostic of this particular problem over x amount of weeks you can kind of very much like []</p> <p>I always use the analogy of playing the piano like learning to draw like learning to communicate visually is like learning a musical instrument like you have to learn to control one of the senses to understand how that sense works, you have to control the body because of course making any kind of music or any kind of art involve some kind of physical means unless you use something like mouse you need to have that <u>muscle memory</u> and you might be able to use this software to make it diagnosis which will then output a kind of prescription for a long term prescription of these are the kind of practices that you might want to do week by week and this is something that students can do on their own in directed study or you could have Wednesday afternoon session every couple of weeks or something like that or like dropping or something that students are given the opportunity to work this and something perhaps the diagnostic tool at the start might be used again to book [] at the end that they can take that test again so what you'd have is the before and then action plan and then after to see either two. I think software might be able to do well in terms of diagnosis and then a set of recommendations that students could ...</p> | |
| <p>Interviewer: Discuss about the work around strategy like photography, Photoshop, etc. just for communicating ideas.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |

This is a very interesting idea and this is what exactly happened with my “Concept and Idea Developing” modules this semester and students from all courses like Animation courses, Special Effect courses as well as BSc Games courses who were very good at programming but weak in Maya and even weaker at Photoshop could take the module without any pre-requisite. I gave them the option of using whatever means to do what I called rapid prototyping so that they could use collage, they could literally download pictures from the Internet, cut bits out, Photoshop them together to create collage. We did a session in class where I found a photo of a soldier and the photo of McDamon and the photo of Rock [] Johnson and mix them all together to create this new soldier who was entirely different person from his base parts and drew on top of it so that create a kind of monster soldier thing and it worked very well. And then let the student do it and those who did not have a sense of visual awareness did it exceptionally poorly no matter what tools we gave them. So we gave them tools we said use Photoshop, mock things in 3D, low poly box modelling, take a render, take that into Photoshop, draw on top of it, find a picture of a character from a movie, use a pose that you want your character to be, draw on top of that and these are techniques that I used in industry all the time because they are quick, you don’t have to worry about the anatomy cause you are working on top of a photograph, all these kinds of things and they worked well because I had huge amount of practice at it. These guys did not and they also lacked this fundamental visual understanding, It’s a core translation from what you see, filter it through the brain and output what’s important. And so they couldn’t benchmark their own

- visual awareness
- other techniques

| | |
|---|--|
| <p>work against other people very well. So we showed them professional work, we showed them good students work from the other Universities, from http://www.conceptart.org, we showed them lots of information and we gave them benchmarking, a sort of self-benchmarking sheet very much like in excel where you would have a set of criteria and they put how much [] they were. And we got them peer assessing as well and peer feedback but there was this fundamental understanding of what was good and what wasn't. And I'm not sure whether it's because they didn't want to be unkind to each other, they didn't want to appear unkind to themselves cause they wanted to show confidence but it did mean that in terms of what they output it was still very very poor. So I would argue that there was very little in terms of technology that we could give them that would make it easier for them because that fundamental understanding was lacking.</p> | |
| <p>Interviewer: Discuss about the first criteria list for assessment of the quality of storyboards such as perspective, shadowing and effective use of line. Ask for any other criteria.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>We got similar criteria for our "Observational Drawing" modules so we split it into:</p> <ol style="list-style-type: none"> 1. Figure drawing (human form) 2. Still life (objects) 3. Landscape (environment) | <ul style="list-style-type: none"> • criteria |
| <p>Interviewer: So you take a fine art approach.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>Yes it is a fine art approach but that's purely to break down the criteria so you can get perspective in figure drawing as much as you can get perspective in landscape and in still life. But it breaks it also handily</p> | <ul style="list-style-type: none"> • criteria |

| | |
|---|---|
| <p>down from Games' perspective into:</p> <ol style="list-style-type: none"> 1. Characters 2. Props 3. Environment <p>This is kind of 3 disciplines. So for characters we obviously have anatomy but we also have posture and pose (personality) so we are taking from the fine art and then transpose it into observational drawing. Environments will need perspective and lighting and props will need perspective and possibly surfaces or at least quality of line.</p> <p>Evaluation of IGD14</p> <p>If you think of it from software perspective if you are going to give this student a diagnostic it would be: from week 3 it comes out is: good quality of line, maybe some good idea in terms of character drawing, very poor data management. Software output would be to work on the visualisation of data. Looking at week 11 the strongest bit is data management. It is strong in terms of line so that's what's carried on and the presentation skills are also strong. IGD14 would be ideal example of diagnostic system.</p> | |
| <p>Interviewer: Is it possible to judge any effect by intervention?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>It's quite hard to tell from that one image and I don't think they had much time looking at the quality of line on week4.</p> | <p>N/A</p> |
| <p>Interviewer: So this person hasn't breach that threshold...</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>I don't think this intervention has anything to do with threshold concept. IGD14 has without a doubt grasp the threshold concept. Is this software going to</p> | <ul style="list-style-type: none"> • effectiveness of Art workshop |

replace the intervention or become a part of it? Just thinking out loud software might be a diagnosis tool that diagnosis what kind of intervention they need. Whether they need artistic intervention or data intervention or the presentation intervention. You might have an outcome that says you need all 3 interventions or just two or just one and then you can decide based on your department basis on whether you want to fund 3 interventions or... or conversely you get a student who needs no intervention and you say you don't need any interventions, well done, carry on!

In that kind of format of diagnostic that follows the MAP (Management Assessment of Proficiency). It's an American management training tool that's a diagnostic for management skills which is used all over the world. You have some managers and you have skills or don't have skills and they are mapped at the beginning. And after 1 or 2 days training at the end they give you some other diagnostic tools like beginning and then you compare and contrast your starting scores and output scores. So even though the subject matters entirely different the way that it's managed in terms of percentiles and certainly in terms of data management, how you might want to output that is this on percentile basis and in terms of MAP proficiency it's on a global percentile so you might go "oh my goodness 80% of managers are better than me!" but that's in the whole world whoever taken this test. So you can do it on a module or on e.g. students how do they compare to other students, how they compare with the module, with whole class, with the whole year, etc. If you use a percentile system for mapping these proficiencies for characters, props and environments or whether

| | |
|--|--|
| <p>you want to call it visual, data and presentation of data.</p> | |
| <p>Interviewer: Explain about the atmosphere of intervention session with background music and no talking to encourage right brain activity.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>I really agree that it had worked.</p> <p>In the software you can use the self-diagnostic element. It can give them a series of questions which would then be mapped on a 2 dimensional grid. Grid would be a good way to map characters, props and environment and maybe 3D grid to include traditional drawing, data management and effective presentation. I think you might put some other things into grid system to work better. It's just a kind of thinking out of the box! Other people might have completely different ideas how to approach this.</p> <p>Giving the students a task which would be pretty much the same task that they have now certainly at the start, learning to answer questions about themselves and map their own ability depending on some very probing questions you might have to have an example of good, ok and bad. It can show them just they can benchmark themselves in software and diagnostic system.</p> | <ul style="list-style-type: none"> • effectiveness of Art workshop |
| <p>Interviewer: Asked if the students' grappling mostly with environments is specifically due to lack of perspective.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>Environments are the only thing that there are no shortcuts and you expose your weaknesses. For example about characters you can make them cartoony or even make them bouncing balls. My students always struggle with landscape drawing.</p> | <ul style="list-style-type: none"> • effectiveness of Art workshop • art school lessons • students' |

| | |
|--|--|
| <p>This can be used in diagnostic system because if they can draw environment there is a good chance that they can draw props and characters well too.</p> <p>IT02</p> <p>My impression from week4 is that they've been given freedom to do things without being judged, without being told that they're doing wrong. This is very hard to get across. We try really hard to give our students this. We give them feedback after every single drawing. We try purely to be constructive. It's hard to do and build the confidence. The output suggestions that software might want to give students is kind of giving them a safe place to experiment e.g. it can say: "Do you need an intervention?" you would benefit from a safe environment in which to experiment rather than something like "you show the weaknesses and deficiencies in x,..." Encouragement between a form of assessment and formative feedback. NOT judging them (a definite fact to consider).</p> <p>IGD05</p> <p>Needs to write next to the pictures. I have difficulty with my 2'nd year students who write an entire essay near to their pictures. It's a universal problem.</p> | <p>psychological profiles</p> |
| <p>Interviewer: Mentioned about the challenge of learning styles and Active learning style of students.</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Themes</p> |
| <p>It's really interesting how learning styles have such a big difference and also the students' personality. One of the things I found in popular psychology reading a lot about the concept of narcissism in the younger generations. Baring in mind that not all our students are at the age of 25 but the large proportion</p> | <ul style="list-style-type: none"> • students' psychological profiles |

are and we're finding that the extent of which they are self-involved and like to look at themselves is actually increasing and the extent to which they want to communicate with others and care about others and work in teams which is very important for games is diminishing. We've got some interesting data that just emerged from our final year students. They do **Belbin test** (management psychology test in job roles: finisher, planner, team worker, etc.) and we've found the team worker role as a skill is just running down to zero. So be interesting from this software perspective how you kind of market this student, how do you get them to engage with it in a way that they feel it's goanna be meaningful to them and I'm wondering giving them a high narcissism in depth that seems to be happening in terms of students if you package it in some kind of self-diagnostic kind of way. All students are really keen to do load s and loads of Facebook mimes, they're goanna do Facebook test and they go on and on answer 100 questions about what they had for lunch and what their favourite colour is. If this software can get that same kind of buying from that kind of diagnostic so it gives them some kind of output like what is your highest percentile, are you better than your peers, how you can shout about how awesome you are, even though it's about addressing deficiencies and about losing their fears that you might find that is a way to get them engaged with it certainly on a before and after basis and for games students as well you know leader boards is what this software needs and achievements and gamification!

Gamification is a new buzz word appears in the industry all about to bring all game kind of psychology like objectives, goals and achievements

to everyday activities.

Summary

- Grappling with the technology in getting their information down in a digital medium.
- Rapid Prototyping tools and techniques that are used in industry all the time: download pictures from the Internet, cut bits out, Photoshop them together to create collage. mock things in 3D, low poly box modelling, take a render, take that into Photoshop, draw on top of it, find a picture of a character from a movie, use a pose that you want your character to be, draw on top of that.
- Other techniques: show students professional work, good students work from the other universities, works from <http://www.conceptart.org>, lots of information and gave them a sort of self-benchmarking sheet very much like in excel where you would have a set of criteria, got them peer assessing as well and peer feedback.
- Students who lacked the fundamental visual understanding of what was good and what wasn't and their brains can't translate from what they see, filter it and output what's important couldn't benchmark their own work against other people very well.
- Students who did not have a sense of visual awareness did it exceptionally poorly no matter what tools we gave them.
- Criteria for observational drawing (fine art approach but applicable to games design):
- Figure (human form)= Characters; have anatomy also have posture and pose (personality)
- Still life (objects)= Props; need perspective and possibly surfaces or at least quality of line
- Landscape (environment)= Environment; need perspective and lighting
- We got similar criteria for our observational drawing modules so we split it into 1. Figure drawing (human form), 2. Still life (objects) and 3. Landscape (environment). Yes it is a fine art approach but that's purely to break down the criteria so you can get perspective in figure drawing as much as you can get perspective in landscape and in still life. But it breaks it also handily down from Games' perspective into 1. Characters,

2. Props and 3.environment which is kind of 3 disciplines. So for characters we obviously have anatomy but we also have posture and pose (personality) so we are taking from the fine art and then transpose it into observational drawing. Environments will need perspective and lighting and props will need perspective and possibly surfaces or at least quality of line.

- All my students struggle with the environment.
- Environments are the only thing that there are no shortcuts and people expose your weaknesses.
- For characters you can make them cartoony or even make them bouncing balls.
- The intervention in UoG has really worked for most students. They've gone from essentially measuring and anything kind of tight and controlled to really loosening up and using more creative side of brain and less mathematical area of the brain. At the intervention they unlocked!
- My impression from week4 is that they've been given freedom to do things without being judged, without being told that they're doing wrong. This is very hard to get across. We try really hard to give our students this. We give them feedback after every single drawing. We try purely to be constructive. It's hard to do and build the confidence.
- Introducing the threshold concept by Meyer and Ray Land. The impression I get from the intervention is this is a very very quick dipping your toe into threshold concept and I'm not sure if that threshold has been breached by the time they get to week 11.
- Focus into two or three different areas. One would definitely be about work flow. Let them work where their strengths are whether it is through some kind of aptitude test or asking about preferences or true or false statements such as: "I found it easy to draw with pencil" and " I know how to use a flowchart" and things like that so they can work with yes and no so it would get them the idea that what their ideal workflow might be such as to draw their characters on paper and scan them in, to put their data into excel or to use something like Photoshop to do the final layout cause you have the visual data like the characters and you've got the hard data such as flowcharts kind of more linear data which is information and not necessarily particularly visual.

Suggestion for e-Learning Object

- Based on the information presented in taster sheet from week3 (samples from sketch books), week4 (drawings from the intervention) and week11 (final presentations in Powerpoint). Three areas to get your information across and then go and use them to make a game:
 1. Artistic representation(traditional art)
 2. Data representation
 3. Presentation of that data in a clear way
- Need to check where students feel more comfortable and they can identify where they need the most help.
- Need to find ways of asking students questions or getting them to demonstrate things e.g. through peer marking, or through a test and get marked by a tutor or another third party.
- The software might be a diagnosis tool and then prescribe a set of recommendations that students could use. It would be only one part of a larger system because it can't fix things.
- That kind of format of diagnostic might follow the MAP (Management Assessment of Proficiency). It's managed in terms of percentiles and certainly in terms of data management e.g. for students how do they compare to other students, how do they compare with the module, with whole class, with the whole year,... If you use a percentile system for mapping these proficiencies for characters, props and environments or whether you want to call it visual, data and presentation of data.
- Discussing IT01 (min 47): In that kind of format of diagnostic that follows the MAP (Management Assessment of Proficiency). It's an American management training tool that's a diagnostic for management skills which is used all over the world. You have some managers and you have skills or don't have skills and they are mapped at the beginning. And after 1 or 2 days training at the end they give you some other diagnostic tools like beginning and then you compare and contrast your starting scores and output scores. So even though the subject matters entirely different the way that it's managed in terms of percentiles and certainly in terms of data management, how you might want to output that is this on percentile basis and in terms of map proficiency it's on a global percentile so you might go "oh my goodness 80% of managers are better than me!" but that's in the whole world whoever taken this test. So you

can do it on a module or on e.g. It students how do they compare to other students, how do they compare with the module, with whole class, with the whole year,... If you use a percentile system for mapping these proficiencies for characters, props and environments or whether you want to call it visual, data and presentation of data [min 49 for future listen again]

- The possible sorts of diagnosis:
 - What kind of intervention they need. Whether they need artistic intervention or data intervention or the presentation intervention.
 - Find major areas that really need looking at and then it might output some kind of diary system or weekly reminder whether it goes in a smart phone calendar or google calendar says e.g. with the diagnostic of this particular problem over x amount of weeks you can kind of very much like
 - The software might have an outcome that says the student need all 3 interventions or just two or just one and then you can decide based on your department basis on whether you want to fund 3 interventions,... or conversely you get a student who needs no intervention and you say you don't need any interventions, well done, carry on!
- IGD14 as an ideal example of diagnostic system: diagnosis would be: from week 3 it comes out is: good quality of line, maybe some good idea in terms of character drawing, very poor data management. Output: you need to work on the visualisation of data. Looking at week 11 the strongest bit is data management! It is strong in terms of line so that's what's carried on and the presentation skill is also strong.
- The software can include the self-diagnostic element. It can give students a series of questions which would then be mapped on a 2 dimensional grid. Grid would be a good way to map characters, props and environment and maybe 3D grid to include Traditional drawing, Data management and effective presentation.
- My students always struggle with landscape drawing. The software can use this in it's diagnostic system because if students can draw environment there is a good chance that they can draw props and characters well too.

- The output suggestions that this software might want to give students is kind of giving them a safe place to experiment e.g. it can say: “Do you need an intervention?” you would benefit from a safe environment in which to experiment rather than something like “you show the weaknesses and deficiencies in x,…” Encouragement between a form of assessment and formative feedback. NOT judging them (a definite fact to consider).
- Giving the students a task which would be pretty much the same task that they have now certainly at the start, learning to answer questions about themselves and map their own ability depending on some very probing questions you might have to have an example of good, ok and bad you can show them just they can benchmark themselves in your software and diagnostic system.
- Learning styles and students’ personality: Big Impact.
 - Popular psychology reading : the concept of narcissism in the younger generations.
 - The extent of which they are self-involved and like to look at themselves is actually increasing and the extent to which they want to communicate with others and care about others and work in teams which is very important for games is diminishing.
 - Data that just emerge from our final year students who did Belbin test (management psychology test in job roles: finisher, planter, ...) suggests that the “team worker” role as a skill is just vanishing.
- From this software perspective:
 - How do you kind of market this student?
 - How do you get them to engage with it in a way that they feel it’s goanna be meaningful to them?
 - I’m wondering giving them a high narcissism in depth that seems to be happening in terms of students if you package it in some kind of self-diagnostic kind of way. All students are really keen to do loads of Facebook test and they go on and on answer 100 questions about what they had for lunch and what their favourite colour is. If you can get that same kind of buying from that kind of diagnostic so it gives them some kind of output like what is your highest percentile, are you better than your peers, how you can

shout about how awesome you are, even though it's about addressing deficiencies and about losing their fears that you might find that is a way to get them engaged with it certainly on a before and after basis.

- Gamification 😊😊😊: Need to gamify this software!

Appendix T3: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 3

| Summary of Interview with <u>Expert 3</u> on Storyboarding Assessment Criteria | |
|---|--|
| Interviewer: Explain the study and the issue of drawing skills and related challenges. | |
| Expert 3's Reply | Emergent Themes |
| That's the problem that we have as well. A problem in games is that people don't know the difference between playing games and making games. They struggle because essentially they aren't traditional artists. We got a weird divide as well with people who can do 3D and control and they aren't necessarily linked as well. What we do with Games Design students (BSc) are more key towards the artistic pursuits as it were they also so pretty much modelling and engineering stuff as well but there is a little bit more stress on initial design skills and concepts. What we struggle is to make students think a little bit more in the early stages because it is a BSc we teach them a lot of technical stuff, and modelling and building things because this is what they know and what we try to do is a little bit sneaking into design bits and communication skills. | <ul style="list-style-type: none"> • nature of the course • students background • problem • response |
| Interviewer: Explain that students in UoG don't have to have art background and also they just have one intervention opportunity and no time or module to get taught artistic skills. | |
| Expert 3's Reply | Emergent Themes |
| That's a problem we have as well. We have to teach what they need to know and often what | <ul style="list-style-type: none"> • nature of the course • students |

| | |
|--|---|
| <p>gets overlooked is that the early stuff communication work that they should be doing I don't necessarily think is something particularly artistic. You need to get through a process of thoughts which they're not at the moment but getting them to do that and finding time to do that is a difficult thing. We often do two modules of animation and obviously storyboarding [] for that. At the moment we recommend them resources that students have a look at and we review the storyboards in week4 as well.</p> | <p>background</p> <ul style="list-style-type: none"> • drawing skills level |
| <p>Interviewer: By resources do you mean books or software?</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>They need to do storyboarding in Photoshop because that's what they used to using more than anything else. I give them frames and all sections for discussion of the shots and what the actions occurring. We don't necessarily go into a great deal of depth with it. Our animation module is joint with film so some students should technically be very good but Games students don't and really struggle.</p> | <ul style="list-style-type: none"> • response |
| <p>Interviewer: Explain about the presentation I prepared from student work samples</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>What I recognise is that a lot of students have a fear of drawing at the beginning more than anything else and what I struggle with as well as the quality of hand ins we get are very scrappy and they consider storyboarding very sort of just sufficient for them and the quality isn't there. What I suggest them to do is to actually do storyboards in 3DStudio. Because in animation we teach them 3DStudioMax animation and use biped? What do you do?</p> | <ul style="list-style-type: none"> • problem • response • confidence |

| | |
|--|--|
| <p>This is a kind of weird divide. The main thing about the character animation module is that we got character that's goanna do the whole set of things that need to be storyboarded. If you can't draw that's one problem already but if you go into 3DStudioMax, make a biped and pose it within the situation you wanted the story to flow through. Biped is like a skeleton structure that you animate. It's basically a person. It's the basis of what we call skinning you have like a game character. You move the skeleton and it moves the mesh (the body) in animation.</p> | |
| <p>Interviewer: So is this the thing you use to overcome the problem with the characters.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>It's one of things that I suggest to them and most of them don't take up. If they think a lot like that they can pose their character, they can setup the cameras and render out views and within that you're dealing more with compositional issues as oppose to the problems like just drawing.</p> | <ul style="list-style-type: none"> • response |
| <p>Interviewer: So can I say that you tackle the problem by working round it.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>In some ways. The main thing about storyboards more than anything else is you're telling the story but it is largely a compositional problem.</p> | <ul style="list-style-type: none"> • visual awareness |
| <p>Interviewer: Explain about the findings of this study so far and the idea of using other techniques such as using 'Tracing tool' in Flash rather than drawing because it's impossible to get this skill over this short time.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>You can break down the problem into several different areas I think. E.g. the hand-eye coordination is probably the easiest thing to get over it in some ways. If you have a look at some movies and compare it with something like Dr.</p> | <ul style="list-style-type: none"> • drawing skills level • visual awareness |

| | |
|--|--|
| <p>Who which is done much faster and to a different sort of quality standard what you quite often need is not much amount of drawing you just need to include the necessary elements and their relationship in each scene e.g. a hand in front of a face should be bigger, etc. It means that the person drawing the storyboard is thinking about the right things. But the quality of storyboards doesn't need to be exceptionally high to put that across.</p> | |
| <p>Interviewer: How do you communicate these to your students and how do they get it? Do they get it?</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>Do they get it☺? No, not really. It's definitely a real problem. You mentioned about the tracing tool in Flash. Actually I have a huge rant over this with my students in animation design class because we try to make them think about a human body which is a complex structure and it needs to be presented cause it needs a character. I know the storyboarding is about the communication of ideas but you talk about because they are weak you allow them to trace character in Photoshop or Flash but the compositional element in photographs are not always the best option. I always tell my student that reality will disappoint you. I suggest them to use simple shapes to represent characters as a simple way instead of using photos and software.</p> <p>Example of a cowboy from the "Framed Ink: drawing and composition for visual storyteller" by Marcos Mateu-Mestre (Feb 2011) and stress on framing use was mentioned.</p> | <ul style="list-style-type: none"> • other techniques • students' psychological profiles |

Interviewer: Discuss about the first criteria list for assessment of the quality of storyboards such as perspective, shadowing and effective use of line. Ask for any other criteria. Also the issue of using software to help learning how to do storyboarding.

| Expert 3's Reply | Emergent Themes |
|--|--|
| <p>With regards to storyboarding things like perspective are very important in some ways but quite often you goanna end up with environment and situation it's very simple perspective. It is more like does this object overlap with the other one and therefore it's in front and that's the kind of thing: is it bigger? And that's the kind of simple perspective that you are dealing with rather than a mechanical sort of architectural rendering.</p> <p>IGD06</p> <p>You definitely manage to get clarity. To be fair this is the kind of thing we would be given largely for as a final hand ins. Some people manage to improve on what they already have. In week 4 it is kind of a test. They draw the storyboard see what we think about it and we'll talk about the action and kind of thing about what you need to do to make the animation work but the focus isn't necessarily on drawing. Digital or on paper doesn't matter they should really make it clear.</p> <p>IT01</p> <p>Simple. There is not anything wrong with that but at the core of it you need to consider the complicate stuff so you can refine to something simpler.</p> <p>In regard to the issue of students' struggles toward drawing, we have the same problem here and I suggest different ways of solving that. A lot</p> | <ul style="list-style-type: none"> • criteria • students' psychological profiles |

of times the kind of problems that we have are not necessarily related to storyboarding. If they're building an environment we need to know they can concept that environment in much the same way that you need a frame to represent that world we need them to come up with plan for their environment and they struggle with that because they can't draw a full perspective drawing but likewise there is nothing to stop them using like effective drawing package where they got much more control over drawing and shapes and doing top-down views and that kind of thing. These packages can help especially if you don't have control over your hand. I suggest them to use vector based software to draw like Fireworks.

The main issues in struggling in drawing are breaking down the elements, think compositionally and using the value and contrast.

I've worked in the "New Media" field for a few years and I know a lot of designers both graphic and web designers and most of them can't draw. So they create a visual end result and that's the skill more to do with piecing together things like that (evaluating IGD02). They can't draw at all so they can't communicate ideas visually necessarily but they come and talk to you and talk about what they want and how it might be betrayed but also when they do things like web design they use a lot of stock photography and that kind of thing and they look through to find what they're looking for. They have it in their mind but they have to find it in another way.

Talking about students' diversity of background

| | |
|--|--|
| <p>and personality, we don't have that many artistic students and obviously I'm teaching an art class in some ways. Some of them with artistic background are very resistant to learn anything new because they don't want to change the way they are. They see it as integral to them. They don't want to learn something new. I know some of my students are programmers with no artistic background but they are doing my module as an extra however because I've taught them the whole design process with the character they are willing to follow it. I assume because they used to be programmers and they used to follow some sort of process with regard to their programming when I introduced that same process to the art students they're very resistant to it because it's almost like I am telling them how to be creative and they went "No I know how to draw a character". For simple problems like breaking down compositionally or a frame of storyboard, thinking about the value contrast and things like this something they haven't been taught before because they haven't even considered it before because they are art students, if it is something new and doesn't work in their framework []</p> | |
| <p>Interviewer: Explain about students experience in GCSE or A-Level art which was very open ended and involved no structure and how they appreciated the way they are being taught in University.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Themes</p> |
| <p>Some of things that we teach these guys are not necessarily artistic. At the end they need to be able to communicate ideas and ultimately we want to make them ready to find a job in games design industry. For a character artist you probably have to be very skilled but for</p> | <ul style="list-style-type: none"> • nature of the course • teamwork |

environment artist you have to plan more. Some of the things that these guys are doing with their mind maps and thinking about layout are more integral or more ultimate in that respect. My hope is that at least they can communicate their ideas because at least they can function within a team.

Summary

- The problem addressed by this research exists in this University too.
- A problem in games is that people don't know the difference between playing games and making games.
- Students struggle because essentially they aren't traditional artists.
- Because it is a BSc they teach students a lot of technical stuff, and modelling and building things and they try to do a little bit sneaking into design bits and communication skills.
- Students do not need to have Art background in this University too which is problematic.
- Early communication and getting through a process of thoughts which is not necessarily something particularly artistic is overlooked and lacked.
- It's hard to get time to do this.
- A lot of students have a fear of drawing at the beginning more than anything else.

Problem

- The quality of hand ins we get are very scrappy because students consider storyboarding just sufficient for them.

Solution

- To do storyboards in 3DStudio, make a biped and pose it within the situation they wanted the story to flow through.
- The main problem is compositional issues as oppose to the problems like just drawing.
- Students need to think about value and contrast.

Solutions to the lack of drawing skills:

- Breaking down the problem into several different areas such as hand-eye coordination
- Include the necessary elements and their relationship in each scene e.g. a hand in front of a face should be bigger, etc. which means the person

drawing the storyboard is thinking about the right things.

- Quality of storyboards doesn't need to be exceptionally high.
- Communicating these ideas with students is definitely a problem.
- 'Tracing' tool in Flash is not used because the compositional elements in photographs are not always the best option to represent the complex structure of human body.
- Students are encouraged to use simple shapes to represent characters as a simple way instead of using photos and software.
- A needed skill in storyboarding is perspective but often very simple kind of perspective like if object1 overlap with the object2 it's in front rather than a mechanical architectural rendering.
- Some students with artistic background are very resistant to learn anything new because they don't want to change the way they are because it's almost like I am telling them how to be creative.
- In contrast some programmers with no artistic background are willing to follow teaching material on design process with the character maybe because they used to follow some sort of process with regard to their programming.
- The goal of the course is to make students to find a job in games design industry.
- Character artists have to be very skilled but environment artists have to plan more.
- At Minimum students need to be able to communicate their ideas so they can function within a team.

Appendix T4: Summary of Interview Transcription with Experts on Storyboarding Assessment Criteria – Expert 7 and Expert 8

| Summary of Interview with <u>Expert 7</u> and <u>Expert 8</u> on Storyboarding Assessment Criteria | |
|---|--|
| Interviewer: Explain the story behind the research and what's been done so far. | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7: ask if the students have portfolio interview.</p> <p>Expert 8: ask about the requirement to attend the course.</p> <p>Expert 8: You find that most Universities don't have this problem when they BA because the whole differentiation between BA and BSc is that BSc students are aware that it is a technical course.</p> <p>Expert 7: I think the problem is that they are doing both of them which is a little bit tricky.</p> | <ul style="list-style-type: none"> • nature of the course • students background • problem |
| Interviewer: The main problem exists in the industry in which the Art and Programming departments are separate and there are problems in communicating or understanding each other. Maybe the technical Universities like ours... | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7: try to bridge the gap.</p> <p>Expert 8: but in the industry they have different departments. Do they overlap? I don't think the creative side and the technical side overlap</p> | N/A |

| | |
|--|--|
| anyway. | |
| <p>Interviewer: My understanding is that this can't live long and they can't be much separate and in many points they have to overlap and communicate ideas but this is the lacking point even in industry and many people address it.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: I can see if an animator or designer is trying to visualise their concept and idea across they would draw it out, create it and then pass it onto the technical team to make it happen but I'm not sure why you would have the technical team wanting to do the opposite (doing the art bit).</p> <p>Expert 7: Most of the concept and art come out of the art director first.</p> | N/A |
| <p>Interviewer:</p> <ul style="list-style-type: none"> • Mention the need for artist to be aware of technical limitations and if artists know they would have developed their ideas in different ways and the issue is true vice versa. • Mention the work around techniques that they use in industry. • Mention the issue of visual awareness and understanding. <p>Explain about the intervention session which is a workshop to make awareness on the issue of storyboarding and the fact that in technical departments there is not enough resources or time to invest on teaching drawing.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7: If you can't draw perspective you can do it in 3D and use that as rough sample that you could draw on top of it.</p> | <ul style="list-style-type: none"> • other techniques • art school lessons |
| <p>Interviewer: ask if they do anything specific about storyboarding.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7: we have a module. Storyboarding</p> | <ul style="list-style-type: none"> • art school lessons |

| | |
|--|--|
| starts in first year actually. They have to learn how to do storyboard and animatic for 2D animation. | |
| Interviewer: do you expect them to know it already? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 7: No we don't. We teach them how to storyboard use proper tablets. | N/A |
| Interviewer: do you mind to share your experiences? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 7: the one thing students don't understand is aspect/ratio because we draw a portrait format, we draw a square. What we tend to make them understand is what it is for in the first place, is it for TV? Is it for wide screen? So you have to establish that first. What format is it goanna be. For wide screen your aspect ratio would be 16*9 and would be longer, so you have more information each side. | <ul style="list-style-type: none"> • art school lessons |
| Interviewer: does it matter in the stage of storyboarding? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 7: it does in a way cause your storyboard is the camera, when you start framing where you're goanna place this camera, you see. The first year they don't have experience with the use of cameras, use of filming or anything. They're fairly fresh to this. So we tell them you need to look into if you're goanna use it for TV which is broadcast quality, in HD and obviously size would be smaller. It's 4*3. If it's 4*3 then their goanna loose the extra information on the side compare to wide screen and that's goanna affect how the single look like... | N/A |

| | |
|---|--|
| | |
| Interviewer: you said the storyboard is the camera. Isn't it for the final stages? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 8: They have various versions of it. So for example they would tweak it as the project goes on so the first storyboard is not necessarily final storyboard (but the details are important) as the storyboard you should see enough information for viewer to know what the camera is like. Whether the camera panning into that shot? Whether zooming in, zooming out, if there is some action, if there is detail on the bottom (somebody eating for example), what's happening in the story should be parade in storyboard. | <ul style="list-style-type: none"> • art school lessons |
| Interviewer: so it is not only sketching things in a frame that communicate just the idea. | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 8+ Expert 7: No it's more detail. Expert 7: They're goanna tell us each frame how it's goanna tell as well and each frame is a shot as well or couple of frames could be a shot. It is a film making storyboarding. Gaming is much more interactive. | <ul style="list-style-type: none"> • art school lessons |
| Interviewer: mention that there is sensitivity into screen size in Games Design storyboarding too because they could be for wide screen or mobile phone. But there is a struggle in communicating the ideas for our students. | |
| Expert 7's and Expert 8's Reply | Emergent Themes |

| | |
|--|--|
| <p>Expert 7: I think again platform is important. Some of our students work on games for iPhone in final year. Storyboard must be used for the introduction of the game. Sometimes you have an intro like cut scenes but for the game itself what our game design students do they put kind of diagrams on what kind of action sequence they will have.</p> <p>Expert 8: In the first year when the students join the course we show them lots of examples of storyboards. Ones which work, ones which don't work and we get them to have a go trial error storyboard and then what they've got to do a lot of the time is that we use that as a method to explain their ideas so if that's not coming across clearly we have critics every week so they can say look this is to be added, this isn't clear, narrative isn't clear. This is within the whole group: tutor, the rest of students and one student present the idea in front of the screen p[resent it in front of the whole group and get feedback from other students in the course as well as the tutor and they do this at the beginning of the course for the first 6 weeks.</p> | <ul style="list-style-type: none"> • art school lessons |
| <p>Interviewer: ask if they try to be only constructive or they are critical too.</p> | |
| <p>Expert 7's and Expert 8's Reply</p> | <p>Emergent Themes</p> |
| <p>Expert 8: the students in this course are critical on themselves. That's why I asked about the entry requirements of the course in the University of Gloucestershire cause the students that we get on the course they have to have a 'Distinction Merits' so they are already coming from a high quality college or institute where they've done well initially so they are striving for the better. They are generally quite reflective of</p> | <ul style="list-style-type: none"> • art school lessons |

| | |
|--|--|
| <p>their own work.</p> <p>Expert 7: our criticism is not just being critical. We are very constructive. We tell them what didn't work and what they then could do to improve it. So that's the kind of feedback we give to students. It is successful because we start from week one.</p> <p>Expert 8: when they get to the final year and asked to storyboard for animation or games or wide screen they are aware by that stage and part of their research is to make sure that they are communicative effectively and this is the differentiation between student coming from art background and the students coming from a technical background. We expect the students coming from Art to be able to draw at the start.</p> | |
| <p>Interviewer: Do you use software?</p> | |
| <p>Expert 7's and Expert 8's Reply</p> | <p>Emergent Themes</p> |
| <p>Expert 7: yes we do. We teach Maya over here and After Effect. Some of our students can't draw but the interesting bit is that (showing an example) he's technically very good so he could do then establish his ideas onto a piece of paper rather than spend a lot of time behind the computer. I think it's just gaining confidence. Most of students can draw of course but the one who can't draw we try to help them by giving them confidence to draw. It's ok that they make mistakes. I think that's why it's important thing we need to tell them that it's ok to make mistakes now rather than make mistakes when they graduate or when go to working because you can't make mistakes by then.</p> | <ul style="list-style-type: none"> • confidence |

| | |
|---|--|
| Interviewer: Do you expect your students to transfer their drawing into software at any stage? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 7: yes we do but they have to draw first. | <ul style="list-style-type: none"> • other techniques |
| Interviewer: Is it scanning their drawing into software or draw it digitally? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 8: both. They can scan their work in and they may want to add colour to it. They can use the pen and actually create it on computer so they can use both but we don't let them go onto computer until they've gone through kind of a few modules. It's just purely drawing by hand. So it's not to encourage them to use computer as a tool until they enhance their own skills. What is different from the challenges you are facing is that our students already come from art background and they are expected to know drawing and there are exceptions who can't draw and as it was said we encourage them to carry on drawing, keep up the habit, do some observation. Literally the first three months is pure drawing. | <ul style="list-style-type: none"> • other techniques • art school lessons |
| Interviewer: Do you have specific modules for drawing? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| Expert 8: yes. It's called "Illusion of Light", the first module that they do so and in that module they're actually creating short animations, using animation paper so they have to draw it out so they could be using up to 250 sheets of paper. We have also life drawing module as well. | N/A |
| Interviewer: explain how students without drawing skills in our department like work around techniques by using software like 'Tracing tool' in Flash. | |

| Expert 7's and Expert 8's Reply | Emergent Themes |
|--|--|
| <p>Expert 7: I'll show you some examples of our students. What we encourage our students to do is to do a mood board. The mood board is before storyboard starts. It's when they start collecting images that kind of explain the intention and just the concept of it so it could be any existing references.</p> <p>Expert 8: basically with the mood board you should be able to guess the theme, ambient, style of your animation so it's kind of the first step to visualise your idea. So when you ask how you teach storyboarding there are a couple of steps and processes before you get to the storyboarding stage which the first would be to come up with the idea and concept (purely idea generating, whatever comes to the head) and initial step is to generate mind maps so for example if the project is about nature what's the first thing coming up to your mind is trees so you start expanding what kind of ideas you can think of.</p> | <ul style="list-style-type: none"> • art school lessons |
| <p>Interviewer: many of our students who come from scientific backgrounds express their ideas in the form of mind maps.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: our students go from mind maps to mood boards and then from the mood board they start come to visualisation so drawing and sketches of certain scenes perhaps or certain ideas, how to create some effect, how to create some movements, videoing themselves and recording how a certain movement happens.</p> | <ul style="list-style-type: none"> • art school lessons |
| <p>Interviewer: Do you ask them to visualise a particular story or the story is selected by students themselves?</p> | |

| Expert 7's and Expert 8's Reply | Emergent Themes |
|---|--|
| <p>Expert 7: the samples shown are the stories selected by students themselves. They develop the story. They need to work with 3 elements. First is the sound. Based on a random selected sound clips track they develop the theme from the sound track e.g. a scandal, a love story, etc. Then based on the theme they set the storyline to it. They have to tell the story. Even in a game it's all about story telling.</p> | <p>N/A</p> |
| <p>Interviewer: mention that the sound and narrative is excluded from the focus of this research.</p> <p>Interviewer: asked about the issue of decreasing quality in digital drawing compare to hand draw on paper?</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: yeah.</p> <p>Expert 7: there maybe. I think it's based on what they know about what software can do. I think that's very limitation. It's easier to draw on paper. For us it's easier to draw on paper but it is double work to do that in Flash and in 3D. They probably do ten times more to achieve that. So I think the limitation is there and time is the factor and how much we understand the software to use it effectively.</p> <p>Expert 8: drawing directly on computer can be easier (some people say). Some institutes use computer from the beginning of the course to say this is part of your drawing tools to do draw and create away whereas other institutes purposely not introduce computer until later on the course because they want students to be able to draw without using the computer at all. It</p> | <ul style="list-style-type: none"> • other techniques |

| | |
|---|--|
| <p>can help you but it can also be limiting because only so many brushes you've got, so many colours and you're using the limitations of screen size to work with that whereas paper, it's naked to the eye. It's how far you want to express yourself. You can use larger paper smaller paper variety of tools, mark makings, twigs, paints. That's encouraged in art schools. I think this is where you have the two differentiations. We've had students used to use computer program on computer then to make them work freely you have to get away from computer.</p> | |
| <p>Interviewer: Explain how the expert with art background mentioned using iped in 3DSMax and the vector-based drawing which gives you the ability to work more freely with the shapes.</p> | |
| <p>Expert 7's and Expert 8's Reply</p> | <p>Emergent Themes</p> |
| <p>Expert 7: In my experience no. the more you do vector drawing; you need to know how to draw first cause you need to know where to put the points. If you've got the basis understanding how to start from a shape, start drawing from there then you'll have a good end result.</p> <p>Expert 8: cause it's still you who make the mark whether on computer or on paper. So the computer may fix something. Maybe make the lines smoother or maybe put the basic shapes in there but to create a composition you need to have that natural skill.</p> <p>Expert 8: <u>showing some examples:</u> each student has a RVJ (Reflective Visual Journal) on a blog. So any kind of digital moving animation storyboards they put on their blog with feedback or annotations on them any sketches,</p> | <ul style="list-style-type: none"> • visual awareness • other techniques |

| | |
|---|---|
| <p>motivations, etc. It's like a little journey.</p> <p>Expert 8: suggested that what The researcher needs is to compare BSc and BA courses.</p> | |
| <p>Interviewer: They are not comparable. Because what is done in Art schools and Technical schools are different and even within art schools the students are different and not all of them have exceptional students with 'Distinction Merits'.</p> <p>Emphasise on the disciplinary nature of studies in technical Universities and the problems of communication between art and programming sections in Games Design industry.</p> | |
| <p>Expert 7's and Expert 8's Reply</p> | <p>Emergent Themes</p> |
| <p>Expert 8: Not all of our students have 'Distinction Merits'. There are some who struggle. But we portfolio interview them at the beginning.</p> <p>Expert 7: that's why we do animation for games. We don't do Games Design in here. We do create assets for games. And obviously we can't program even if we could, it's very basic. What we did last year was working with department of Engineering and they got a Game Design course over there so in the second year our students will work with the programmers to develop a prototype for game. This experiment is done and finished now. The communication was interesting. Just like the real world they don't understand each other. So I think that's a good thing especially now that they've started the experience they know the kind of problems that programmers face and the programmers know what the artists could be. The University aim is the cross faculty collaboration.</p> | <ul style="list-style-type: none"> • nature of the course • students background • teamwork |

Interviewer: In the essence I think this is what's going on in our department but for each student individually. Because each student as a person is supposed to create a game but the challenge is their own capabilities. What many of students I've talked to hope or refer to is that they'll eventually work in a team and in a team there is someone capable of drawing so it doesn't matter if they can't.

| Expert 7's and Expert 8's Reply | Emergent Themes |
|--|--|
| <p>Expert 7: They need to collaborate. This is not something you can teach. This is something that you need to experience and work with. We have a Global Game Making event (Global Game Jam) that you have to make a game in 2 days. They've got two artists, two or one programmer or something like that. Feedback from that is they actually gain confidence. It is every year in January.</p> <p>Expert 8: Sooner rather than later students should start drawing instead of spending much time on mind maps and plans and detailed descriptions and should have some visuals in order to be able to test the ideas out. Even with art background there are students who still do a lot of written and descriptive works.</p> <p>Expert 8: We ask our students to justify their choice of colour, etc. but not necessarily to add personality into their works.</p> <p>Expert 8: our students here have modules which complement these creative modules for example drawing: 'Life Drawing' will complement what they're doing in 'Illusion of Light' or 'Character Design' so they do get training as individual modules two years over the degree</p> | <ul style="list-style-type: none"> • nature of the course • art school lessons |

| | |
|---|--|
| <p>course so they will learn right from the beginning how to draw a box, sphere, how to add shading, colour, perspective. They move from a box to irregular objects, maybe moving objects, to characters, to life drawing. So they are taught to drawing from day one.</p> <p>Expert 7: second year is more into visualisation where they have to do micro studies for instance one might be interested in landscaping so they could do the landscape then study the effect of the atmosphere on the landscape e.g. if it's dark, if it's hazy, if it's rainy or they could study materials as well (textures) so it could help them by understanding these to create assets for the games.</p> <p>Expert 8: In the first few weeks we get the students to observe. E.g. observe people drinking tea, get the idea of timings, actions, the perspective, how it looks. We have an student with very logical mind who write down every detail and mind maps and then translate his ideas into different actions, different expressions and then obviously into animation (show the sample of his work which is a reflection of his own work: how he did, how he could improve on).</p> | |
| <p>Interviewer: ask if as artists they believe that characters are easier to draw than landscapes.</p> | |
| <p>Expert 7's and Expert 8's Reply</p> | <p>Emergent Themes</p> |
| <p>Expert 7+ Expert 8: It's the way round. Characters are harder to hide the drawing deficiencies. In characters the face is probably the most complex part.</p> | <ul style="list-style-type: none"> • criteria |

| | |
|---|--|
| | |
| <p>Interviewer: some believe that people can make characters cartoonish or make a ball look like a character and therefore hide the deficiencies in their drawing skills but it's not possible to do such for environments.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7+ Expert 8: that's interesting. We haven't thought about this. I think it's easier to tell whether a person can draw just by looking at initial sketches. For me it's when I observe them and see how confident they are with the drawings. I can look at the value of their lines. The value means the tone and quality.</p> | <ul style="list-style-type: none"> • students' psychological profiles |
| <p>Interviewer: do you think if there is method to deal with this issue of confidence?</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: I think anybody could draw with practice and the other way as well. If you don't practice you won't be able to draw.</p> <p>Expert 7: probably it's the way you've been shown how to look at things. People who can't draw don't know where to start.</p> <p>Expert 8: the way is to teach them drawing out techniques by giving them knowledge to show distance, foreground/background and mark making techniques. It doesn't have to be major ones. It could be little tips.</p> <p>Expert 7: what I show the students for example when they say they can't draw character I show them method where what we need to do is just to move the eye line up and down, they actually could design character by simple methods like that.</p> | <ul style="list-style-type: none"> • other techniques • criteria • students' psychological profiles |

| | |
|---|--|
| | |
| <p>Interviewer: mention the issue that students seem to be influenced so much by the games they've played or seen already that it makes the impression that they might not have ideas of their own!</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: We see some familiar things as well. Scenes are familiar we've seen before. A lot of students copy.</p> <p>Expert 7: comfort zone is there. They're not willing to make mistakes.</p> | <ul style="list-style-type: none"> students' psychological profiles |
| <p>Interviewer: it seems that for whatever story they like to use the scenes and characters which are familiar and fit the story in.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 7: we try to discourage that by using sketchbook and RVJs</p> <p>Expert 8: By these tools even if the result looks familiar they can show the process by saying they've started with this and then developed it with that, etc.</p> <p>Expert 7: The assessment is not just look at the final work we look at the whole process.</p> | <ul style="list-style-type: none"> students' psychological profiles |
| <p>Interviewer: ask if they wanted to do the intervention session and they had software alongside too what they would expect the software to deliver.</p> | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: God. That's so tough. Because we see it from the design side.</p> <p>Expert 7: Because the software is just a tool. This is the thing if you can't draw the tool is basically quite useless.</p> | N/A |

| | |
|--|---|
| | |
| Interviewer: what would be tips for helping non-drawers be? | |
| Expert 7's and Expert 8's Reply | Emergent Themes |
| <p>Expert 8: I think prompts would really help. Prompt the students to look at certain areas for example colour is one of those elements because you could design for a younger age group or older age group so introducing colour pallets for different kinds of games would be good.</p> <p>Expert 7: or maybe things looking at shapes actually. Basic shapes so they can start designing characters on top of shapes. Another thing is silhouettes. A lot of game designers use silhouettes to design characters as well.</p> <p>Expert 8: for example some of the characters that students created with drawing and then translated that digitally lots of the information have been lost purely just because of silhouette. The design, the colour, the layout are all related to the age group you are making games for so the first thing to ask is who is it for?</p> <p>Expert 8: the students going to technical Universities who are skilful in drawing are much more advantageous compare to those who have to learn drawing alongside other things.</p> <p>Expert 7+ Expert 8: For those who can't draw they can take picture and work on it as the quicker way. But the idea of storyboarding is not about how pretty they are. It might be using stick figures just to show what they mean.</p> | <ul style="list-style-type: none"> • students background • drawing skills level • other techniques • art school lessons |
| Summary | |
| <ul style="list-style-type: none"> • Students who cannot draw perspective, they can do it in 3D and use | |

that as rough sample that they could draw on top of it.

- In Art schools they have Storyboarding module and learn how to do storyboard and animatic for 2D animation.
- Aspect/ratio the one issue to be addressed in Art schools to understand what storyboarding is for in the first place, is it for TV? Is it for wide screen?
- The storyboard is the camera.
- In storyboard there should be enough information for viewer to know what the camera is like. Whether the camera panning into that shot? Whether zooming in, zooming out, if there is some action, if there is detail on the bottom (somebody eating for example), what's happening in the story should be parade in storyboard.
- It is a film making storyboarding. Gaming is much more interactive.

Techniques to teach storyboarding in Art schools:

- Show students lots of examples of storyboards. Ones which work, ones which don't work.
- Get them to have a go trial error storyboard as a method to explain their ideas and have critics within the whole group: tutor, the rest of students and one student present the idea to get feedback from other students in as well as the tutor.
- The constructive criticism is successful because it starts from week one.
- For students who can't draw tutors should help them by giving them confidence to draw.
- It's important to tell them that it's ok to make mistakes now rather than make mistakes when they graduate or when go to working because they can't make mistakes by then.
- Students can use software but they have to draw first.
- Students can both scan their drawing into software or draw it digitally but they are not allowed go onto computer until they've gone through a few modules. It's just purely drawing by hand.

Techniques to storyboarding:

- Mind maps - purely idea generating, whatever comes to the head.
- Mood board - visualising ideas by collecting images that explain the intention and the concept; drawing and sketches of certain scenes perhaps or certain ideas; create some effect; create some

movements by videoing themselves and recording how a certain movement happens.

- With the mood board one should be able to guess the theme, ambient, style of the animation.
- Story development- based on a random selected sound clips track students develop the theme from the sound track e.g. a scandal, a love story, etc. Then based on the theme they set the storyline to it. They have to tell the story.
- Even in a game it's all about story telling.
- Each student has a Reflective Visual Journal (RVJ) on a blog. So any kind of digital moving animation storyboards they put on their blog with feedback or annotations on them any sketches, motivations, etc. It's like a little journey.
- It's easier to draw on paper.
- Using software to draw is very limiting and is a double work to do that in Flash and in 3D.
- Time and how much one understands the software to use it effectively are the factor.
- To work freely you have to get away from computer.
- Vector-based drawing software cannot give the ability to work more freely with the shapes because one needs to know how to draw first to know where to put the points.
- Using software may help make the lines smoother or maybe put the basic shapes in there but to create a composition one needs to have that natural skill.
- This course at Art school is animation for games. They don't do Games Design. They create assets for games.
- They can't program even if we could, it's very basic.
- In 2nd year their students work with department of Engineering where they got a Game Design course and the students work with the programmers to develop a prototype for game.
- The communication was interesting. Just like the real world they don't understand each other.
- After this experience they know the kind of problems that programmers face and the programmers know what the artists could be.
- Collaboration cannot be taught. It should be experienced.

- Students in Art schools have modules which complement these creative modules for example drawing: 'Life Drawing' will complement what they're doing in 'Illusion of Light' or 'Character Design' so they do get training as individual modules two years over the degree course so they will learn right from the beginning how to draw a box, sphere, how to add shading, colour, perspective. They move from a box to irregular objects, maybe moving objects, to characters, to life drawing. So they are taught to drawing from day one.
- Second year is more into visualisation where they have to do micro studies for instance one might be interested in landscaping so they could do the landscape then study the effect of the atmosphere on the landscape e.g. if it's dark, if it's hazy, if it's rainy or they could study materials as well (textures) so it could help them by understanding these to create assets for the games.
- In the first few weeks we get the students to observe. E.g. observe people drinking tea, get the idea of timings, actions, the perspective, how it looks.
- Characters are harder to hide the drawing deficiencies.
- In characters the face is probably the most complex part.
- Just by looking at initial sketches one can tell whether a person can draw by observing them and see how confident they are with the drawings.
- Anybody could draw with practice and the other way as well. Without practice one won't be able to draw.
- People who can't draw don't know where to start.
- The way is to teach them drawing out techniques by giving them knowledge to show distance, foreground/background and mark making techniques. It doesn't have to be major ones. It could be little tips.
- The reason that a lot of students copy is comfort zone. They're not willing to make mistakes.
- Techniques to discourage copying are by using sketchbook and RVJs.
- By using these tools even if the result looks familiar students can show the process.
- The assessment should be based on the process not just the final work.

For those who cannot draw:

- The students going to technical Universities who are skilful in drawing are much more advantageous compare to those who have to learn drawing alongside other things.
- Use basic shapes to start designing characters on top of shapes.
- Another thing is silhouettes. A lot of game designers use silhouettes to design characters as well.
- They can also take picture and work on it as the quicker way.
- The idea of storyboarding is not about how pretty they are. It might be using stick figures just to show what they mean.

Appendix T5: Summary of Interview Transcription with Experts – Expert 6

| Summary of Interview with <u>Expert 6</u> | |
|--|---|
| Background Experience | |
| Expert 6's Reply | Emergent Theme |
| I was the course leader which is just dissolved now to various sections with creative media and sort of different programs. We had Games designers, web designers, and people coming from different drawing background but because I think drawing is so important then I would get them drawing no matter what the quality of drawing, it's the matter of getting a short hand that really works to translate your ideas so it fits perfectly with what you're doing. | <ul style="list-style-type: none"> • art school lessons |
| Interviewer: Explain the story behind this research and explain how it was addressed by inviting an artist for intervention. | |
| Expert 6's Reply | Emergent Theme |
| If they can't draw they can find shorthand to be able to express their ideas. I think you can be taught drawing on some level when you can't be taught to be really artistic. That's different side of it, But to talk about illustrating ideas for just a two hour intervention at most you can talk about drawing storyboards, getting sequentially together that'll help them develop ideas and thinking about drawing in 3D for characters which they goanna get real feeling of space cause they're goanna be probably designing in 3D. They should be thinking even in the drawing stage of light and shade and character development. | <ul style="list-style-type: none"> • effectiveness of Art workshop • other techniques • art school lessons |
| Interviewer: Show the taster sheet of work samples of 2010-11. | |
| Expert 6's Reply | Emergent Theme |

| | |
|---|---|
| <p>Agreed that students' have not improved drawing from week 3 to final and they have scanned their sketched storyboard.</p> <p>If these sketches are going to be in a game they need structure because if you are working with other people which you will be in teams this needs to translate your thought over and across the board and everyone needs to understand your shorthand.</p> <p>IGD04 has obviously developed nicely. A lot of samples have not really taken that leap from there to there but that's a massive leap. That's got the quality you need to get that shape and the feel of it. Some of the samples the finished product is just as roughly drawn as the [] whereas this one is become stylised from this quite interesting character you see that it picked out the shape really necessary to make that really workable character.</p> <p>There is a quite a workable drawing on IGD15 with a lot of detail of what a character should look like and then and then a 3D representation of it which [] the elements that's used. The initial sketch is more characterful but that's the trouble with 3D. In 3D rendering it's got to be absolutely brilliant to work. The 3D animation for game it's so easy to get it look [media awkward] whereas with drawing it's always goanna have special feel.</p> | <ul style="list-style-type: none"> • effectiveness of Art workshop • teamwork |
| <p>Interviewer: Brainstorm on what is needed to be transferred to students at Art intervention.</p> | |
| <p>Expert 6's Reply</p> | <p>Emergent Theme</p> |
| <ul style="list-style-type: none"> • Think about characters; Think about interaction with characters; Also think about storyboard, think about sequentially | <ul style="list-style-type: none"> • other techniques • art school lessons |

of animation.

- Games should have a point, it should have a narrative.
- A lot of games intros have got the whole animation section which really sets the game up
- It's the matter of making some shorthand just for them to know what's going on. Make sure to give each frame a number. You can give it to premier or any other editing program and make a film with it and then develop an animation with it.
- 2D to 3D characters: by casting a shadow with the side of the pencil a 2D image can get a 3D element.
- Introducing the idea of using software and photographs to show this and using tracing - There is nothing cheaty about tracing. Animation is all about tracing the image and change it slightly. Don't worry about tracing if you are not confident about your lines.
- Think about software AND drawing and then they work together.
- When developing games e.g. in next year when they are developing something quite big they can put their drawing into Photoshop, paint on top of it, redevelop it, putting it into program like Aftereffect and pitch the idea and ...
- 360 degree commissioning: a terrible buzz word, when a commissioner looks at a product they don't just want to make a game they want a movie and website, they want an app out of it on iPhone or android so if you can be on top of that game as

well ... so if there was a module on e.g. how to make an app in 2 hours jump at it because if they can make an app and design it and do the coding they're already a massive asset to any company.

Summary

- The course leader of a course which is just dissolved now to various sections with creative media and sort of different programs.
- Drawing is so important that everyone in these courses should do it.
- Quality of drawings does not matter; it's the matter of getting a shorthand that really works to translate one's ideas so it fits perfectly with what they're doing.
- Students, who can't draw, can use shorthand to be able to express their ideas.
- Everyone can be taught drawing on some level when they can't be taught to be really artistic. That's different side of it.
- For a two hour Art intervention about illustrating ideas a tutor at most can talk about drawing storyboards, getting sequentially together to help students develop ideas and thinking about drawing in 3D for characters.
- Students should be thinking even in the drawing stage of light and shade and character development.
- 2010 students have not improved drawing from week 3 to final and they have scanned their sketched storyboard.
- Sketches that are going to be used in a game need structure.
- Sketches need to translate one's thoughts over and across the board in team and everyone needs to understand shorthand.
- Think about characters; Think about interaction with characters;
- Games should have a point, it should have a narrative.
- A lot of games intros have got the whole animation section which really sets the game up.
- Students can give frames of storyboard to Adobe Premier or any other editing program and make a film with it and then develop an animation with it.
- There is nothing cheaty about tracing. Animation is all about tracing the image and changing it slightly.

- Think about software and drawing and then they work together.
- When developing games students can put their drawing into Photoshop, paint on top of it, redevelop it, putting it into program like Aftereffect and pitch the idea etc.
- 360 degree commissioning: when a commissioner looks at a product they don't just want to make a game they want a movie, a website, an app out of it on iPhone or android.
- Students should take every opportunity to be skilful at these because if they can make an app and design it and do the coding they're already a massive asset to any company.

Appendix T6: Interview Transcription with Experts on Animatics – Expert 5

| Interview with <u>Expert 5</u> on Animatics | |
|--|---|
| <p>Interviewer: Discuss the need for tools to evaluate the animatics as objective as possible:</p> <ul style="list-style-type: none"> • Comparison? • Industry standard? <p>Set of Criteria devised at the institution (like grading guides)</p> | |
| Expert 5's Reply | Emergent Theme |
| <p>Interviewer: The whole main idea is that I didn't have any clue how people engaged in industry or Unis dealing with students evaluate the students' storyboards or games. It's very valuable for me to see if you are following some criteria of yourself or you have something like the marking guides for assignments.</p> <p>Expert 5: we will use that for high levels they ??? [min 02.16] to the modules. I have a criteria grid as well so for this one that the 1'st years did there is a [cut grey] table in there which is used as the basis for marking the assignment. But the assignment we set such way that the storyboard is one element of it so the criteria table come a bit generic cause there are lots of different things they have to do. There are not just the storyboards, the rest of the game, etc. So it's just one component of it...</p> <p>Interviewer: So you don't judge it quite subjectively?</p> <p>Expert 5: Ah I suppose that's what we do in many ways but essentially we use again like you've done, there is these sort of criteria from film in particular, how to storyboard, how to look at the</p> | <ul style="list-style-type: none"> • other techniques • criteria • teamwork • animatics • drawing skills level |

quality of them in terms of basically see if they can show their understanding of how the game would work, how the cut scene would work, cause generally I suppose a lot,... many cases where the students are doing the storyboard to doing for cut scenes or for the trailers rather than for game play as such- they use other techniques for game play

Interviewer: what do you mean?

Expert 5: well you mean who do storyboard for film or for animation you're blocking out for different scenes where the students, I mean generally with the storyboards here they do the same thing, they're blocking out scenes for cut-scenes, you know in game cut scene or a trailer for the game. If they're blocking out how game playing would work they would use things like layout charts or that sort of things

Interviewer: Or the aspects of user control or feedbacks. Do you do that?

Expert 5: Yeah.

Interviewer: Oh good. Because I found them lacking in the animatics. Do you recall these animatics? I have printed one sample.

Expert 5: Oh these were from the 2'nd year. Aren't they?

Interviewer: Yeah.

Expert 5: so these were for an animation not for the game.

Interviewer: That was what I was asking myself because there were no sign of game control...

Expert 5: No. Cause this is an assignment for 2'nd year 3D animation. It's all about the animation.

Interviewer: Do you have any samples of the games... the storyboards for games

Expert 5: ahhh...well...

Interviewer: In which module do you practice that?

Expert 5: Well essentially they do, as they go through. They do a lot in 1st year in IGD130 for the first assignment. They do it mainly in advanced group project in final year.

Interviewer: Ok. I've got full access to all presentations in IGD130 but not final year. So for criteria like aspects of user control or level of uncertainty I should go back to ...

Expert 5: Advanced group project

Interviewer: IGD130

Expert 5: well yes that's the game design stuff they do in the first year

Interviewer: and the problem I have myself which leads me to do this conversation with experts for triangulation is that whenever I want to evaluate for example these frames of animatics or normal storyboarding based on the criteria I cannot say whether they are very good, good, poor or very poor. Because when I talked to students for the first time they were so expected not to be able to draw...

Expert 5: Yeah, yeah...

Interviewer: This is the base of my study. So because I don't expect them to draw a bit, even a stickman, and I expect them to go through a bumpy way through this course and eventually use for example readymade techniques or software to overcome this problem, if they sketch one simple line I would be very happy for them so I say "it's very good".

Expert 5: Yeah.

Interviewer: This is the reason I'm going to talk to. How do you evaluate them? How do you

expect them skillwise to be?

Expert 5: well it depends on the context of the assignment more than anything else. Cause they do storyboards for all different sorts of things.

Interviewer: for example in IGD130 that I observed...?

Expert 5: That one they're doing the game design and the storyboards... aam not many of them do the storyboards I admit that, it's a shame but they don't, but those of them who do they are looking for the quality basically the quality of the drawing, the quality of shading,

Interviewer: How do you evaluate this quality? Do you compare them? Do you look at them as people who eventually go to industry and the industry are very cruel to them so they should be skilful or as some people who have done something out of nothing so they are good, you know, where is the balance?

Expert 5: There's a bit of both in a sense when they're starting off in the first year we would tend to be if you like kind, give lots of positive feedback for whatever they've done. As they've gone further through if they didn't improve they'll get much more negative feedback. So by time they get to the final year they should be much better than the first year. That would be the idea.

Interviewer: ok, so do you change the criteria of yourself?

Expert 5: Yeah we make it more difficult when they get through. One of the things or one of the issues perhaps from our point of view our perspective is the course in games is a mixture of design and development where's most, a lot of universities have separate courses

Interviewer: Exactly

| | |
|--|--|
| <p>Expert 5: have an art-based games design course and they'll be expected to have A-Level of art and ??? drawing effectively ??? the paint and we don't do that. We don't have any pre-conditions of what they have before they come here and most of them can't draw and less of them come from art background or art school etc. and it's probably too late for most of them not all of them but most of them.... So essentially what we're looking for from my point of view is something as functional. It doesn't particularly have to look great, it has to be functional in sense of explaining what's going on so they could give that storyboard to a designer, a 3D animator, etc. and they can produce something from it. All they could design is the game play, give that to the programming team so they can produce something from it. It doesn't have to particularly look nice, it has to be functional so it's very clear what the game play is</p> <p>Interviewer: Do you keep this perspective of being functional from beginning to the end?</p> <p>Expert 5: Yes. I mean if it's artistic and looks nice they'll get a lot of more marks.</p> <p>Interviewer: Is there any factor of comparison between students' works in your judgment?</p> <p>Expert 5: O... No... you mean so if there are a lot of good people you lower the marks? Is it what you mean?</p> <p>Interviewer: No, if you don't want to go on any criteria, you have for example 20 pieces of works...</p> <p>Expert 5: Oh yeah you mean work out which was the best which one is the worst...</p> <p>Interviewer: Yeah</p> <p>Expert 5: No never do that</p> | |
|--|--|

| | |
|---|--|
| <p>Interviewer: You don't</p> <p>Expert 5: No, that wouldn't be fair.</p> | |
| <p>Interviewer: Ask their idea about the effect of annotations in communicating ideas vs. the powerful drawing skills like children's' cartoons which don't communicate via text or annotations or manga cartoons in different language.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Expert 5: No I tend to prefer, because I'm looking for more functional aspect of it I tend to prefer they got the instructions or arrows to indicate directions of movements</p> <p>Interviewer: The textual</p> <p>Expert 5: The textual information. I think that's the good thing. Particularly if you are working in a team environment where it just helps getting across what's going on.</p> <p>Interviewer: ok, thanks.</p> | <ul style="list-style-type: none"> • teamwork • animatics |
| <p>Interviewer: Ask about their idea on weighing the applicability/importance of elements of CRITERIA.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: And I've come to this not problem but issue of different styles which tends to be like this. For example this piece of work (storyboarding for Salmon animatics) is not line-based, as some of them are very line-based, just by some strokes of line you have done the storyboarding, so when I want to judge a work for example when I come to effective use of line I have put this column of (show the evaluation sheet), apart from weighting them, that maybe this criteria isn't relevant or is not considered in this particular sort of style. Do you do the same thing?</p> <p>Expert 5: Essentially yes because they've all got different style. I don't tend to; we don't pose a</p> | <ul style="list-style-type: none"> • storyboarding software • criteria • students' psychological profiles |

certain sort of style of storyboarding on anyone.
So there are lots of different ways of doing it.
Some people would hand draw with lines, some
people art work of some sort like photographs
perhaps.

Interviewer: What do you suggest me? Because
I should be as objective as possible. What is your
suggestion for someone like me who wants to
discuss these sorts of things for example I
eliminate this

Expert 5: Instead of having “effective use of line”
have some alternative it should be “effective use
of style” I guess more than anything else

Interviewer: Or weighting the criteria

Expert 5: So weighting, ok, you could do that

Interviewer: What is your suggestion? For
example the weight of this “effective use of line”
for this style is zero

Expert 5: Yeah. You see from my point of view
I’m looking at all these sorts of things in here
(refer to non-art elements in CRITERIA list)

Interviewer: Because they are more gamy
things?

Expert 5: yes. Because I mean in terms of
storyboard you can buy software that does a lot of
this for you I guess the storyboarding software
that’ll help you do all to use essentially [cut
?????] and clip art sort of create the look of it

Interviewer: such as?

Expert 5: [min 13.05-14.54 search the internet for
software]: “Storyboard Quick”, “Moviesoft”,
“Storyboard Pro”

Interviewer: Do you recommend them to the
students?

Expert 5: No. I prefer them to go and have it for
themselves. Cause they’d understand it more if

| | |
|--|--|
| <p>they have a go. Cause sometimes occasionally I find that someone has natural ability for it and unless they try they wouldn't find out it is there</p> <p>Interviewer: Ok.</p> <p>Expert 5: The other way of doing this sort of this is using post-its. I quite like this. Students don't tend to do it. We don't do... it's more integral to do full length animation and something like that, essentially draw out different scenes, put them into a big board you can move them around, quite a good thing to interaction as well as they tend to do that sort of thing I thought Apple has one as well.... [min 16.27] so it might worth have a look around</p> <p>Interviewer: Ok thank you, I will.</p> <p>Expert 5: I mean the only thing with having look at these sort of things this is like clip art isn't it? But having said that it will get across emotions.</p> | |
| <p>Interviewer: Ask about their idea about the effect of storyboard on stimulating attention e.g. by using different pace.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: Another thing we came across to is this pace thing. The idea came from the speed of showing the frames in animatics. That was what I understood from pace but someone from film making area said that pace means the gap you ... the leap you consider between the frames because users or watchers of film do not need to see every bit of</p> <p>Expert 5: No that's true. Yeah between different edits.</p> <p>Interviewer: Yeah what do you think about these interpretations?</p> <p>Expert 5: essentially ???? games goanna go the same way if we look at the trails of games in particular they tend to be very fast edits ???? we</p> | <ul style="list-style-type: none"> • criteria |

used to it now is often TV and film particular today it's all very fast cuts between different scenes and if you look back and say things from 1970s TV series or 1970s or 1980s they are incredibly slow by today's standards.

Interviewer: Yeah.

Expert 5: The pacing is very very slow.

Interviewer: So you say pace means making these gaps.

Expert 5: Yeah between different edits yeah.

Interviewer: Do you think if I should consider two different paces.

Expert 5: Well pace in terms of games is slightly different because that's the pacing in games tends to refer to how much is happening to the play as they play the game.

Interviewer: So it means the speed of showing the frames.

Expert 5: Yeah, well....

Interviewer: How many frames you are showing in a certain time.

Expert 5: No, not really. Not in terms of games. Pacing is to do if they you know just combine the narrative really. How fast the narrative's been driven

Interviewer: oh right

Expert 5: yeah. The number of frames being shown [to certain ...] that's depend on the hardware that's being played on the game. You don't need to worry about that too much. That's frame per second.

Interviewer: ok.

Expert 5: Pacing tends to refer to how fast the narrative's been driven.

Interviewer: ok. That's a clarification for me. It's good. Thanks.

| | |
|---|--|
| | |
| <p>Interviewer: Ask what they think about the level of uncertainty and how it should be applied in storyboarding for games.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: How do you expect your students, this is actually my real interest, to show uncertainty of the game because it is, it should be driven by player, in the storyboards. Cause I found all these animatics designers have ...eh have finished the animatics with an uncertain result that you don't know what would happen next but there's no sign of this uncertainty in the middle of</p> <p>Expert 5: <u>No cause they don't normally do that part of storyboard. They normally do that as some sort of game layout chart perhaps, some sort of visual representation of how the game elements would play together or different parts of it.</u></p> <p>Storyboards</p> <p>Interviewer: This is more like it to be. Because I was wondering how you want to show this uncertainty thing in storyboard</p> <p>Expert 5: Yeah. They wouldn't normally do that cause storyboard is generally for cinematic side of the game rather than the actual moment to moment game play</p> <p>Interviewer: So I shouldn't include this uncertainty in the criteria of evaluating storyboarding.</p> <p>Expert 5: It doesn't mean much in these sort of context, no. I mean it might be interesting to explore as how you get that across the storyboard cause they don't at all.</p> <p>Interviewer: yeah.... Cause you can show it quite brilliantly in diagrams</p> <p>Expert 5: essentially that's what they do. They</p> | <ul style="list-style-type: none"> • criteria |

| | |
|---|------------------------------|
| <p>would create branching diagrams ...</p> <p>Interviewer: Ok that's a good understanding for me. Thanks.</p> | |
| <p>Interviewer: Ask about their idea on the narratives of the animatics- almost the same theme!</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: Another thing we came across is the narrative of the actual game. I realised that in advanced modules in final years and COMICS the theme of many games are just the same. In these animatics there are 5 samples and I found as let's say a non-game player, I found them just the same because there is some alien theme, a lost thing and some injections and ,....</p> <p>Expert 5: The reason for that is probably cause they are all young male as game designers...</p> <p>Interviewer: Actually I asked one of them have you realised this factor and he seemed it was the first time he heard of that because in his world the game should be like that. And I asked if he thought they were influenced by the games outside and he thought so.</p> <p>Expert 5: Yeah. There are things like "call of duty" all those sorts of games and they are very popular games and one of the reasons for most students who are on these courses is they're male, 18 to 22 and that's the sort of games they play and that's the sort of games they want to design.</p> <p>Interviewer: ok</p> <p>Expert 5: Now in the, since first year we tend to be quite prescriptive in terms of what they have to do. They have to design games for young people say for example and as they get through we'll give them more creative freedom</p> | <p>N/A</p> |

| | |
|---|------------------------------|
| <p>Interviewer: Yeah</p> <p>Expert 5: So sometimes they.... If you... this year's COMX there were some games which ??? training games which is for the teaching young offenders how to eat sort of thing.</p> <p>Interviewer: ok</p> <p>Expert 5: So that's slightly different.</p> <p>Interviewer: so do you feel a change is coming through ...</p> <p>Expert 5: I don't want to say that because I don't think that's true really but if we try to persuade students to undertake that sort of projects ultimately it's up to them specially in the final year</p> <p>Interviewer: Ok.</p> <p>Expert 5: It's a balance trying to get them to look at different demographics of the games rather than just ??? of certain age group.</p> <p>Interviewer: Ok.</p> | |
| <p>Interviewer: Ask if they think the neutral should be included in the evaluation sheet.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: What is your personal viewpoint of having this neutral thing in this evaluation? You know this is something like questionnaire. It is not questionnaire but the evaluation is similar. Questionnaire might have this neutral thing</p> <p>Expert 5: well in the middle of sort of things since It tends to be if you don't have it I suspect people will go negative maybe..</p> <p>Interviewer: Do you think so?</p> <p>Expert 5: Possibly. Might want to try it...</p> <p>Interviewer: whenever I have neutral for any reason everyone wants to go</p> <p>Expert 5: Yeah they go in the middle. Won't commit ... yeah I think it damn if you do and</p> | <p>N/A</p> |

| | |
|---|---|
| <p>damn if you don't to be honest.</p> <p>Interviewer: Ok</p> <p>Expert 5: Doesn't help...☺</p> <p>Interviewer: ☺</p> <p>Expert 5: I mean if I wanted to do this sort of thing I would go for the point in the middle</p> <p>Interviewer: would you?</p> <p>Expert 5: Yeah because generally if you are not careful you'll get too many negatives. That's the only danger.</p> | |
| <p>Interviewer: Ask if they think the evaluation should be on each frame or just on the whole animatic.</p> | |
| <p>Expert 5's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: Do you do the evaluation frame by frame or the storyboard as a whole?</p> <p>Expert 5: Emmm....</p> <p>Interviewer: Do you know why I'm saying? There are some elements that are brilliantly considered in one frame</p> <p>Expert 5: Yes</p> <p>Interviewer: But they lose the consistency.</p> <p>Expert 5: well at the moment, if generally if it's a printed thing I would get it frame by frame. Increasingly what they tend to do now cause I tend to get them to animate- do the animatic and in that case I look at the whole thing and then mark it</p> <p>Interviewer: ok</p> <p>Expert 5: yeah because it's a moving thing. What I like about this one in particular (The salmon animatic) is because there's a lot of movement in it using 2D shapes with lots of music and stuff like that and it got across the feeling of the story they want to create very effectively.</p> <p>Interviewer: ok.</p> | <ul style="list-style-type: none"> • criteria • animatics |

Expert 5: It's very clear. whereas the other ones

Interviewer: So do you think in this game design business it's better to have the storyboard in form of animatic rather than ...

Expert 5: For this type of thing yes because things like trials and stuff is much more this sort of thing I suppose

Interviewer: In terms of communicating ideas

Expert 5: yes yes it's more effective and it's relatively straightforward to do

Interviewer: Do you remember "Cast away"? there were just 9 hand sketch

Expert 5: Did you see the animatic?

Interviewer: yeah.

Expert 5: Yeah. It's not very good at all

Interviewer: It was not animatic. It was just transition of 9 pictures and stayed on each frame for few seconds.

Expert 5: few seconds. Yeah

Interviewer: In contrast to their style was "dark obsession" with too many frames but they showed it quite fast.

Expert 5: oo hoom

Interviewer: but they're essentially one thing. No animation was happening.

Expert 5: oo hoom

Interviewer: This is my viewpoint. This one (salmon) and another one (Isometric) which was again very weak one... in this one there is a real animation going on between frames. Everything is happening

Expert 5: yeah everything is moving

Interviewer: It's not just transition of frames but the other one, Isometric, they had lots of animation going on inside each frame, it was like a short story of a planet coming down and... but

| | |
|--|--|
| <p>the animation didn't help communicating the whole</p> <p>Expert 5: No. This is the only one they really did that (Salmon)</p> <p>Interviewer: Do you think of evaluating these like I'm doing?</p> <p>Expert 5: essentially yes. I look for <u>the content</u>, <u>how effective is the communication</u>, all these sorts of things. Because this thing here that they did actually (animatics) isn't marked. It was just part of the planning process. What was marked was what they've hand in in the end.</p> <p>Interviewer: right.</p> <p>Expert 5: so although I'm evaluating it to form a feedback on it there is no mark associated with this</p> <p>Interviewer: Was the trailer the actual</p> <p>Expert 5: Yes that's the actual one they get mark</p> <p>Interviewer: These are sort of storyboarding for that trailer</p> <p>Expert 5: yes.</p> <p>Interviewer: Ok</p> <p>Expert 5: So they did this in the first few weeks. So it's why some of them ?????? the very good part cause they didn't spend enough time on it. Because they knew they didn't get any marks for it they didn't particularly do try their hard I guess</p> <p>Interviewer: Oh that might be...</p> <p>Expert 5: whereas this team did though. This team took it</p> <p>Interviewer: How did you find the actual trial?</p> <p>Expert 5: at the end this their trailer by far better than anyone else. Much better.</p> | |
| <p>Summary</p> | |
| <ul style="list-style-type: none"> • In Games Design modules storyboard is one element of the assignments | |

because there are lots of different things they have to do for a complete game.

- Criteria to assess storyboards/ Animatics is from film in particular, how to storyboard, how to look at the quality of them in terms of if students can show their understanding of how the game would work, how the cut scene would work. Because in many cases students do the storyboard for cut scenes or for the trailers rather than for game play.
- For how game playing would work students would use layout charts or that sort of things
- Animatic in this study is an assignment for 2nd year 3D animation. It's all about the animation.
- The storyboarding skills expected from students depends on the context of the assignment more than anything else. Cause they do storyboards for all different sorts of things.
- For IGD130 the tutors are looking for basically the quality of the drawing, the quality of shading,
- For students who can't draw and not coming from art background it's probably too late for most of them to get drawing skills so what we're looking for is something as functional.
- It doesn't particularly have to look great, it has to be functional in sense of explaining what's going on so they could give that storyboard to a designer, a 3D animator, etc. and they can produce something from it.
- All they could design is the game play; give that to the programming team so they can produce something from it.
- If it's artistic and looks nice they'll get a lot of more marks.
- For functional aspect instructions or arrows to indicate directions of movements in animatics are preferred.
- Textual information on animatics is a good thing, particularly when working in a team environment where it just helps getting across what's going on.
- Students all got different style. We don't pose a certain sort of style of storyboarding on anyone. So there are lots of different ways of doing it.
- Some people would hand draw with lines, some people art work of some sort like photographs perhaps.
- The criteria of "effective use of line" should be "effective use of style" more than anything else.

- The non-art elements in CRITERIA list are considered to assess storyboarding.
- Storyboarding software such as “Storyboard Quick”, “Moviesoft”, and “Storyboard Pro” does a lot of this.
- I prefer students to go and have it for themselves.
- Students understand storyboarding more if they have a go.
- Sometimes occasionally I find that someone has natural ability for it and unless they try they wouldn’t find out it is there
- The other way of doing storyboarding is using post-its. I quite like this. Students don’t tend to do it.
- Using post-its is more integral to do full length animation to essentially draw out different scenes, put them into a big board, and move them around. It’s quite a good thing to interaction.
- In TV and film particular today it’s all very fast cuts between different scenes compare to 1970s TV series.
- Pace in terms of games refers to how much is happening to the play as they play the game and how fast the narrative’s been driven.
- The number of frames being shown (frame per second) depends on the hardware that’s being played on the game.
- Level of uncertainty doesn’t mean much in the context of storyboarding.
- Storyboard is generally for cinematic side of the game rather than the actual moment to moment game play.
- Students normally don’t do that part of storyboard. They normally do that as some sort of game layout chart, some sort of visual representation of how the game elements would play together or different parts of it.
- The reason for the similar themes to the narrative of most games designed by students is probably because most students who are on these courses are male, 18 to 22 and that’s the sort of games they play are games like “call of duty” and other popular games and that’s the sort of games they want to design.
- In first year we tend to be quite prescriptive in terms of what they have to do. They have to design games for young people for example and as they get through we’ll give them more creative freedom but the type of projects they would undertake is ultimately up to them in the final year.
- It’s a balance trying to get them to look at different demographics of the games.

- Generally if it's a printed storyboard evaluation would be frame by frame. For animatic I look at the whole thing and then mark it.
- In animatic by using movements, using 2D shapes with music the feeling of the story would get across very effectively and communication of ideas is relatively straightforward to do.
- The criteria to evaluate animatics are essentially like the ones suggested. I look for the content, how effective is the communication, all these sorts of things.

Appendix T7: Summary of Interview Transcription with Experts on Animatics – Expert 2

| Summary of Interview with <u>Expert 2</u> on Animatics | |
|---|---|
| Interviewer: Which section of CRITERIA do you emphasise most for evaluation a storyboard/animatic? | |
| Expert 2's Reply | Emergent Theme |
| <p>a. Draftsmanship/Aesthetics (is it skilfully drawn? Are elements clearly depicted and immediately identifiable? So primarily line, perspective, proportion and finesse with materials)</p> <p>b. Mood (Does the animatic convey the overall mood well? E.,g. edgy, perilous, funny, romantic etc.)</p> <p>c. Action & Dynamism (does it show movement effectively? This includes signifiers like arrows, “bang!” overlays or wobble/movement lines, or camera shake)</p> <p>d. Pace (This focuses on the number of frames used and the difference between the frames. More frames + fewer differences = slow pace. Fewer frames +larger differences = fast pace).</p> <p>e. Gameplay (can the viewer tell what sort of gameplay happens in this game? E.g. is it FPS or RPG or platforming or stealth, or fighting etc.)</p> | <ul style="list-style-type: none"> • criteria • animatics |
| Interviewer: What is your interpretation of pace (pace1 or pace2 as stated above or perhaps another meaning)? | |
| Expert 2's Reply | Emergent Theme |
| I found the explanation of this very confusing and would call Pace 1 = Action & Dynamism and Pace 2 = | <ul style="list-style-type: none"> • criteria |

| | |
|---|---|
| <p>Pace because it has a very specific meaning in animation/comics/storyboarding and film.</p> | |
| <p>Interviewer: Do you encourage your students to make animatics?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>Not for games. We encourage our students to make concept art and Game Design Documentation (either as a series of documents or as a Wiki). This would usually include concept art, flowcharts for actions and narrative, move lists and control systems. Animatics are much more for animation students because they deal with narrative.</p> | <ul style="list-style-type: none"> • animatics |
| <p>Interviewer: How do you evaluate your students' storyboards/animatics?</p> <ul style="list-style-type: none"> • By comparison? • By industry standard (if there is any)? <p>By a set of criteria devised by your team at the institution (like grading guides)?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>I feel I can't really answer this, as animatics are only part of the assessments for animation modules. Game modules assess pre-production in terms of market/demographic viability, documentation, concept art, usability and technical demos (e.g. working demo levels). Production is assessed in terms of gameplay variety, ease of use, bugginess, control systems, user feedback and market viability. Animatics can show storyline or mood and some movement, but are very poor at simulating gameplay.</p> | <ul style="list-style-type: none"> • criteria • animatics |
| <p>Interviewer: Annotation: How effective is the use of annotations in communicating ideas (Some believe that powerful drawing skills like children's' cartoons or manga cartoons in different language don't communicate via text or annotations and storyboarding should be like that).</p> | |

| | |
|--|---|
| Expert 2's Reply | Emergent Theme |
| In my experience from industry, annotation only happens on paper, because anything moving (like an animatic) should be able to convey this information in itself. I can understand the occasional by-line or intro line delivered orally in the voice over, or on screen (in the style of web comics and comic style cut scenes), but these are kept to a minimum to avoid distracting the viewer from the action on screen. | <ul style="list-style-type: none"> • animatics |
| Interviewer: Weighing (the applicability/importance of elements of CRITERIA): Do you support the idea of giving different level of importance by weighting the elements of CRITERIA? | |
| Expert 2's Reply | Emergent Theme |
| Yes very much so. This allows criteria to be constructively aligned with the learning outcomes, where priority LOs are given corresponding priority in the criteria. It also allows universal good practice criteria (e.g academic rigour or market positioning/awareness) that may come from programme level Learning Outcomes, to be explicitly assessed and tracked in the modules without eclipsing the module LOs. | <ul style="list-style-type: none"> • weighing criteria |
| Interviewer: Evaluation: Do you think the animatics should be evaluated frame by frame or as a whole product? | |
| Expert 2's Reply | Emergent Theme |
| Both. The whole product needs to be qualified as it will be judged as an entire piece by the end user. The student needs frame by frame breakdowns for specific and therefore effective feedback, from a production perspective. | <ul style="list-style-type: none"> • animatics |

| | |
|--|--|
| Interviewer: Do you recommend storyboarding software to your students to create their storyboards? | |
| Expert 2's Reply | Emergent Theme |
| No, students can create their storyboards however best suits them and the final end product. | <ul style="list-style-type: none"> • storyboarding software |
| Interviewer: Narratives: I feel students follow similar themes of stories to create their games under the strong influences of the games they play. What does your experience reveal in this regard? | |
| Expert 2's Reply | Emergent Theme |
| <p>a. I agree. This is because (in my experience at least) games students are myopic in their interests and frequently dismiss anything that isn't labelled "game" as irrelevant. In my module "Concept & idea Development" I have several sessions deconstructing creativity and where ideas come from. We explore the importance of "raw material" for creativity, and discuss how existing games and films have already been through someone else's creative direction filter, and are therefore already tainted with other people's ideas. We use the book "A Technique for Producing Ideas" by William Bernbach, which explores the concept of creativity in a practical setting. I love this book because it perfectly describes the creative process as used in all of the game studios where I worked, even though it is based on practices of the NY Advertising industry in the 1940s.</p> <p>b. Narrative isn't important in games. Games are often judged on their content by people who don't understand games, but it's the experience of play that is important. I have found that a focus on narrative is a signifier of a consumer, not a</p> | N/A |

| | |
|---|--|
| <p>producer of games, which is why I try to avoid letting students focus on narrative or script within their game designs. In industry, there are very few game design jobs for games writing, scripts and narrative, and usually these elements are outsourced to a professional writer, or handled by the design manager. As such, the story of the game is such a small element that gameplay, graphics and programming completely eclipse it in the grand scheme of things.</p> | |
| <p>Interviewer: How do you think about the effect of group work?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>It's essential, because AAA games are made by large teams, and most indie games are made by small teams. Teamwork and group working are an industry requirement and there should be an element of it in every stage of a game degree. How much of the marks are group marks, and how many are individual marks is up for debate, and there are many schools of thought on this. I like to always mix the marks between individual achievement and team achievement, although how these are weighted depends on a lot of factors and the amount of LOs in the assessment.</p> | <ul style="list-style-type: none"> • teamwork |
| <p>Interviewer: Evaluate the animatic based on CRITERIA by likert scale (Very good, Good, Neutral, Poor, Very poor)+ comments</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>I'm sorry, but I don't have time to evaluate them all against so many criteria. This might be a good time to mention that ease of marking should also be a consideration for the setting of the criteria, as most tutors will not be able to spend more than 20 minutes</p> | <ul style="list-style-type: none"> • criteria |

| | |
|---|--|
| <p>watching, comparing, evaluating, marking and writing feedback per item. I usually limit my criteria to a maximum of 7 per assessment. Five of these will be directly linked to the learning outcomes for the module and 1 or 2 will be good practice or linked to the wider programme outcomes such as employability, good academic practice or industry awareness/practical viability.</p> | |
| <p>Interviewer: CRITERIA to assess storyboards for Games</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>Effective use of style In our criteria, I have named this “finesse with materials”. Style is a very personal thing, but any material used, whether traditional or digital, needs finesse to be effective and aesthetically pleasing.</p> <p>Illusion of perspective Perspective – I don't mean to be picky, but it's the discipline of creating the illusion of 3 dimensions in a 2D medium in itself. The word “illusion” is extraneous in this context.</p> <p>light-shadow Isn't this the same as Positive/negative space (contrast)? Perhaps “shading” would be better, to imply form and shape.</p> <p>Consistency (Repetition) Consistency of what? Style? Characters? Themes? This feels vague, and I'm not sure what you're getting at.</p> <p>Pace1 (Stimulate attention by different stresses in telling the narrative),</p> | <ul style="list-style-type: none"> • criteria |

| | |
|--|------------------------------|
| <p>Pace2 (How fast the narrative is been driven This doesn't seem very clear to me. Is Pace 1 =narrative emphasis and Pace 2 = pacing?</p> <p>Games</p> <p>Level of uncertainty What is this criterion pertaining to? What is the Learning Outcome this is based on?</p> <p>Aspects of user controls (AoUC) Does this come from games theory? In my experience in industry, this is usually called Control systems.</p> <p>Feedback (Reduce short term memory load =help users recognise easily what to do in a situation) Feedback is something that can only come from interaction, so isn't applicable in a non-interactive format like an animatic.</p> <p>Accessibility (Cater to universal usability). This should be linked to a target market or demographic. There is space in the wider spectrum of games for hardcore perma-death fans and casual short session gamers without much extrinsic knowledge of game mechanics. The key is for the designer to be aware what part of the spectrum their game is targeted to, and why.</p> | |
| <p>Interviewer: Show animatic 01 (Serious Salmon) to the expert. What is your synopsis of the story?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <ul style="list-style-type: none"> • Main character is being chased by cops – runs into an alleyway and then appears on a rooftop while being surrounded. • I got most of the synopsis from the written annotation. This works for static storyboards, but shouldn't be in an animatic. I was reading | <p>N/A</p> |

| | |
|---|------------------------------|
| <p>the text on the screen: the visuals should speak for themselves.</p> <ul style="list-style-type: none"> I have no idea what kind of game this might become. As an animation re-visual it is very strong – I know what the action and story is – but I could not tell you what genre or gameplay style or mechanics this might be for.) | |
| <p>Interviewer: Evaluate the animatic based on CRITERIA by likert scale (Very good, Good, Neutral, Poor, Very poor)+ comments</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>Art</p> <ul style="list-style-type: none"> Effective use of style, = Very good Effective use of line = Visuals are fully shaded, so line as a criterion is irrelevant here. Positive-negative space (Contrast). – Visuals are clear, but the contrast is low to reflect the mood. I feel that this criterion doesn't help narratives with dark or moody aesthetics. Illusion of perspective. = Good where needed. light-shadow. = Again, this feels unhelpful for this particular style of animatic Consistency (Repetition) = all the frames seem visually consistent until the penultimate one "a crack of lightning", which was just a mess and made no sense. <p>Film/Animation</p> <ul style="list-style-type: none"> Time sequence, = Fair. It seemed a touch slow at the end, when I expected the action to speed up. Pace1 (Stimulate attention by different stresses in telling the narrative). Fair = how did the character end up on the roof top? Pace2 (How fast the narrative is been driven) = see pace 1. Location of interaction = seemed thematically sound and was well realised (trash in the alleyway etc.) Characterization = this is highly derivative and appears to be Chris Redfield from Resident Evil 5 http://cerraierialaunion.com/damoru/wp-content/uploads/2008/11/re5-chris-redfield-character.jpg If this is to overcome poor | <p>N/A</p> |

| | |
|---|------------------------------|
| <p>drawing skills, then it's very good for pre-visualising the feel of the piece, but as a bespoke animatic would need to have actual characterisation for the narrative and not break IP right rules.</p> <ul style="list-style-type: none"> • Annotation, = great for a static storyboard, but gets in the way of the action in the animatic. • Camera view points, = strong. <p>Games</p> <ul style="list-style-type: none"> • Level of uncertainty, = I have no idea what this means. Do you mean peril or risk to the player character? • Aspects of user controls (AoUC), = no feel for gameplay at all in this animatic. It doesn't feel like it's for a game because it doesn't have any action on behalf of the player character except walking. You can't show this in an animatic unless you have an overlay showing button presses, but that's just now how gameplay is shown in industry unless it's using KINECT or similar non-intuitive systems. • Feedback (Reduce short term memory load =help users recognise easily what to do in a situation), = not shown here. • Accessibility (Cater to universal usability). = I'm not sure how this could be shown in an animatic? | |
| <p>Interviewer: What is your synopsis of the story of animatics 02, 03, 04, 05?</p> | |
| <p>Expert 2's Reply</p> | <p>Emergent Theme</p> |
| <p>02 – You wake up on a malfunctioning space ship, escape in a pod and crash on a planet, where you inexplicably take a walk to a shining light in a cave. Visually it starts off very well, but the end seems slow and uninformative. Did the students run out of time? I wasn't sure how the light was meant to be hostile.</p> <p>03 – A plane crashes into the sea, because there seems to be a mountain. One of the crew swims to shore and takes a happy stroll on the beach, towards a cave. Elsewhere, a scary laboratory sees a scarred man with a watch have a syringe stick out of his arm.</p> | <p>N/A</p> |

The static nature of this animatic means that much of the action isn't linked and so it feels very disjointed. More action is needed to link the elements together in a narrative.

04 – A man has a very bad day because he was chasing after his dog. He falls through a hole in the woods, which inexplicably is the inside of house. Due to a broken leg, he becomes obsessed with the floorboards, which he uses to as a splint and keeps looking at over the next few days. Somehow, his dog is served up to him on a plate, and there seems to be some deep consideration of the cutlery drawer. After that, things get very hectic and there may be lots of dead versions of the man in the basement. This animatic is so poorly paced that it is very difficult to follow the narrative of the story.

05 – The Stig walks to a car, which is parked in abstract or cubist painting. He then drives on a country road until his brake pads glow red (presumably he left the hand break on?). This is apparently a game, although it doesn't have any HUD or GUI. There was no action in this animatic, and some of the visuals had been replaced with text. Some of the perspective was so poor, it was impossible to tell what angle the camera is showing and what the environment is like.

Summary

CRITERIA

- Draftsmanship/Aesthetics (is it skilfully drawn? Are elements clearly depicted and immediately identifiable? So primarily line, perspective, proportion and finesse with materials)
- Mood (Does the animatic convey the overall mood well? E.g. edgy, perilous, funny, romantic etc.)
- Action & Dynamism (does it show movement effectively? This includes signifiers like arrows, "bang!" overlays or wobble/movement lines, or camera shake)

- Pace (This focuses on the number of frames used and the difference between the frames. More frames + fewer differences = slow pace. Fewer frames + larger differences = fast pace).
- Gameplay (can the viewer tell what sort of gameplay happens in this game? E.g. is it FPS or RPG or platforming or stealth, or fighting etc.)
- Making animatics is not encouraged games in this department.
- We encourage our students to make concept art and Game Design Documentation (either as a series of documents or as a Wiki).
- Games Design documentation include concept art, flowcharts for actions and narrative, move lists and control systems.
- Animatics are much more for animation students because they deal with narrative.
- In my experience, storyboarding only happens for animated sequences in games or in-game animations. Otherwise it's concept art and flowcharts, or mock-up animatics.
- Game modules assess pre-production in terms of market/demographic viability, documentation, concept art, usability and technical demos (e.g. working demo levels).
- Production is assessed in terms of gameplay variety, ease of use, bugginess, control systems, user feedback and market viability.
- Animatics can show storyline or mood and some movement, but are very poor at simulating gameplay.
- In my experience from industry, annotation only happens on paper, because anything moving (like an animatic) should be able to convey this information in itself.
- The occasional by-line or intro line delivered orally in the voice over, or on screen (in the style of web comics and comic style cut scenes) is understandable but these are kept to a minimum to avoid distracting the viewer from the action on screen.
- Weighting the elements of CRITERIA allows criteria to be constructively aligned with the learning outcomes, where priority LOs are given corresponding priority in the criteria. It also allows universal good practice criteria (e.g. academic rigour or market positioning/awareness) that may come from programme level Learning Outcomes, to be explicitly assessed and tracked in the modules without eclipsing the module LOs.

- Animatics should be evaluated frame by frame and as a whole product.
- The whole product needs to be qualified as it will be judged as an entire piece by the end user. The student needs frame by frame breakdowns for specific and therefore effective feedback, from a production perspective.
- Using storyboarding software is not recommended because students can create their storyboards however best suits them and the final end product.
- Students follow similar themes of stories to create their games under the strong influences of the games they play because games students are myopic in their interests and frequently dismiss anything that isn't labelled "game" as irrelevant.
- In a module "Concept & idea Development" I have several sessions deconstructing creativity and where ideas come from. We explore the importance of "raw material" for creativity, and discuss how existing games and films have already been through someone else's creative direction filter, and are therefore already tainted with other people's ideas.
- Narrative isn't important in games. Games are often judged on their content by people who don't understand games, but it's the experience of play that is important.
- A focus on narrative is a signifier of a consumer, not a producer of games, which is why I try to avoid letting students focus on narrative or script within their game designs.
- In industry, there are very few game design jobs for games writing, scripts and narrative, and usually these elements are outsourced to a professional writer, or handled by the design manager.
- As such, the story of the game is such a small element that gameplay, graphics and programming completely eclipse it in the grand scheme of things.
- Teamwork is essential, because AAA games are made by large teams, and most indie games are made by small teams.
- Teamwork and group working are an industry requirement and there should be an element of it in every stage of a game degree.
- Ease of marking should also be a consideration for the setting of the criteria, as most tutors will not be able to spend more than 20 minutes

watching, comparing, evaluating, marking and writing feedback per item.

- I usually limit my criteria to a maximum of 7 per assessment. Five of these will be directly linked to the learning outcomes for the module and 1 or 2 will be good practice or linked to the wider programme outcomes such as employability, good academic practice or industry awareness/practical viability.

Evaluation of CRITERIA

Art

- Effective use of style is more “finesse with materials”. Style is a very personal thing, but any material used, whether traditional or digital, needs finesse to be effective and aesthetically pleasing.
- Illusion of perspective: Perspective – I don’t mean to be picky, but it’s the discipline of creating the illusion of 3 dimensions in a 2D medium in itself. The word “illusion” is extraneous in this context.
- light-shadow: Isn’t this the same as Positive/negative space (contrast)? Perhaps “shading” would be better, to imply form and shape.
- Consistency (Repetition): Consistency of what? Style? Characters? Themes? This feels vague.

Games

- Level of uncertainty: What is this criterion pertaining to? What is the Learning Outcome this is based on?
- Aspects of user controls (AoUC): Does this come from games theory? In my experience in industry, this is usually called Control systems.
- Feedback (Reduce short term memory load =help users recognise easily what to do in a situation): Feedback is something that can only come from interaction, so isn’t applicable in a non-interactive format like an animatic.
- Accessibility (Cater to universal usability): This should be linked to a target market or demographic. There is space in the wider spectrum of games for hardcore perma-death fans and casual short session gamers without much extrinsic knowledge of game mechanics. The key is for the designer to be aware what part of the spectrum their game is targeted to, and why.

Appendix T8: Interview Transcription with Experts on Animatics – Expert 3

| Summary of Interview with <u>Expert 3</u> on Animatics | |
|---|----------------|
| Interviewer: Show animatic 01 to the expert. | |
| Expert 3's Reply | Emergent Theme |
| <p>Expert 3: That's quite interesting.</p> <p>Interviewer: How?</p> <p>Expert 3: just, well they got the idea of scaling and perspective I suppose, that's they use that several times. They're a little bit wonky sometimes but you know it's the idea is mostly there and it's produce this quite nicely style sort of comic interface thing..... so you know that the characters are moving within depth via scaling. It's a little big there but you know..... they've picked out you know typical sort of highly saturated colour and stuff for the information made it big and bold and brash. [There] a quality change there they..... They set the scene well I think overall</p> <p>Interviewer: Are you interested to see the final trailer?</p> <p>Expert 3: yeah.</p> <p>Min 07.09 to 09.36 watch the actual trailer</p> <p>Expert 3: It's quite interesting. How much work was that then over all? How long did they spend doing that?</p> <p>Interviewer: I don't know. I know that they have made the animatic, the first thing you saw, in the first 3 weeks.</p> <p>Expert 3: Yeah.</p> <p>Interviewer: and then they have concentrated on the final animation</p> <p>Expert 3: That's pretty cool.</p> | N/A |

Interviewer: And that was the best group we had.

There are other samples....

Expert 3: Did they have to go back to storyboarding? Because obviously it has a lot changed The actual initial animatic

Interviewer: Yeah

Expert 3: was quite sort of basic like an overview whereas this is much more specific. Do they have to go back to refinement of anything or do they just sort of produce it based on their own ideas at the time?

Interviewer: I think basically they haven't taken this storyboarding bit very seriously

Expert 3: [lahghing...]

Interviewer: This was the best bit, the best project but I've heard that they didn't have any mark for the storyboarding

Expert 3: yeah so they did this kind of milestone and then went on to produce the final thing and there is not necessarily too much of a link between the two.

Interviewer: yeah, there should be. The emphasis was to have storyboarding to have the final trailer but because they didn't have any considered any mark for the animatic or storyboarding

Expert 3: yeah

Interviewer: it seems that the other groups haven't taken it very seriously but this group their The tutor said that they have really taken it very seriously and did a good job on it.

Expert 3: yeah well this there's a clear refinement anyway you know

Interviewer: exactly

Expert 3: based on a ...and some of the some of the shots are quite you know quite cinematic in some ways the ... I think the start is perhaps not

| | |
|---|--|
| <p>exciting as the original original version but it's they've set a scene a lot more it's almost a lot like more a game in some ways.</p> <p>Interviewer: yeah</p> <p>Expert 3: Yeah. It's just a little bit slower pace than their original animatic which perhaps isn't so exciting initially but you know they've done a pretty good job. Obviously someone watched [on ?????] somewhere in between</p> <p>Interviewer: actually this is a trailer for a game</p> <p>Expert 3: yeah</p> <p>Interviewer: an actual game in future. I don't know whether they follow that or not but this was supposed to be a trailer for a game</p> <p>Expert 3: yeah. It's just the stylistic elements of what they've chosen it's kind of like a ??? games ?????? what was it? A lot of stuff was like thrones but all of the sort of technology like kind of this stuff is sort of borrowed from "what's the game with the ?????in it?"[ask the colleague]</p> <p>Colleague: <u>mass effect</u>?</p> <p>Expert 3: yeah. <u>Mass effect</u> basically I think. So I can see where they've called different ideas from but they visually but there are refinement of what they've managed to do with some of these establishing shots and how they set up the action is you know is over and above clearly of what they've thought of in animatic for start, but you know they've clearly, they've clearly gone to the next level within in it much more refined down to the way they've cutting the shots and stuff like that</p> <p>Interviewer: From my perspective, I'm not supposed to see the trailer [laughs]</p> <p>Expert 3: you're not supposed to see the trailer?</p> <p>Interviewer: No</p> <p>Expert 3: Oh you've just supposed to look at the</p> | |
|---|--|

animatic.

Interviewer: yeah, the main interest of what I'm doing is how they managed these animatics and ... evaluate the animatic based on these criteria

Expert 3: [laughs]

Interviewer: These

Expert 3: I suppose you could kind of do the same thing the thing is that you know they've obviously sort of pushed forwards you know these elements in their second trailer and you could evaluate them on that potentially, [laughs] I know you've got your things to worry about but in comparison you know what they've done I don't know... what they've done with the main animatic is falling short of the detail of what they've should've been doing perhaps but likewise I think they should maybe you should maybe have a look at what they have actually done with the final video I don't know. I don't know whether I push you to any direction or anything

Interviewer and Expert 3: [laughs]

Expert 3: I just think looking at their work that's a lot more complicated than that

Interviewer: what I'm looking at is that they have started, after a year spending in studying in this course, games design, they have come from that background into second year, they've been put into groups and for any any sort of final project they are supposed to make a storyboard and in this case they have being eh persuaded to make animatics instead of

Expert 3 and Interviewer: storyboarding

Interviewer: and in next to see how some have just done the storyboarding for example in 9 just 9 sketches and have make a transition between them as an animatic so what I'm looking

at them is have they been...

Expert 3: are they representing what their vision is clearer

Interviewer: yeah. Have they been able to communicate their ideas or not and because I need to be as objective as possible I needed this criteria so I have these frames of for example the animatics of this particular group and based on the animatics and these frames I want to see for example have they ... for example how do you evaluate this particular animatic from "effective use of style" point of view. Was it very good, good or having no idea or poor or very poor? So I have to go through this rout and you know it's boring but

Expert 3: It's just kind of those things that you know you could look at both of them reallyI suppose it needs to be an isolation isn't it? That's the problem. It's ... they've done a really good job in some ways without the initial setup you know

Interviewer: oohoom

Expert 3: They've you know stylistically they've they've made it work in terms of... it's completely disparate though there's a lot of what into the original one they didn't make into in terms of style follow through but you know they've picked a sort of comic book style

Interviewer: oohoom

Expert 3: and they showed it through a panelling and they showed it through the movement and they showed it through the text and the choice of colour

Interviewer: and obviously as you said they are very much influenced from the games, actual games that they are playing

Expert 3: yeah, yeah. That doesn't ... I mean it comes through more in ... in the actual final trailer

| | |
|--|--|
| <p>than it does in the original I mean the original animatic looks more like a comic book</p> <p>Interviewer: yeah, which I think should be, shouldn't it? because it is a storyboard</p> <p>Expert 3: [laughs] yeah, it's so much panel to panel, isn't it?</p> <p>Interviewer: yeah</p> <p>Expert 3: so it's it is that sequence but because of that it's kind of coloured their view of what they needed to create in some ways but it's an effective sort of transmission of what they wanted to do</p> <p>Interviewer: now you have seen this one example can I ask some questions before moving to other examples which are not as good as</p> <p>Expert 3: ok.</p> | |
| <p>Interviewer: Meaning of pace?</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Interviewer: In the way I am coming from I come to one term in evaluating elements which is pace.....originally by pace I meant I understood pace as the way of telling a story for example when you are stressing some bits more and put more actions into something and then slow down</p> <p>Expert 3: yeah</p> <p>Interviewer: This is a kind of pace that originally come from storytelling part which I thought it is relevant to see if for example in a storyboard they have used this pace or</p> <p>Expert 3: yeah cause it's a difficult thing to show in a storyboard you could write down timings and things like that but you know comics do it different they don't do it in the same way as storyboard does it for film so those guys opt to something else they showed</p> <p>Interviewer: yeah</p> | <ul style="list-style-type: none"> • teamwork |

Expert 3: in slightly different ways

Interviewer: but some from film/animation background what they mean by pace is actually how much narrative's been in games play or in animation being told in a certain amount of time so for example comparing to for example 1970s movies which they were very slow, they were showing every scene from for example point a to b when someone wanted to enter this room, if you show the door and just the handle or it means that someone has entered but previously in films they showed every ...a lot of frames for that

Expert 3: yeah

Interviewer: and they didn't have this leap or gap for the imagination of the watcher or user or the player. I understood that what they mean these days by pace in film/animation is this factor of having this gap. Ehhh I wanted to know your idea. I've named these pace number1 and pace2 because I thought these are two different ideas but they both are pace

Expert 3: So the so you're saying the amount of bits

Interviewer: by pace1 I mean how you manage to tell the story with different stresses and

Expert 3: Yeah, how long you ????? on certain things

Interviewer: The mood you create. And by pace2 I mean actually how much narrative is being delivered or said in certain time

Expert 3: yeah, ok

Interviewer: Do you use this word as an element of criteria? Do you consider itwhen you are evaluating your students' works?

Expert 3: we, at the moment we don't really necessarily consider too much of that. The... we try

to but a lot of time we spend with our students is about to spend unfortunately with a lot of more technical issues of teaching the actual software than it is to do with actually getting them thinking about storytelling and that kind of aspect. There's a lot to cram in unfortunately. It'd be nice if we have to have a lot more modules [laughing] to sort of build up so we could have initial start of just learning software and then moving onto something more complex of how to use it in specific situations

Interviewer: how to develop ideas

Expert 3: yeah we do we do point them in different directions in different things like that but emmm most of thembecause of the level of ??? no knowledge of animation it's start of just trying to teach them basics as oppose to going toI see story telling is a more complex thing as people don't like. They struggle to get over the initial herd of functionality before they hit that

Interviewer: ok

Expert 3: but we do try push them in the right direction

Interviewer: ok it's good to know that because there's a survey and study coming out by someone named IP.

Expert 3: yeah

Interviewer: ehhe, he has gone through industry needs and university needs and how they design these games design or game development courses

Expert 3: yeah

Interviewer: and final resolution is that there is actually about zero percentage let's say or 1 percentage of effort andon on this narrative and storytelling and the actual stories so this is not something specific to your department

Expert 3: Yeah... No

Interviewer: It is in the whole universities and

Expert 3: I think it's just the amount of time you get spend with people... if it's...I mean there are different... there's so much stuff going to a game that it's very difficult to have one course to fit everything

Interviewer: Sure

Expert 3: So obviously in **small development teams everybody has to have a sort of very broad range of different** skills but ultimately when it comes to specialism you may as well want to do the animation you do the animation course you won't do the games design course necessarily and then you would go to games I think and hopefully over three years you get the whole thing drilled into you where you get functionality and then people would build up on it with the refinement of skills

Interviewer: oohoom

Expert 3: but it's difficult with games design course because we got to teach them modelling and we got to teach them texturing and we've got to teach them the animation as well also games design potentially narratology as separate element and because it's so broad there isn't necessarily that connected

Interviewer: Sorry can I just make sure that you are doing design and development at the same time? You're not just doing design thing?

.....Cause in our university, our games design course is both of design and development so they do a bit of programming and a bit of design. Are you doing the same?

Expert 3: Aah, yeah,... it's all of them tint together so when you do the design

Interviewer: because some universities specially in Art faculties they just

| | |
|--|---|
| <p>Expert 3: They just do the Art. Yeah and they just</p> <p>Interviewer: Which are you?</p> <p>Expert 3: well the guys in our Art departments will focus more on the visual things aaamm we try to make things more functional and refine it as artistically as possible</p> <p>Interviewer: right so you are not just consider on programming only?</p> <p>Expert 3: No</p> <p>Interviewer: you are doing both like us</p> <p>Expert 3: yeah we do game design so that would be game mechanics and thing like that so it's a functional stuff and also narrotology and also goes into scripting engines like that</p> <p>Interviewer: I think the whole problem rises in this area, this sort of faculties which are doing interdisciplinary</p> <p>Expert 3: yeah</p> <p>Interviewer: both things together. Ok we are in the same boat then</p> <p>Expert 3: [laughing] yeah it seems a ?????? we have similar issues</p> <p>Interviewer: can I go through my questions</p> <p>Expert 3: yes</p> <p>Interviewer: these are my basic...for myself ... and then continue with the animatics</p> <p>Expert 3: yeah</p> | |
| <p>Interviewer: Do you encourage your students to make animatics instead of storyboarding?</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Expert 3: emmmm, at the moment no but we did think about it as regards to <u>ma????</u> Only events. Emm we wouldn't necessarily make.. we thought we could make probably early on this semester for</p> | <ul style="list-style-type: none"> • animatics |

for initial module in animation so we start teach them animation and one of the first things we probably teach them is overview storyboarding so it's goanna be incredibly basic maybe [extend???] a week or something like that just sort of they have an idea about how they want to do it so em they would produce a storyboard and then later on as they learn more about the actual software, more about animation overall that into this semester they would produce an animatic and then ultimately when they get to the end of semester they will hand in final finalised animation so potentially ...

Interviewer: will it happen in year one?

Expert 3: em...it's...I'm not [????] sure cause we're goanna move over to that so maybe em... maybe it would happen in year one where they would do...em ..it wouldn't be it wouldn't be anywhere near as complex as that. It would be much more ... have you seen animation mentor stuff?

Interviewer: No

Expert 3: well it's a bouncing ball with a tail

Interviewer: oh right

Expert 3: [laughing] so that's what we goanna get them to do potentially this year

Interviewer: as animatic?

Expert 3: as ...yeah we just ... very very short animation of a ball bouncing and showing emotion and things like that so it's not goanna be incredibly complicated storyboard and it's not goanna be incredibly complicated animatic

Interviewer: but would you use it as a substitute for storyboard or just animation?

Expert 3: em... I don't think we would ...well ...the view fromI think the guys in this office was that we would separate it out and say there would be a

storyboard and there would also be animatic because emm.. storyboard would produce an initial idea which we might...we could have a response to, we could give formative feedback on and that kind of thing so the student can actually go away and potentially improve it but also hopefully they would get some sort of confirmation they would doing something right as well and ultimately when it comes to the animatic that therein lies the kind of proof of your tempo and your pacing so although you might show it in storyboard it might seem obvious in storyboard the divide between that storyboard and doing it is quite a large [golf???] so it's kind of like a proof of a concept the timing

Interviewer: right

Expert 3: so one would be proof of a concept for idea and potentially things like the more film oriented things like shots and things like that although ultimately you know the animatic would also be refinement of that hopefully ...one would be hunt of idea and one would be the concept for the actual pacing and or animation techniques

Interviewer: ok

Expert 3: so that's why we would perhaps split it

Interviewer: So could you think the animatic is actually a certain goal which should be followed by after a set of storyboarding. It is not instead of storyboarding to make asomething further?

Expert 3: yeah, I mean ... I don't see why they couldn't necessarily sit in isolation and you could probably just do an animatic and create that and not worry about storyboarding initially. I don't see why that couldn't happen but likewise I think it can sit quite nicely in terms of a refinement and the reinforcement of ideas

Interviewer: ok thank you.

| | |
|--|--|
| | |
| <p>Interviewer: How do you evaluate your students' storyboards/animations?</p> <ul style="list-style-type: none"> • Comparison? • Industry standard? • Set of Criteria devised at the institution (like grading guides) | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Expert 3: E...m I think that's probably quite tricky [laughing] for us I mean</p> <p>Interviewer: You know, I know that there is some certain amount of subjectivity going on</p> <p>Expert 3: Yeah</p> <p>Interviewer: with evaluating. I'm not interested in students' marks but how you evaluate animations or works</p> <p>Expert 3: I don't think that we have we don't currently have any gold standards or sliding scale and to be honest nothing it is largely subjective. the storyboard at the moment in the modules they would actually create them is a very very small it is been introduced late, late in the life of the actual module and everything will change this year anyway em but it is incredibly, currently incredibly subjective we do mostly just compare work to make sure everything is right em it's</p> <p>Interviewer: Is it comparison between students' works or between something in your mind?</p> <p>Expert 3: well, we do sit down with each other but largely we are left to our own devices to make sure we have our own kind of idea and ironically we seem to get it pretty much exactly the same because we do compare before, before and after as well so...</p> <p>Interviewer: by compare I mean for example you say: ok this student is good so it is the best of all students</p> <p>Expert 3: yes</p> <p>Interviewer: so his or her mark is for example 90</p> | <ul style="list-style-type: none"> • criteria |

and this student is, doing very poorly so in compare to that one

Expert 3: yeah

Interviewer: Do you do that?

Expert 3: yes we we go through it before we'll take a selection before and the module leader almost likely go through those and we'll discuss potentially those ones that they graded to specific bandings. There's always going be a variation within that though and certain people get certain things right and certain things wrong

Interviewer: and the styles are different

Expert 3: the stories are different em...eh ...yeah but that's..... hopefully we get ... the storyboarding are really there to make sure whether they are on the right or wrong track

Interviewer: oohoom

Expert 3: and initially they'll get some formative feedback on it to...so that we ... they know what's right and what's wrong

Interviewer: ok

Expert 3: as far as we're concerned anyway em... before they move on because we always tell them that well ... they have an initial hand in. That's on week 4 or something like that but then when they'll actually finish their work there should be another.. another version of the storyboard so is a more finalised version after their formative feedback

Interviewer: which would be evaluated

Expert 3: which would yeah which would finally be evaluated so although the initial one is a hand in and it is marked it's it's more of a sort of a milestone to make sure they are on the right track so ..

Interviewer: So there are something in background that you are referring to like say criteria to

Expert 3: yeah

Interviewer: say what is right and what is wrong

Expert 3: It's it's unfortunately

Interviewer: but sort of subjectively....

Expert 3: yeah it's unfortunately a little bit of unwritten sort of code I think more than anything else

Interviewer: ok

Expert 3: It's mostly, a lot of it is do with... our criteria is very technical base more than anything else like I said they head the main [herdal????] because they coming into it without any knowledge they've got to get over the software herdal????

Interviewer: right

Expert 3: and we need to make sure that they learn the right things about the software more

Interviewer: ok

Expert 3: more potentially than the narrative

Interviewer: ok

Expert 3: although we do push them in that direction

Interviewer: let's forget about the narratives at the moment but do you say that you are insisting on ...eh... the tools that they have learnt in software

Expert 3: yeah

Interviewer: but do you consider these arty thing like for example having perspective or having light and shadow as a contrast

Expert 3: [laughing]

Interviewer: because in the

Expert 3: [laughing]

Interviewer: because these are not a software thing

Expert 3: well some of it, in some ways it is a software thing but it's more to do with the correct

| | |
|---|---|
| <p>application, isn't it? And making sure that the</p> <p>Interviewer: do you consider these things as well?</p> <p>Expert 3: yeah, we constantly show them the technique and we constantly show them how it could potentially be best applied to create specific facts em so that they are they are learning.... The problem is with these things as well as the animations takes a long time and a lot of lot of the look and feel things takes even longer especially when you start rendering, post-effects and all the other fancy things that you can add, add to it especially with lighting if you do any lightings and anything like that the animation will look a lot better</p> <p>Interviewer: yeah</p> <p>Expert 3: but ultimately it's gonna take so many times longer per frame</p> <p>Interviewer: sure, yeah</p> <p>Expert 3: so we do tell them these things but I think they are constantly aware that they don't hit a visual quality because of the time it takes to do so I think</p> <p>Interviewer: yeah, thank you</p> | |
| <p>Interviewer: Annotation: the effect of annotations in communicating ideas vs. the powerful drawing skills like children's' cartoons which don't communicate via text or annotations or manga cartoons in different language.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Expert 3: Em ... I suppose it depends on how long the storyboard is [and things like that????]. If it is more like a comic book then you end up doing a lot more work with pictures than do with animation [laughing] annotation sorry</p> <p>Interviewer: annotation</p> <p>Expert 3: yeah annotation em so you need that</p> | <ul style="list-style-type: none"> • teamwork • animatics |

| | |
|--|--|
| <p>description if you got if you can press that storyboard em...and you[definitely????] need that. The other thing is that em.....the translation from the annotation and pointing things out such as such as timing such as camera movement and things like that so when you got that annotated next to the actual frame it doesn't... although it's been thought of again like I said the translation to final animatic and the translation to the final animation isn't always set you know, it doesn't necessarily follow through although you've written it down that you understand it</p> <p>Interviewer: yeah, for example this animatic [serious salmon] they have used annotation a lot: "the hero goes there", "the hero did that" [noise] there is some annotation on the frame and some on the picture actually</p> <p>Expert 3: yeah</p> <p>Interviewer: do you think it's necessary or just a fancy thing? [noise] or [it is so powerful that communicate with]</p> <p>Expert 3: I think I think it's Well... the pictures spend only telling you so much and although they already have a very strong visual impact potentially if they've done it right, if you picked the iconic frame, frames then you goanna have a big impact and you goanna goanna be able to present that story overall well and.... But the trouble with that is that because you've got frames that you are sort of [????] space ...you can...used talking about tempo how your brain pieces things together the bits in between and it might seem obvious</p> <p>Interviewer: oohoom</p> <p>Expert 3: but when it's come to actually doing it and going through the timing of it and making sure that the camera views are clear and all other these</p> | |
|--|--|

aspects that it doesn't translate, that's so if

Interviewer: so you need annotation

Expert 3: I think that, well, it needs to be as clear as possible. So it's whatever helps the individual or the individual teams..

Interviewer: oh right

Expert 3: that, that are doing it, if if...the trouble is that as students they're not going to, don't have any precedence, they're not unless they've done lots of modules on animation before they don't necessarily know how to work together, they don't necessarily understand each other's forms and short hand [as it works????]

Interviewer: right

Expert 3: so when the student or one person –it's the same within industry- if you if you start working with a new person or you or you got to [body]????up with somebody within a certain project and they think differently and they you you instantly have a barrier to your communication between those people and storyboard is a lot like that. All the information sits in isolation within a frame

Interviewer: oohoom

Expert 3: and to actually get to that end result for the animation it's [laughing], it's it is this gigantic [????golf] really because a lot can go wrong with it, especially when you're working within teams

Interviewer: exactly

Expert 3: So it's whatever you can do to minimise any issue with the communication em either within a team or to your lecturer and if it's a solo project the better

Interviewer: ok

Expert 3: and to make sure you know even you understand what you're doing

Interviewer: [laughing]

Expert 3: [laughing]

Expert 3: you know, that you know it's whatever works for you andobviously these guys (serious salmon team) of sort of you know it's grown exponentially and it's been a very organic thing it's become much more fined over the time but it's likewise it's northeir final animation, is it? There isn't any initial storyboard and that's worrying in some ways

Interviewer: oohoom

Expert 3: so though they've produced a very nice result, it's not clear initially.

Interviewer: ok...ok

Expert 3: so it more more more could've been done

Interviewer: regarding to my question you mean if a team or a person think that annotating helps to clarify they should use annotating

Expert 3: yeah and it's also the lengths whatever length they go to if they think they need to add more frames, be clearer about em...in this case have it read like a comic book or something like that if that makes it clearer to them em then they should do it

Interviewer: ok, it's it's a new idea to me to whatever I have done

Expert 3: yeah

Interviewer: so far

Expert 3: I think I think

Interviewer: yeah

Expert 3: this is perhaps minimal information really and you know they you would get a lot more information in film storyboards than they've put on here

Interviewer: ok, thanks

| | |
|--|---|
| | |
| Interviewer: Weighing: the applicability/importance of elements of CRITERIA | |
| Expert 3's Reply | Emergent Theme |
| <p>Expert 3: I think, I don't know. Have you got have you got instances where you've got a storyboard that doesn't meet the criteria? of a sort of certain things.</p> <p>Interviewer: yeah.... For example in this one</p> <p>Expert 3: yeah</p> <p>Interviewer: although "effective use of line" could be a very good thing to communicate ideas</p> <p>Expert 3 yeah this is all shaded in (refer to serious salmon)</p> <p>Interviewer: yeah but this is not a line-based</p> <p>Expert 3: No</p> <p>Interviewer: piece of work so I cannot say that it is very poor in "effective use of line" because it is not line-based</p> <p>Expert 3: No</p> <p>Interviewer: So I shot down this element in evaluating this sort of criteria</p> <p>Expert 3: yeah</p> <p>Interviewer: And for example where I am evaluating it as em...from viewpoint of functionality of a game design maybe this artistic things don't come as that important as the film/animation/games criteria would be. I was just wondering if this is a good decision to weight the different elements or not</p> <p>Expert 3: I would probably say that it is inevitable but again I don't think you can allow for it you know statistically or anything like that [laughing] I don't think it's goanna be....it's goanna have to be more one of those subjective things.... Where one group or one person may just approach it in an entirely</p> | <ul style="list-style-type: none"> • criteria • weighing criteria |

| | |
|---|------------------------------|
| <p>different way and</p> <p>Interviewer: yeah, so this would make a space for evaluating a..... a piece of work to be as objective as possible but fair as well.</p> <p>Expert 3: yeah, it's ...I suppose when it comes down to it you, you're thinking of very generic criteria like things like "<u>visual clarity</u>" so you can understand each frame and how that translate that could be anything, that could be the graphics, that could be line work, that could be digital painting in Photoshop, that could be magic markers in drawings, so there's a massive range of different media, different different methods that students could use so it's it means the criteria have to be titled in a more vague manner I suppose</p> <p>Interviewer: [laughing]</p> <p>Expert 3: so, you know so long as they're performing the goal of the storyboard which is to communicate the idea, so you've been less specific about</p> <p>Interviewer: right, right this is something that I am struggling with</p> <p>Expert 3: yeah</p> <p>Interviewer: how specific should I go? To be objective, to be fair and but</p> <p>Expert 3: unless, unless you formalise the response that they have to make and say that it will be drawn using in this manner that... but again I think you know all students will perhaps be against of it and not particularly be happy about it. And you</p> <p>Interviewer: and it's actually this is not the point</p> <p>Expert 3: yeah it's not necessary. It's restriction in some ways</p> <p>Interviewer: ok</p> | |
| <p>Interviewer: Evaluation: frame by frame vs. the whole animatic.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |

| | |
|---|--|
| <p>Expert 3: I suppose you've gotI think back to the idea of clarity and visual clarity is that each frame will have hopefully the impact that it needs to tell the story and tell specific moment in time but also how does how does it flow through the events, how does that that timing work back. Is there enough information to piece it together em the actual sequence of the events so I suppose <u>visual clarity of each frame</u> but also <u>the clarity of storytelling</u> and <u>the flow from event to event.</u></p> <p>Interviewer: ok, thank you.</p> | <ul style="list-style-type: none"> • criteria |
| <p>Interviewer: Do you recommend storyboarding software to your students to create their storyboards?</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Min 47.15 to 47.56 Expanding the question</p> <p>Expert 3: we don't either although sometimes I wonder [laughing] about the value of that. We do, we do give out a template for the actual storyboards, so they could use that if they really wanted to which just leaves us space for the individual frame and comments and annotations basically but it's very blank. It doesn't necessarily leave somebody with the information they need things like the type of camera and the position of movements and the things like that. They they've kind of left to you know their own devices with regards to the language they use and things like that whereas they should be hopefully picking up the language that is appropriate to film or appropriate to whatever em whatever it's whatever is happening basically so is it a close-up shot? Is it not a close-up shot? Does the camera move? Things like that. Em which way does it move? Does it rotate? Etc. and so they kind of left up to their own devices in terms of that so it's a sort of very</p> | <ul style="list-style-type: none"> • storyboarding software |

blank tempte

Interviewer: ok

Expert 3: which in some ways it's quite bad because it doesn't, it doesn't force them to think about a reasonable checklist of ideas

Interviewer: ok

Expert 3: and likewise they are left [?????] a little bit with regards to the art

Interviewer: So it seems that although we don't need to we don't like to have these objective criteria but sometimes we need them [laughing] you know

Expert 3: yes. Well it is kind of like the minimal thing. It's like I said about these this is quite a very sort of basic overview. It's not really covering a lot of what the film industry people would use with regards to camera set up and positions and movements and things like that. It's and it doesn't talk about transitions either or what happens between that instance and the next frame

Interviewer: right

Expert 3: how we get transfer between those two things

Interviewer: ok

Expert 3: So [laughing], I don't know forcing them, forcing students to think about these things it only be a good thing and to be honest otherwise they would sort of get left at [sea ?????]

Interviewer: oohoom

Expert 3: with regards to that and you know potentially we'll get students that will use one camera view constantly. May not even use a camera just using a perspective view in 3D studio [laughing] em and things like that or move how one camera attracts to the entire scene

Interviewer: ok

| | |
|--|------------------------------|
| <p>Expert 3: strange things which don't necessarily translate to telling story all that well</p> <p>Interviewer: right. Thank you. Thank you very much</p> | |
| <p>Interviewer: Show animatic 02,03,04,05 to the expert.</p> | |
| <p>Expert 3's Reply</p> | <p>Emergent Theme</p> |
| <p>Min 50.52 "Isometric" (animatic sample)</p> <p>Expert 3: little things like the size of video as well. It's quite important cause that's goanna be you know what what the person is actually seeing</p> <p>Min 52.43</p> <p>Expert 3: Interesting</p> <p>Interviewer: what would be your synopsis of this animatic?</p> <p>Expert 3: em.....It kind of tells a story I guess but I don't really know what's happening the stuff. I assume someone is trying to escape from spaceship that's blowing up ...in this kind of these tracking shots are a lot sort of better than sort of you got the information the actual pod coming down and landing and it's relatively clear but it's such a mishmash of style</p> <p>Interviewer: [laughing] exactly</p> <p>Expert 3: a different I don't know but this one person did the start one person did the middle and then one person did that end sequence and they kind of pieced it together at the end and I don't know someone is to find some glowy, glowy thing at the end so it's very fragmented and it's not necessarily all that clear about what's happening</p> <p>Interviewer: ???? could you be able to tell story, what is happening in this you know</p> <p>Expert 3: well this [????] there's someone on this spaceship which is blowing up and the scape pod lands on earth and then they find that glowy beam</p> | <p>N/A</p> |

| | |
|--|--|
| <p>light and that's the story. [Laughing]</p> <p>Interviewer: [Laughing]</p> <p>Expert 3: That is basically the story. You've got different ideas working there. They've got the camera shake so you automatically know that something is something's going rather wrong. You've got the first person's perspective ... as well which is important I suppose to... the... game aspect of things in some ways that [????] that would be good opening to an emergency situation re-throwing you to the action if it was a games...game situation but again you know it's it's skipping out of that and were you know.... Then we've got that [light????] power which seems to overview the situation towards the end so it's fragmented in terms of the story telling</p> <p>Interviewer: yeah and style</p> <p>Expert 3: and style I'm assuming 3 different people worked on that</p> <p>Interviewer: right</p> <p>Expert 3: I don't know whether they did</p> <p>Interviewer: I'm not sure but I wasn't thinking about that ...these are.. I know that this is very fragmented and..</p> <p>Expert 3: yeah</p> <p>Interviewer: but I didn't think about 3 different people doing that. It is a good idea, yeah. Perhaps it was this.</p> <p>Expert 3: it does seems like because it is 3 different way to doing it</p> <p>Interviewer: yeah</p> <p>Expert 3: and this is quite original. This person having trouble with the isometric [laughing] perspective. It's not like, it's unclear that I don't know why these people [????]around the green globe....green capsules or whatever ...en</p> | |
|--|--|

...someone likes to use photos someone likes to perhaps the most basic drawing in the world

Interviewer: exactly

Expert 3: but again it shows the perspective shows that the character is moving through through space but

Interviewer: if you wanted to have a overall evaluation based on this (refer to criteria table sheet) what would you say? I would say for example they don't have an effective use of style

Expert 3: well it's...[laughing] it's not a coherent style, I don't think necessarily that it is. It's an ineffective use of style between sections so that at the moment you know both this section and that section show the action relatively clearly although this one is a little bit more confusing and that's the most basic thing you could possibly ever do it's not like, it's unclear but or in terms of **storytelling** ineffective but artistically not together as a product

Interviewer: ok, thanks.

Expert 3: that's that style thing is difficult thing to sort of truly nail down I think. I suppose it's one of those things that you constantly getting come up against. It's the... you got disparate elements that don't marry together very well

Interviewer: right yeah for example from camera viewpoint they didn't have annotation anyway

Expert 3: no

Interviewer: they they do have characterisation. They have some characters but I don't know how much effective for example

Expert 3: It's not. No well.....

Interviewer: this is the ant-like character

Expert 3: You got a 1st person view so the character isn't there

Interviewer: yeah

| | |
|--|--|
| <p>Expert 3: really, and I suppose you got the characterisation of the ship and the pod itself there but there's not...it's not, that is the most basic sort of representation of a human being so it's not necessarily characterisation. It's just it's giving you a frame of reference for scale and there is a person potentially</p> <p>Interviewer: ok thank you. Could you please move to the next one</p> <p>/*****/</p> <p>Min 58.07 "<u>The Castaway</u>" (animatic sample)</p> <p>Expert 3: ... it is little things like this as well...if you wanted to tell it cinematically it needs to be in a cinematic format</p> <p>Interviewer: right</p> <p>Expert 3: so the frame is important and it gives you the area and what you can play around with so you got square square aspect and you might be so given problems anyway you 'll find difficulty to say some certain stories and</p> <p>Interviewer: ya</p> <p>Expert 3: and give us the impression of the overall seen</p> <p>Interviewer: this is interesting point ya</p> <p>Expert 3:sound for that one</p> <p>Interviewer: no</p> <p>Expert 3: ok</p> <p>Interviewer: what would be your seen for this one e hi hue he h e</p> <p>Expert 3: e there is a plane a crashes and the survivor walks around the island find a cave with bad things in it and there is a math scientist there \$%^7&</p> <p>Interviewer: in contract with other ones with</p> | |
|--|--|

especially with one this is just nine sketches e
putting through some transitions and nothing else

Expert 3: ya

Interviewer: so

Expert 3: and it is quite round How they do
she got cut and one fade so is the purpose of that
one why using certain things because that seems
like is it it is interesting it is almost like the
transition of time

Interviewer: exactly

Expert 3: ya

Interviewer: and stop on each frame a long a long
time

Expert 3: but everything happens very very quickly
it is like bang bang bang because a transfer in
some way .. I know it lingers on certain things
quite a long time

Interviewer: and the certain story is shorten into
nine things nine frames but stay on each frame for
a long time

Expert 3: mes outya it's the way of doing its that
one transition comes out as an attempt show like
a passage of time or something like that whereas
everything else seems to have been equally meted
in some way or that quite quick I think

Interviewer: No the transition time are the same

Expert 3:ya its its its its just giving you the
information there is a frame there is a frame but

Interviewer: exactly

Expert 3:there is different there is a passage of
time

Interviewer: how would you evaluate this in terms
of these criteria

Expert 3: stylistically it is together and it is
relatively clear we know what the characters doing

Interviewer: except we don't know who is telling

the story because at the end

Expert 3: we don't know who the character is

Interviewer: no

Expert 3:and

Interviewer: the only character would be injected at the end

Expert 3:ya

Interviewer: and we don't know what happened to him

Expert 3:we don't know the math scientist injects himself or whether the other guy is been traps at engine somewhere and been injected on himself so it is very unclear if you are going that karate criteria then it wouldn't wouldn't really work out very well

Interviewer: you mean the story not the visual

Expert 3:yes the overall story narrative karate is supposed to our karate I suppose

Interviewer: right yeah

Expert 3:again you got effective use of line well you know its in its we know we can see it that is it that is a plane they have done their line workers it is relatively clear really

Interviewer: yeah

Expert 3:it is not the best piece of art in the world but it is clear we know that there is a beach we know that there is a path leaning to the cave we know there is some sort of

Interviewer: you know this is what annoys me it is clear but is not good

Expert 3:yes but yeah that is the things the students thing understands either when we ask them to do these things....I can't draw ...but it is not really about the quality of the art work but that is not what we are looking for we will trying to you are trying to communicate to us that you have a

good idea and the clarity of the idea is the most important thing that you have taken on board the technical aspects you taken on board the narrative aspect as well and there is that divide between good art and a clear design that is not something they quite understandforce to something.....children would draw and the young children would draw picture of the parents and things like that houses and whatever he can tell us a person in sometimes it is that much of information you need but the likewise you need to show improving and thinking of this high level of understanding for story telling

Interviewer: right

Expert 3: you know is the clarity of story and the clarity of the actual thing itself because it can be cleared but it can be bad art in some ways who know I know that is skeleton it is not a very good well drown skeleton but I know it is skeleton so as far as communication of ideas are concern that is you know that skeleton is not a very good well drown skeleton

Interviewer: ok what about the other ones

Expert 3: in the vision of perspective is an interesting one because we do know that it is there that is animatic I would have be expecting used to do a

few of these things with do a few of these things with so it is working a.. design agency we used to do a very lot of very quick sketches and we have a flash guy who very quickly mark off stuff

Interviewer: ok

Expert 3: and so tell stories and show interaction with interface something like that that is what I would have expected from these because still picture quite often doesn't show the perspective

you can place objects in front of each other so that you know if you have person if they were very large hopefully that they close to be giant we think like this when we got action sequences you could have used they could have used this one island and lock the guys did the first example ... example of scaling movement within the same they can drown a larger frame and zoomed out from established the island zoomed out showing the plane coming in scaling down the crashing

Interviewer: this is what they have done

Expert 3:ya but its it's a with movement suppose the actual frame itself so the thing that first group jumped on was the sense of scale and perspective and this person hasn't redone that they know what they want to say but they haven't got around to showing the perspective showing the illusion of perspective within their images released not entirely we got perspective there really when it comes to it and we got beach we got character we can see that everything we got sense of the world so in that in that in that from that idea it is clear even without it there is a person walking with on the beach with the trees behind them we know that we can see that depth but the transition the opportunity to show movement through space is perhaps the higher order of the expectation within the illusion of perspective

Interviewer: right ok

Expert 3:perhaps still images tells part of the story

Interviewer: but they haven't used light and shadow

Summary

- We don't really consider too much of Criteria because a lot of time we spend with our students is unfortunately more about a lot of technical

issues of teaching the actual software rather than to do with getting them thinking about storytelling and that kind of aspect.

- It'd be nice if we have to have a lot more modules to have initial start of just learning software and then moving onto more complex issues of how to use it in specific situations.
- Story telling is a more complex thing as people don't like. Students struggle to get over the initial herd of functionality before they hit that but we do try push them in the right direction.
- There's so much stuff going to a game that it's very difficult to have one course to fit everything.
- In small development teams everybody has to have a very broad range of different skills but ultimately when it comes to specialism one may prefer to do one special course like animation rather than Games Design.
- But it's difficult with Games Design course because we got to teach them modelling, texturing animation as well also games design potentially narratology as separate element and because it's so broad there isn't necessarily that connected.
- Games Design is about game mechanics and functional stuff, narrotology and also scripting engines. Therefore, we try to make things more functional and refine it as artistically as possible.
- Don't do animatics are thinking about adding it to their animation module but it wouldn't be anywhere near as complex as the samples from UoG.
- Their plan is on short animation of a ball bouncing and showing emotion and things like that so it's not going to be incredibly complicated storyboard or animatic.
- Storyboard would produce an initial idea which enables tutors to give formative feedback on so the student can potentially improve it but also hopefully they would get some sort of confirmation they would doing something right as well
- In animatic the tempo and pacing is shown so although one might show it in storyboard there is a large divide between that storyboard and doing it so it's kind of like a proof of a concept of the timing.
- so one would be proof of a concept for idea and potentially things like the more film oriented things like shots and things like that although ultimately you know the animatic would also be refinement of that

hopefully ...one would be hunt of idea and one would be the concept for the actual pacing and or animation techniques.

- Although I don't see why they couldn't necessarily sit in isolation and you could probably just do an animatic and create that and not worry about storyboarding initially.
- We don't currently have any gold standards or sliding scale it is largely subjective.
- our criteria is very technical base more than anything else and we need to make sure that they learn the right things about the software.
- We constantly show students the technique and how it could potentially be best applied to create specific facts so that they are learning.
- The problem is with these things as well as the animations is that it takes a long time and even longer especially when they start rendering, post-effects and all the other fancy things that they can add especially with lighting because lightings and anything like that would make the animation look a lot better. so students are constantly aware that they don't hit a visual quality because of the time it takes to do so.
- It depends on how long the storyboard is. If it is more like a comic book then it will end up more with pictures rather than annotation.
- Storyboards need to be as clear as possible. So it's whatever helps the individual or the individual teams.
- The trouble is that students unless they've done lots of modules on animation before they don't necessarily know how to work together and understand each other's forms and short hand. it's the same within industry.
- This barrier to one's communication with others is the same in storyboard. All the information sits in isolation within a frame. So whatever one can do to minimise any issue with the communication either within a team or to a lecturer and if it's a solo project should be done.
- It is inevitable but again I think it is one of those subjective things where one group or one person may just approach it in an entirely different way.
- It should be thought of very generic criteria like "visual clarity" so one can understand each frame and how that translate that could be anything like graphics, line work, digital painting in Photoshop, magic markers in drawings, etc. So there's a massive range of different media, different

methods that students could use. This means the criteria have to be titled in a vaguer manner.

- So long as students are performing the goal of the storyboard which is to communicate the idea, unless you formalise the response that they have to make and say that it will be drawn using in specific manner which all students will perhaps be against of it and not particularly be happy about it. It's also not the point and this restriction would not be necessary.
- It must be visual clarity of each frame but also the clarity of storytelling and the flow from event to event.
- We don't encourage it.
- We do give out a template for the actual storyboards, so they could use that if they really wanted to which just leaves us space for the individual frame and comments and annotations basically but it's very blank. It doesn't necessarily leave somebody with the information they need like the type of camera and the position of movements and the things like that.
- Students should be left to their own devices with regards to the language they use whereas they should be hopefully picking up the language that is appropriate to film or appropriate to whatever is happening basically so is it a close-up shot? Is it not a close-up shot? Does the camera move? Which way does it move? Does it rotate? Etc.
- in some ways it's quite bad because it doesn't force them to think about a reasonable checklist of ideas.

Appendix W: Summary of the Results Based on Emergent Themes

| Summary of Results | | |
|---|--|--|
| Chapter 4: Section 4.5 (Experts and professionals) | Chapter 5: Section 5.5 (Students) | Chapter 6: Section 6.5 (Experts) |
| <ul style="list-style-type: none"> Both tutors in other Universities and professionals working in industry asserted that storyboarding is about communicating ideas and one does not need be able to draw particularly well to get ideas across. They encountered communicating ideas as essential factor in teamwork. Therefore this skill needs to be addressed in IGD course design. However, there was no evidence to show that the problem is being addressed in a module tailored for idea generating and communicating by | <ul style="list-style-type: none"> It is important to acquire drawing/ storyboarding skills specifically for teamwork which also helps creativity. A short intervention workshop is not enough and specifying more resources such as a module or several sessions would be more effective. Regardless of the personal choice of storyboarding techniques which is sketching on paper for skilful drawers and using software for those with poor drawing skills, the focus of any Art intervention needs to be on the following element in a | <ul style="list-style-type: none"> although the Art intervention workshop at UoG is effective to some extent to raise the issue of the need for storyboarding skills for IGD course, it cannot address students' difficulties in communication of their ideas by drawing/ storyboarding due to its limitations and also the complications in the nature of the problem itself. Teaching styles used by different tutors have direct influence on students' mind set and the way of implementing their projects. Therefore in order to design a |

| | | |
|--|---|--|
| <p>storyboarding.</p> <ul style="list-style-type: none"> • Designers from industry perceived hand sketching by pen and paper important and essential to focus on idea generating and visualisation at the design stage. Using software was recommended at the stage of adding details and documenting the results as deliverables to clients and stakeholders. <p>Therefore IGD students need to develop both skills (hand sketching and using software) and be aware of using each at the appropriate stage of Games Design.</p> | <p>structured goal-based pragmatic manner:</p> <ul style="list-style-type: none"> • Emphasise on enhancing students' visual awareness to enable students visualise their ideas in the first place. • Storyboarding does not necessarily need to have artistic merit. • Introducing other techniques like software facilities for those with poor drawing skills. • Providing students with enough knowledge about the industry standards in terms of needed level of drawing skills and also final presentation requirement in digital format. • Emphasis on character design. | <p>framework for any kind of intervention including an e-Learning object to develop storyboard communication skills at the end of this research the core concepts of the problem, styles of delivering the material and limitations of them should be taken into consideration.</p> <ul style="list-style-type: none"> • The main problem identified at the heart of deficiencies in drawing/ storyboarding skills to communicate ideas is the lack of visual awareness. • Visual awareness is having compositional and observational skills and the ability to break down the elements and think about value and contrast issues to be able to draw important and central components and their relationship in a scene of storyboard. |
|--|---|--|

| | | |
|--|--|--|
| | <ul style="list-style-type: none"> • Learning how to storyboard through software can only happen if it is combined in a blended learning manner with well-designed tutor-led sessions. • Mind maps were encountered as helpful tool to visualize the flow of the levels and layout of whatever is going to be done in a project. • Considering this, addressing the final aim of this study in design of a framework for an e-learning object might involve some design aspects of a tutor-led session too. Taking into account the activist/pragmatist nature of most of IGD students and their fascination to active learning method one suggestion is to use | <ul style="list-style-type: none"> • In order to attain visual awareness skills students need training which is like learning a new language providing them with new set of vocabulary which takes time but enable them to express how they feel when they look at certain objects. • In order to be able to communicate ideas, it is fundamental to obtain visual skills before being able to either draw or using other techniques for storyboarding. • This means that in order to be able to use computer applications including mobile apps on sketching/storyboarding one needs to acquire the visual awareness first. This suggests that IGD course team in technical universities need to teach this fundamental issue so |
|--|--|--|

| | | |
|--|--|---|
| | <p>this teaching method for intervention and make the e-learning object as interactive as possible and hence avoid book simulation with linear structure.</p> <ul style="list-style-type: none"> • Provide basic templates that users can modify to make it all relevant to their project e.g. for films and also allow users create their own templates. • Have some key point as to where to start. • Provide some pre-drawn icons for objects like a car, road, cat, etc. • Include basic drawing techniques for storyboarding (one of the big reasons that students do not do storyboards is because they feel that they cannot draw). • Provide drawing tools. • Help the user to structure storyboards | <p>they can address students' problems in communication of their ideas.</p> <ul style="list-style-type: none"> • Investigating on the methods used in Art schools for Animation courses suggest that they focus on teaching the fundamentals for visual awareness either through a specific module for storyboarding or specifying time and resources of other modules for this matter. Apart from this they employ different strategies to help students coming up with ideas, strengthen their visual skills and then be able to visualise and communicate those ideas by storyboarding. These strategies are such as teaching short story writing skills, encouraging students to do micro studies, getting students to observe |
|--|--|---|

| | | |
|--|---|--|
| | <p>(not every storyboard is linear like cartoon. It might be for a website or menu system with branching off).</p> <ul style="list-style-type: none"> • Provide mind map tools. • Have video clips and audio recorded to it as well as visual tools. • Be easy to use and similar to existing software and not very technical so everyone can use it. • Have very friendly user interface so the user would not need to read about it. • Be more “how to” type of software rather than theory and essay stuff. | <p>their environment to get the idea of timings, actions, the perspective and how it looks, showing students various examples of successful and poor storyboards, getting them to do trial error storyboard as a method to explain their ideas and having constructive critical feedback within the whole group including the tutors and other students. For storyboarding purpose they emphasise on the important issues of film making storyboarding techniques such as camera viewpoint and aspect/ ratio concerns for different mediums such as TV, wide screen and mobile phone. From Art intervention design or course design point of view at technical</p> |
|--|---|--|

| | | |
|--|--|---|
| | | <p>Universities these strategies are inspiring. In regard to this study the focus of these strategies on strengthening the visual awareness by introducing the concept of story writing and micro studies as well as film making storyboarding concepts can be considered in designing the framework which is the final aim of this research.</p> <ul style="list-style-type: none"> • The step by step techniques they use to storyboarding in Art school can be as an effective functional procedure in designing the framework since storyboarding for animation and games are very similar. The steps of this procedure are mind maps, mood board, story development based on a random sound |
|--|--|---|

| | | |
|--|--|---|
| | | <p>clip and a RVJ on a blog.</p> <ul style="list-style-type: none">• employing other techniques called rapid prototyping techniques such as using images from other sources like the Internet and playing with them via software such as Photoshop, Aftereffect, Flash and 3DsMax and using modelling, rendering, perspective facilities or tracing tools.• According to all experts in order to communicate ideas by storyboarding one does not need to be a professional artist.• However, in order to be able to use rapid prototyping techniques one needs to have visual skills first.• Although rapid prototyping techniques are functional and realistic tools to communicate ideas |
|--|--|---|

| | | |
|--|--|--|
| | | <p>by storyboarding, none of experts encourage their students to use storyboarding software such as “Storyboard Quick”, “Moviesoft”, and “Storyboard Pro” because it is believed that students can create their storyboards however best suits them and the final end product and also they understand storyboarding more if they do it themselves. This suggests that the design of the e-learning object at the end of this study should not be based on storyboard making type of software and focus on strengthening visual skills as well as rapid prototyping techniques.</p> <ul style="list-style-type: none"> • For assessment of quality of storyboards three sets of criteria were |
|--|--|--|

| | | |
|--|--|---|
| | | <p>devised from Graphic Design perspective and Film/ Animation perspective.</p> <ul style="list-style-type: none"> • Graphic Design perspective: 'finesse with materials', 'positive and negative space (contrast)', 'perspective' and 'shading' were identified as most important and relevant ones. • From another point of view the elements necessary for the basic sketching vocabulary can be categorised into 'characters', 'environment (landscape)' and 'objects'. Majority of experts identified characters the most challenging element to draw since it is harder to hide the drawing deficiencies in creating faces as the most complex part. • The criteria from |
|--|--|---|

| | | |
|--|--|---|
| | | <p>Film/Animation are 'time sequence', 'pace', 'location of interaction', 'characterization', 'annotation' and 'camera view points'.</p> <ul style="list-style-type: none"> • On the other hand it was suggested to consider 'ease of marking': to have at maximum seven criteria per assessment, five of which to be directly linked to the learning outcomes for the module and the other two to be on assessment of good practice or being linked to the wider programme outcomes such as employability, good academic practice or industry awareness/practical viability. • Using animatic in Animation modules is effective because it can show the storyline and mood by using movements and 2D shapes with |
|--|--|---|

| | | |
|--|--|---|
| | | <p>music which helps communication of ideas relatively straightforward and unlike simple storyboard it shows tempo and pacing which is a kind of a proof of a concept of the timing. But it was suggested that it is a poor technique from simulating gameplay point of view.</p> <ul style="list-style-type: none">• Therefore for modules specific to Games Design it is suggested to encourage students to make Game Design Documentation which includes concept art, flowcharts for actions and narrative, move lists and control systems.• Under the general consideration of how effective the communication is, the criteria to evaluate animatics were suggested to be 'draftsmanship/ |
|--|--|---|

| | | |
|--|--|--|
| | | <p>aesthetics', 'mood' , 'action and dynamism', 'pace' and 'gameplay'.</p> <ul style="list-style-type: none"> • The course philosophy, the influence of tutors and academic environments and even class sizes and course design are effective factors in motivating students and directing their educational experience. • Cultural differences in education compare to other countries educational systems or in regard to previous generation educational experience is another influential factor. The evidence on students' psychological profiles indicates that for the course design to be effective, tutors needs to consider current students' specific personality traits. In this regard |
|--|--|--|

| | | |
|--|--|--|
| | | <p>the core issues such as patience, confidence and teamwork should be addressed in a constructive and gamified style which appeals most to students. Pursuing learning in a theoretical fashion such as book reading also needs to be avoided due to students' taste in learning.</p> |
|--|--|--|

| Summary of Results Based on Themes | | | |
|---|---|---|---|
| Emergent Themes/ Views | Students' Views | Experts' Views | Professionals' Views |
| drawing skills level | <ul style="list-style-type: none"> Storyboarding does not necessarily need to have artistic merit. | <ul style="list-style-type: none"> Storyboarding is about communicating ideas and one does not need be able to draw particularly well to get ideas across. | <ul style="list-style-type: none"> Storyboarding is about communicating ideas and one does not need be able to draw particularly well to get ideas across. According to all experts in order to communicate ideas by storyboarding one does not need to be a professional artist. |
| teamwork | <ul style="list-style-type: none"> It is important to acquire drawing/ | <ul style="list-style-type: none"> Communicating ideas is essential factor in teamwork. | <ul style="list-style-type: none"> Communicating ideas is essential factor in teamwork. |

| | | | |
|--------------------------------------|---|---|--|
| | storyboarding skills specifically for teamwork. | | |
| necessity of drawing skills | <ul style="list-style-type: none"> • It is important to acquire drawing/ storyboarding skills specifically for teamwork which also helps creativity. • Emphasis on character design. | | <ul style="list-style-type: none"> • Hand sketching by pen and paper important and essential to focus on idea generating and visualisation at the design stage. |
| effectiveness of Art workshop | <ul style="list-style-type: none"> • A short intervention workshop is not enough and specifying more resources such as a module or several sessions would be more effective. • Teaching styles used by different tutors have direct influence on students' mind set and the way of implementing their projects. | <ul style="list-style-type: none"> • although the Art intervention workshop at UoG is effective to some extent to raise the issue of the need for storyboarding skills for IGD course, it cannot address students' difficulties in communication of their ideas by drawing/ storyboarding due to its limitations and also the complications in the nature of the problem itself. | |
| other techniques | <ul style="list-style-type: none"> • Mind maps are helpful tools to visualize the flow of the | <ul style="list-style-type: none"> • Employing other techniques called rapid prototyping techniques such as | <ul style="list-style-type: none"> • Using software was recommended at the stage of adding details and |

| | | | |
|--|--|---|---|
| | <p>levels and layout of whatever is going to be done in a project by students.</p> <ul style="list-style-type: none"> • Introducing other techniques like software facilities for those with poor drawing skills. • Providing students with enough knowledge about the industry standards in terms of needed level of drawing skills and also final presentation requirement in digital format. • Learning how to storyboard through software can only happen if it is combined in a blended learning manner with well-designed tutor-led sessions. | <p>using images from other sources like the Internet and playing with them via software such as Photoshop, Aftereffect, Flash and 3DsMax and using modelling, rendering, perspective facilities or tracing tools.</p> <ul style="list-style-type: none"> • However, in order to be able to use rapid prototyping techniques one needs to have visual skills first. • Although rapid prototyping techniques are functional and realistic tools to communicate ideas by storyboarding, none of experts encourage their students to use storyboarding software such as “Storyboard Quick”, “Moviesoft”, and “Storyboard Pro” because it is believed that students can create their storyboards however best suits them and the final end product and also they understand storyboarding more | <p>documenting the results as deliverables to clients and stakeholders.</p> |
|--|--|---|---|

| | | | |
|-------------------------|--|---|--|
| | | if they do it themselves. | |
| visual awareness | <ul style="list-style-type: none"> • Emphasise on enhancing students' visual awareness to enable students visualise their ideas in the first place. | <ul style="list-style-type: none"> • The main problem identified at the heart of deficiencies in drawing/ storyboarding skills to communicate ideas is the lack of visual awareness. • Visual awareness is having compositional and observational skills and the ability to break down the elements and think about value and contrast issues to be able to draw important and central components and their relationship in a scene of storyboard. • In order to attain visual awareness skills students need training which is like learning a new language providing them with new set of vocabulary which takes time but enable them to express how they feel when they look at certain objects. • In order to be able to communicate ideas, it is | |

| | | | |
|--|--|--|--|
| | | <p>fundamental to obtain visual skills before being able to either draw or using other techniques for storyboarding.</p> <ul style="list-style-type: none">• This means that in order to be able to use computer applications including mobile apps on sketching/ storyboarding one needs to acquire the visual awareness first. | |
|--|--|--|--|

Appendix X: Background Study on Games Design

Games have a long history from ancient times to the present. However, the video game industry is still young and growing. This growth indicates opportunity for new ideas, new ways to play, and the need for new talent within the industry. In order to educate professionals for game industry, Games Design has gained academic credibility. A review on the history of games and different aspects of Games Design is presented in this Appendix.

History of Games

Computer games are software that can be played on computers. Video games are interactive games that can be played on a TV or a PC with a machine such as from the Microsoft's Xbox series, Nintendo Wii or Sony PlayStation Series.

The growth of online possibilities, advancement in graphical effects' technology, the emerge of more life-like games in various genres have led to the requirement for more realism in graphics (Brown , 2008a; Gee, 2007). This means that there is a greater emphasis in the planning stages of a new product where the narrative is created for either computer or video games (Brown, 2008a). Apart from a graphical user interface, other common features shared by virtual worlds are shared space, immediacy (interaction takes place in real time), interactivity, persistence and socialisation (Rivello, 2009). It is suggested that video games exist in a stage comparable to that of film in the early twentieth century, still a novelty to be tinkered with rather than a medium to be crafted and studied (Jenkins, 2005; Rabin 2010).

In 2010, it was indicated that the past decade was all about connections through constructing social networks like Facebook. However, in the next decade the game layer would be constructed with the agenda of influencing behaviour (Priebatsch, 2010; Schell, 2010a).

Different Aspects of Games

Rabin (2010) asserts that people go into the games industry believing that they have found their dream job. However, there are alarming claims which indicate some problems associated with working in this industry. For instance Bates (2011) argues that the staff turnover is about 50% per annum with a consequent cost to the industry of this wasted talent. In this regard, conducting studies to investigate the challenges games designers and developers face either in academia or within the industry are needed in order to resolve the issues in Games Design.

Video games are suggested to be the most advanced form of art due to attributions such as synthesizing text, image, sound, video and the active participation of the audience into game play experience (Brown, 2008a; Rabin, 2010). With their immersive quests and deeply satisfying and carefully designed virtual rewards, video games are proposed to be a great place to test new approaches to real-world systems (Chatfield, 2010a). However, some dismiss video games as a shallow novelty with no lasting effect (Jenkins, 2004; Jenkins, 2005).

There is an important genre of games, usually termed 'serious games', where the purpose is more than mere entertainment. This encompasses, not only the games designed to assist in education for school children, but also those video games that are widely adopted as training and recruiting devices in the military, politics and propaganda and which can be used as a tool both to inform and to manipulate public opinion (Brown, 2008a).

It is argued that ethical and religious issues can be raised by using and manipulating sacred spaces like churches in videogames. Some propose that gameplay can be a form of spiritual transcendence and transformation (Eskelinen, 2004). Attention has also been drawn to developing healing games such as the 'SuperBetter' game to help people with their physical, mental, emotional and social resilience after a traumatic health problem (McGonigal, 2012).

Some studies promise that game-based learning will revolutionise educational institutions. It is argued that multiplayer games especially,

encourage achievement, cooperation and teamwork, through competition and reward. The learners take the leading role in their intellectual development, while the instructor becomes a facilitator who structures gameplay, but does not exercise strict authority over what students learn or how they learn it (Brown, 2008a; Lee and Hammer, 2011). Other studies claim that this marriage of education and entertainment (edutainment) does not support institutionalized learning and does not teach specific subjects. Rather they teach students to teach themselves in more active, applied and integrated ways (Papert, 1998). However, there can be negative aspects to playing games. Some game addicts say that they feel that they are somewhere between reality and videogames. One said that “I’m worried that videogames makes the world to seem violent but the main worry is that outside world is becoming to be video games” (Perry, 2008). On the other hand, some believe that in playing games people need to be better than they are and therefore they develop positive attributes such as being smarter, faster and more tolerant (Rosedale, 2008). It has also been suggested that games teach users to think more critically and more creatively. Therefore, understanding the psychology of the videogame reward schedule is considered to be a stepping stone to improving many fields (Perry, 2008; McGonigal, 2010; Chatfield, 2010a).

Most agree that games can teach due to their capability to influence thinking and actions (Brown, 2008a; Perry, 2008; McGonigal, 2010) and therefore dismissing video games encourages an ignorance of a growing force in the cultural life (Kroll, 2000; Gee, 2007). Hence the study of how to create such games has become mainstream in higher education (Brown, 2008a; Perry, 2008; McGonigal, 2010) and the first step towards this creation is to be able to communicate ideas in Games Design (Section 2.3.3).

Appendix Y: Background Study on the Notions of Intelligence and Creativity

Some authors suggest that people appear to have a narrow view of intelligence, tending to think of it mainly in terms of academic ability. This might result in confidence issues in people who are smarter in other ways or make them think they are not smart at all (Gardner, 2012; Robinson, 2009).

In ancient times creativity was thought to be about having a gift from the gods or God but after the renaissance, human beings became the centre of the universe and the divine assumed a less important role. 'Having genius' became 'being a genius' (Gilbert, 2009). As a result, myths surrounding creativity became commonplace, such as "Only special people are creative", "creativity is about special activities" or "people are either creative or not" (Robinson, 2009). On the other hand it is argued that living a creative life encounters difficulties such as finding meaning in work; dealing with rejection, surviving identity crises, and sometimes battling depression and addictions (Bates, 2011).

This Appendix presents a discussion on various types of intelligence, creativity and their mutual relationships with educational systems. It then explores the subject of design communication.

Various Types of Intelligence

Our world can be experienced through five senses. Robinson (2009) suggests another set of five senses of balance, temperature, pain, vestibular (balance plus acceleration) and kinaesthetic. 'Muscle memory' is a term often used in sports training (Suinn, 1997), but referred to by Robinson (2006) to address the differences between people's sense of being in the world and their ability to function in it. As their whole bodies are engaged in memorising the routines, athletes, musicians, and other performers develop this type of memory which is believed to be beyond the conscious process of thinking. Intelligence is viewed as 'the capacity to solve problems or to fashion products that are valued in one or more cultural setting' (Gardner and Hatch, 1989). In his theory of multiple

intelligences, Gardner (2012) formulates a list of eight intelligences: linguistic intelligence; logical-mathematical; musical intelligence; bodily-kinaesthetic; spatial intelligence; interpersonal intelligence which is concerned with the capacity to understand the intentions, motivations and desires of other people; intrapersonal intelligence which entails the capacity to understand oneself, to appreciate one's feelings, fears and motivations; and naturalist intelligence. From this viewpoint human intelligence is *diverse* and not limited to the ability of verbal and mathematical reasoning. It is *dynamic*, since everyone uses multiple parts of the brain in every task they perform and finally it is *distinctive* as every person's intelligence is as unique as their fingerprint (Robinson, 2006; Smith, 2008). These intelligences, according to Gardner, are amoral - they can be put to constructive or destructive use (Smith, 2008).

Intelligence is considered as a potential in some studies whilst thinking is regarded as a skill in a higher category than the conventional disciplines of mathematics, science, and the arts. It is argued that 'thinking' represents a synthesis of intuitive and analytical approaches to understanding the world and dealing with it (Kay, 2007). In this regard it is believed that in education everyone needs to be trained how to think in order to make the best of their intelligence. Six hat techniques is argued to be an effective tool which allows people to come to parallel thinking instead of argument-based, rational thinking which lacks creativity, construction and design energy and helps teams to get a full view of the subject (Bono, 2009).

Through imagination people not only bring to mind things that are experienced but things that are never actually experienced (Robinson, 2009). Einstein believed imagination is more important than knowledge. Creativity is the process of imagination which involves processes of generating and evaluating ideas. These processes are very interactive but they don't necessarily come up in a predictable sequence. In this sense, creativity is the strongest example of the dynamic nature of intelligence and it can call on all areas of human mind and being (Robinson, 2009).

As explained before, students in Games Design courses need to create their games both individually and in teams. For this they need first to come up with ideas about their games and then to be able to communicate their

ideas. Regarding the notion of creativity above and its relationship with intelligence, in this course they need to have or be provided with techniques to enhance their imagination and therefore creativity.

According to Cleese (2010), recurring patterns are crucial to creating innovative environments and 'slow hunch' is one of these patterns since most important ideas are believed to take a long time to evolve. Good ideas come from the collision between smaller hunches so they can create something bigger than themselves. In this regard, Internet and social networks are playing a major role in connectivity of minds to find the missing parts of the puzzles of their innovative ideas (Johnson, 2011). This also indicates the role of team work and group projects to cultivate an individual's creativity. However, it is suggested that those who want to be in control and in charge, consciously or unconsciously, discourage creativity in other people (Cleese, 2010). Therefore it is essential to beware of such conditions in teams.

Some studies suggest that there is a powerful relationship between creative thinking and play. To play, one needs to trust, explore, build (thinking with hands) and role play (act it out). Brown (2008b) indicates that one can be serious and play. Play is also considered to be one of the only human endeavours where uncertainty is actually celebrated (Lotto, 2009). This suggest that Games Design students who usually have interests and experience in various game plays have a good foundation of creative thinking towards to the games they are required to design when they take the Games Design courses.

Creativity and Education

In the Enlightenment period, philosophers and scholars aimed to establish a firm basis for human knowledge and to end the superstitions and mythologies about human existence. Emphasis on the importance of logic and human reasoning and the belief in the importance of evidence in support of scientific ideas were the foundations of intellectual revolution (Mokyr, 2007).

Robinson (2009) argues that the public education was created in the interests and image of industrialism in the 19th and 20th centuries, which reflected the factory culture that needed quick and easy forms of selection and assessment of their products. This was achieved by the introducing new psychological theories like Intelligence Quotient (IQ) tests that were mainly designed to measure human verbal and mathematical reasoning abilities and in this sense students are being educated to become good workers, rather than creative thinkers. In order to create bold thinkers, however, Jemison (2002) calls on educators to teach both the arts and sciences, both intuition and logic, both right and left aspects of brain as one. She argues that: "The difference between science and the arts is not that they are different sides of the same coin or different parts of the same continuum, but rather, they are manifestation of the same thing and avatars of human creativity."

Some insist that education is a serious matter, so they are reluctant to embrace the idea of including games in educational systems (Schell, 2010b). However, there are others who describe the whole education system as a game itself in which students (players) are given a series of assignments (goals) that must be handed in (accomplished) by certain due dates (time limits). They receive grades (scores) and they can only pass (defeat) if they have mastered all the skills in the course (game) (Chatfield, 2010b; Schell, 2010b). Amongst different viewpoints about the educational system most agree on the poor design of educational systems which tends to lead to conformity rather than creativity and also make the learning process not as fun as it should be (Anon, 2010; Robinson, 2006; Schell, 2010b).

Design Communication

The process of visual thinking and planning allows a group of people to brainstorm together, foster more ideas and generate consensus inside the group (Greenberg *et al.*, 2012). Storyboards are graphic organizers which consist of a set of elements, each containing a sketch or image of the 'best frame' of the video, associated text, and notes that describe the action. Storyboards provide an efficient way to sketch action sequences and develop 'what-if' scenarios (Mackay, Velay, Carter, Ma, Pagani, 1993).

They have grown into a standard medium for pre-visualization of films, motion pictures, animations, web development, software development, interactive media, Games Design and even in business and novels.

Games Design students are required to do storyboarding in various modules during IGD course. The method of storyboarding depends on the context of the module. For instance, in a Games Design module they might be required to use film/ animation storyboarding and layout charts to represent the game play while in an Animation module they might be encouraged to make animatics.

A film storyboard is essentially a large comic of the film produced beforehand to help film directors, cinematographers and television commercial advertising clients visualize the scenes and find potential problems before they occur. Often, storyboards include arrows or instructions that indicate movement. One advantage of using storyboards is that it allows the user to experiment with changes in the storyline to evoke stronger reaction or interest. Flashbacks, for instance, are often the result of sorting storyboards out of chronological order to help build suspense and interest (Cristiano, 2012).

In creating a motion picture, a storyboard provides a visual layout of events as they are to be seen through the camera lens. In the case of interactive media, it is the layout and sequence in which the user or viewer sees the content or information (Greenberg *et al.*, 2012).

In animation and special effects work, the storyboarding stage may be followed by simplified mock-ups called animatics to give a better idea of how the scene will look and feel with motion and timing. At its simplest, an animatic is a series of still images edited together and displayed in sequence with a rough dialogue and/or rough sound track added to the sequence of still images (usually taken from a storyboard) to test whether the sound and images are working effectively together (Jones, Kelly, Rosson, and Wolfe, 2007). Animatics are also used by advertising agencies to create inexpensive test commercials.

Storyboards are used today by industry for planning advertising campaigns, commercials, a proposal or other business presentations intended. Consulting firms use this technique during the development of client presentations (Osterwalder and Pigneur, 2010).

Storyboards are now becoming more popular with novelists. Because most novelists write their stories by scenes rather than chapters, storyboards are useful for plotting the story in a sequence of events and rearranging the scenes accordingly (Thurman and Hearn, 2010). The storyboarding techniques that novelists use might be encountered as a method to help Games Design students at the stage of storytelling and narrative design for their games.

Appendix Z: Summary of Longitudinal Interview

| Summary of Longitudinal Interview | |
|--|--|
| Interview Question 01 How important do you think having drawing/storyboarding skills are in getting your ideas across? | |
| Emergent Theme: Necessity of drawing skills | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • They are important. • They'll be more important and needed when you're doing 3D trailer in a group. • In group you goanna have to storyboard it so you make sure everyone knows what's goanna be happening and what we're doing. • They're handy but I haven't personally done it for my 3D work which was just like making a futuristic building so I did a couple of sketches and the media was 3DSMax. • The most storyboard I did was if I was doing an actual animation that was just so I catalogue what I wanted to happen. • It depends on context of what you are working • For working in a games design team obviously that's the way they worked with it so that's what they used to it. • I quite like using Flash ideas for sketching. • Drawing make it easier to communicating your ideas across • You could write like a level or scene down but visually people won't see necessarily what you want from text. • The visual aids are what people work with because it's what they can help to see expand their ideas or make them. |

| | |
|--------------|--|
| LNG03 | <ul style="list-style-type: none"> • It depends on the subject you are doing • It can be very useful if it's a long winded specially if you are in a group it's very useful • And you can always merge all ideas in group together in one really good storyboard • It's also good to show to whoever you're presenting it too so they get the idea as well • In making websites not so much storyboards are needed than more of a general layout because obviously you need to go to a specific structures in websites where in stories and games storyboards are more useful |
| LNG04 | <ul style="list-style-type: none"> • If you are in a group it's a good way to get your ideas across to them in visual. If you speak your ideas it's hard to get a grasp of your idea for them • I personally don't like storyboards cause I found my ideas come out when I'm actually doing in front of a computer screen like make it as I go but they're good for groupwork |
| LNG05 | <ul style="list-style-type: none"> • I think it's useful in the beginning. LNG06 draw a few storyboards but I tend to go straight into computers |
| LNG06 | <ul style="list-style-type: none"> • N/A |
| LNG07 | <ul style="list-style-type: none"> • I've never used storyboards. I just make prototyping instead. • Prototype is a basic simple model shows the concept and I do it on screen. |
| LNG08 | <ul style="list-style-type: none"> • Personally I think storyboarding is the basis of the projects. Without storyboard you basically don't have much. Although some people draw storyboard afterwards but I think it should be the first thing. Cause that shows what you have actually have as an idea. It's like scripting those ideas and brings it out at the end of the day. • It is really really important and is the basis of our projects anyway. |
| STU02 | <ul style="list-style-type: none"> • It makes the process a lot quicker as well. By drawing it out you have a kind of visual plan so you can design it before you build it and then change it a bit and change it a bit. |

| | |
|--------------|---|
| | <p>Storyboarding is a lot more efficient and quicker way to develop something.</p> <ul style="list-style-type: none"> • Idea about doing storyboard in the middle or after the development! I don't always do it that way. Sometimes I start building and then make a storyboard but if you do it that linear way: storyboard then develop and reiterate it does seem to be more efficient. |
| IGD15 | <ul style="list-style-type: none"> • Extremely important. I can't explain my ideas well enough without actually having have a picture. I find it helps me explain to other people as well as verifying it myself. I may have an idea but not exactly know how it works so when I start drawing it out it makes it bit easier to tweet things to figure our points actually look |
| STU05 | <ul style="list-style-type: none"> • N/A • How did you find this approach (making storyboard afterwards) I'm more like try and error guy so I prefer going to the program, see the limits of the program. Cause if I start storyboarding I might actually really go off the limit of the program so I'll be really disappointed eventually and just won't be able to do my ideas <ul style="list-style-type: none"> • If I'm storyboarding maybe if I can call it storyboards I just put like words and connection to do this, to do this and to do this but I'm not going to draw anything. I just go to the program and see what the program can do and cannot. It's just easier. • Considering working in a team how do you see that approach? That won't be easy but in a team there is a leader who actually collect storyboards. There will be a team leader which won't be me cause I'm not goanna team leading cause I suck in it so basically I'm one of those guys that are just there and the coach come and say you do this bit and you'll be fine |
| STU07 | <ul style="list-style-type: none"> • To this one (MU220) the storyboarding was essential but the Flash we did to make games I did the storyboard after I |

| | |
|--|--|
| | <p>actually completed the whole game</p> <ul style="list-style-type: none"> • How did you find this approach (making storyboard afterwards) Fine. Sometimes it's easier to get your idea into something and then see how they do that instead of planning on paper. But in this one there was so many different layers of this we had to put start and then everything in between to finish. <ul style="list-style-type: none"> • With any approach storyboarding is important to be honest. • Sketching skills is pretty essential. • Considering working in a team how do you see that approach? We are working together for games as well. The team leader set different little groups. In that group I have made storyboards. I sketched a few little ideas but it's not a full scene or proper storyboard but I've got few little tiny bits. I know about what I'm making. It is necessary to make storyboards to show to your team leader but |
|--|--|

Interview Question 02

What is your idea about the effectiveness of an art workshop on students' storyboarding skills?

Emergent Theme: Effectiveness of Art workshop

| CODE | Summary of Student's Reply |
|-------|--|
| IGD12 | <ul style="list-style-type: none"> • I can see the point of it but just having one or two workshops won't help • Not everyone is artistic so having every week art session or storyboarding session might be more beneficial because people getting used to it and they're learning as it go. • An storyboarding module would be beneficial to the people who obviously come to this course thinking Games design is the way forward cause. • This course is obviously a bit split. It's Games Design, Project Management and Programming so obviously |

| | |
|--------------|--|
| | <p>programmers might not want to do storyboarding that's entirely up to them.</p> <ul style="list-style-type: none"> • It would be quite handy if you particularly look at it Games Design because it's a fundamental thing it'll be good to have experience at it I think. • I quite like how they've designed the course because for a lot of people if they saw like a module just Programming they wouldn't touch it say I don't like code. • obviously you're not gonna experience entire industry in one degree but they get at least a glimpse at all areas that they go into • Maybe for the IGD110 module where you actually do the game design they could do just the first 4 weeks of storyboarding. This is how you storyboard, this is importance of it, these are the key points you need to get across in your storyboards. Maybe not necessarily you need to be so artistically At doing it but getting the key points across in storyboards I think then people wouldn't be so afraid about storyboarding ideas • People when think of storyboarding they think they got to sit down and draw an amazing scene to get across what they need to. So the whole word is frightening itself for people who can't draw. • I met people at the end of IGD110 who all when the tutor says you need to draw your characters and that sort of thing said "I can't draw", "What am I supposed to do?" • if somebody came just for one workshop and just said this is how storyboard or it's quite important, you can't learn it all in one or unless there is a sort of software or something that could help to be able to do that. |
| LNG03 | Don't remember the workshop |
| LNG04 | Don't remember the workshop |

| | |
|---|--|
| LNG05 | Don't remember the workshop |
| LNG06 | Don't remember the workshop |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none"> • The same • I'm not very good at drawing. I can see what IGD15 means about the shapes but still [] • It made me think about what I was doing • These workshops can be effective for most people |
| IGD15 | <ul style="list-style-type: none"> • Remembered the upside-down technique quickly☺ • It helped me to know when I'm trying to sketch something to actually look at what shapes make it up before going over and find details which helps a lot when I want to draw out my ideas |
| STU05 | <ul style="list-style-type: none"> • Didn't remember. • Mention the difference between 1st and 2nd year group work. Prefer 2nd year in which they are free to choose their team mates so they can find members fit in different skills. |
| STU07 | <ul style="list-style-type: none"> • Didn't remember. |
| Interview Question 03 | |
| Do you think that learning how to storyboard through software can replace tutor-led storyboarding sessions? | |
| Emergent Theme: Software vs. tutor-led storyboarding session | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • We don't really have any tutor-led session. they'd expect you to do it • If there is software at least you can do it in your own time so |

| | |
|-------|--|
| | <p>you wouldn't necessarily have to have a module for it. You can keep doing it at home you don't have to come to Uni to learn it. It's in your own time which would work well.</p> <ul style="list-style-type: none"> • a good well-designed tutor-led storyboarding session and software could incorporate • In the summer I knew we're gonna using 3DSMax so I downloaded it and tried to get gripes of it but it wasn't until the tutor taught the interface and a few simple things that it clicked so you could do a similar thing where if the software were designed at beginning of the semester it's introduced so students feel comfortable with it and then they get to do it. |
| LNG03 | <ul style="list-style-type: none"> • I don't think so because with storyboarding the good thing about it is you're drawing your ideas and by doing on computer you might spend too much time figuring out the software than just doodling • Agree with LNG04 |
| LNG04 | <ul style="list-style-type: none"> • I probably find that quite useful (s/w) • It probably could be replaced cause you could have the software and then any question you could always ask the tutor. |
| LNG05 | <ul style="list-style-type: none"> • We've done a few different assignments which we used storyboarding and I think it's the sort of things that if you do it for a couple of times you get used to the idea of putting your ideas down and moving from them to make the final product • I think it's useful to have workshop particularly in the first year that we had a big section of storyboarding stuff • If you go straight to computer if you've got number of different ideas you can just sort of take some bit from one idea and the other idea quite quickly whereas if you make it on paper it take a lot longer • Sometimes you storyboard something and you actually make it and realize it was not what you wanted to do, which is a waste of time. • By using computer what software actually you mean? |

| | |
|--------------|--|
| | <p>Agreed.</p> <ul style="list-style-type: none"> • We are using PowerPoint to storyboard and we've found it much quicker to make and change. So it makes it easier to make storyboards afterwards |
| LNG06 | <ul style="list-style-type: none"> • For storyboarding I'm not sure we need to attend a workshop • Storyboarding is pretty much on paper or on computer • Don't consider myself good in drawing but it's something you have to do. Pick an application and go along really. Just getting your ideas across • Obviously it is an important concept storyboarding to do it. If you have storyboarding in the beginning people have the concept of what you're actually be doing. • Sometimes you feel if you go to computer straight away then you can actually start the project and then do the storyboarding after • If you use a computer you can actually find if it is usable. If it is usable you can actually storyboard it • By using computer what software actually you mean? For example when I want to make a website I actually go straight to Dreamweaver. If it's a Flash project we use Flash. We go straightaway to the main application. • Any software like Power point or like Photoshop that allows us to make templates for storyboarding is useful. |
| LNG07 | <ul style="list-style-type: none"> • Same. I wouldn't know. |
| LNG08 | <ul style="list-style-type: none"> • I suppose it depends on the individual actually cause we have different ways of learning. • I wouldn't know. For me I don't think anything replace classroom learning. • The point of education is just to have someone who knows more than you to tell you what you need to do |
| STU02 | <ul style="list-style-type: none"> • No. never. • I think it's really important to have someone there to kind of [] ideas off unless a software was really intuitive like that but I think the software still would be very linear • "To learn how to storyboard we need more interaction": both |

| | |
|--|--|
| | agreed. |
| IGD15 | <ul style="list-style-type: none"> • Agreed. • Obviously we do have to self-study quite a lot looking at videos on You Tube and stuff but it's good to bring those ideas and actually talk to someone and try to get their feedback on it than just say "ok we'll do this" |
| STU05 | <ul style="list-style-type: none"> • It can be a lot easier cause you can have double screens. • If you want to have a software it should have video tutorial. People like to see things being done on screen like videos with lots of hits on YouTube. • Tutorials with the teacher, it's easier cause you just watch and just think in your mind I'll use this and that for my project. But if you read about the stuff you're just forced to read and you don't know when the related one comes. |
| STU07 | <ul style="list-style-type: none"> • No it's easier to teach you what to do. I don't think any software is goanna improve any part of that. • That would be like a book and therefore boring. |
| Interview Question 04 | |
| How this kind of software should be so that students feel it's going to be meaningful to them? | |
| Emergent Theme: Software attributes | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • The timing and other CRITERIA list introduced by researcher are the most important thing and key aspects you need to get across. |
| LNG03 | <ul style="list-style-type: none"> • I want it to give me some key point to where to start • Maybe give you some pre-drawn icons incorporated with the actual s/w like a car or road or cat or whatever cause obviously people can't all draw |
| LNG04 | <ul style="list-style-type: none"> • I'm not very good at drawing and that's one of my big reasons that I don't do storyboards cause I can't draw so I like just basic drawing techniques for storyboarding |

| | |
|---|---|
| LNG05 | N/A |
| LNG06 | N/A |
| LNG07 | <ul style="list-style-type: none"> • It is an application should be easy to use similar to existing software. • If I consider this software as an app I wouldn't expect it to tell anything cause it's an application to make a product. Because the software shouldn't teach you. For that there should be books or videos. |
| LNG08 | <ul style="list-style-type: none"> • Obviously it should be visual. It should be video. should be a voice over and it should be not very technical so everyone can use it. The user interface should be very friendly so I don't have to read about it and can just go with it. It should be more practicalised rather than theory and essay stuff and more "how to" type of software |
| STU02 | <ul style="list-style-type: none"> • Drawing tools • A way of structuring your storyboards. Not every storyboard is linear like cartoon, it might be probably for a website or menu system with branching off, a bit more like a mind map kind of thing as well • Maybe not just visual, can have audio recorded to it or video clips • Like a digital scrapper you can check images and clips and then you can put all of them together. |
| IGD15 | <ul style="list-style-type: none"> • We have to design animatics for our 3D work which we had to make storyboards and also record sounds as well so you can get how the trailer is goanna look at the end. So I agree on having some audio recording thing in that software. |
| STU05 | Covered before. |
| STU07 | Covered before. |
| Interview Question 05 | |
| How do you feel about using other techniques (like diagrams, mind maps, tracing tool in Flash, other tools in other software) to communicate your | |

ideas if you don't have drawing skills?

Emergent Theme: Other techniques

| CODE | Summary of Student's Reply |
|--------------|---|
| IGD12 | <ul style="list-style-type: none">• Fine. I think that's what you would have to• they do work to a point• if you got mind maps it's good cause you can see the flow of the level, layout whatever you're goanna doing.• You're goanna always need that sort of visual concept going as well. It's like if you read a book. It could be beautifully written and so descriptive that you get the idea but maybe it's not exactly what you've always written because it's no visual concept to that |
| LNG03 | <ul style="list-style-type: none">• But it makes your process quite time consuming like the line drawing in Flash we did last year |
| LNG04 | <ul style="list-style-type: none">• It's a good idea• I use it• Agreed with LNG03• If you want to get a good quality storyboard which you spend a long time on anyway, it's probably good idea to use computer software such as Flash to draw. |
| LNG05 | N/A |
| LNG06 | N/A |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none">• Very useful• I just go on Google, find it and change it cause I'm rubbish with drawing |

| | |
|---|---|
| | <ul style="list-style-type: none"> • For me it's much quicker but for other people they might find it quicker to draw something |
| IGD15 | <ul style="list-style-type: none"> • Flash is very useful for playing with new ideas but I prefer to actually sketch it and then scan it and then go over it in Flash to get digital representation of it rather than just draw straight away in Flash. |
| STU05 | <ul style="list-style-type: none"> • There was an old program called []. It was for using to draw stick figures and I'm still good at that. • If there is software you can just click a car and just a simple shape car to pop in, that'll be easier for me. |
| STU07 | <ul style="list-style-type: none"> • No drawing is easier, is quicker whereas with Flash it's so fiddly and you spend an hour making one thing but with drawing you do that in one second. |
| Interview Question 06 | |
| Do you think a person without visual skills can use any work around techniques to get ideas across? | |
| Emergent Theme: Visual awareness | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • It might be too judgmental but it's like the lacking of the creative side of what they wanted to do like they've got an idea of it's a game it's taking place in a factory. But that's all they can see. They can't see the design of the factory, what's it like inside, the lighting, that sort of stuff. All they can see is a factory. That's what the game's goanna be. • For games Design you need to have that creativity within you to be able to get it across to other people. • To me "visual awareness" is "creativity"? |
| LNG03 | <ul style="list-style-type: none"> • It depends. Even if you are visual doesn't necessarily mean you are not technical • Some people might not use ?? or might not use a certain |

| | |
|--------------|--|
| | <p>thing much even if they might not be able to draw if you want to put it onto a computer with digital drawings then they might just not be able to do it because they do not have the skill.</p> <ul style="list-style-type: none"> • Have you seen an example? Not so much in here because people in here obviously studying but people who use the computer (not necessarily computing students) don't necessarily use Flash or things like that |
| LNG04 | <ul style="list-style-type: none"> • If you are not a visual person anyway you find it quite hard whatever they are doing • Have you seen an example? For Games Design students it is not an issue because they use all those software anyway |
| LNG05 | <ul style="list-style-type: none"> • It's a lot quicker for non-drawers to use tracing techniques • Agreed. |
| LNG06 | <ul style="list-style-type: none"> • Tracing in Flash is a good concept because we've used that in the 1st year • It's easier for non-drawers to adapt it • Definitely a good tool |
| LNG07 | I don't know. |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none"> • Probably. It depends on how well they explain something with words. • By these techniques people who can't draw can get by. • You are a lot limited by those but you can get [] • If you can draw you've got less to imagine. I draw something I have to imagine it so I draw a stickman while IGD15 have less to imagine. He can draw a proper figure. |
| IGD15 | <ul style="list-style-type: none"> • It wouldn't really give the same level of creativity cause whereas if I got pencil in my hand I know exactly what I could do and where I could do it but the workaround techniques like using Flash kind of limit you. |
| STU05 | N/A |
| STU07 | <ul style="list-style-type: none"> • No. Cause if I visualize stuff and then get it on paper and it |

| | |
|---|--|
| | wouldn't look right, it's not goanna be different if I tried it on computer unless it's already there and I just choose that one. |
| Interview Question 07 | |
| How necessary are storyboards to deliver a game either individually or in a team from your point of view? (Can you create a game without storyboard?) | |
| Emergent Theme: Necessity of drawing skills | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • If I was doing it on my own I could get away with doing sort of storyboards with the best of my ability to document my thought process but if it was with a team it would need to be accurately put across again so everyone is completely on the same boat as you and you know what need to be and whether or not that's written or drawn or use Flash or Photoshop to do a couple of sketches to get the scene across that would be down to the person who's storyboarding. • If you're on your own it's your thought process but important anyway. |
| LNG03 | <ul style="list-style-type: none"> • Pretty much the same |
| LNG04 | <ul style="list-style-type: none"> • They are quite important in teams to get the ideas across • Individually I tend not to do storyboard that much I'd rather do it |
| LNG05 | <ul style="list-style-type: none"> • I think it's always a good thing to start, a good thing to plan out the concept of what you're going ahead design it. • Storyboarding should be more used to feel like the loose sort of layout, how the main line is actually happening in the game or your application • We've found it quite easy cause for storyboarding on computer we can email it between each other and make decisions on the final product |

| | |
|---|---|
| LNG06 | N/A |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | It depends |
| IGD15 | N/A |
| STU05 | N/A |
| STU07 | N/A |
| Interview Question 08 | |
| Some believe the main problem in communicating ideas via drawing is fear of drawing and lack of confidence. What does your experience say about this? | |
| Emergent Theme: Confidence | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • Yes probably more with the confidence. • People will think back on "I can't draw" therefore I can't get my concept across to people. • if you do it different way like by using Flash by using these tools which are out there, your confidence can then be built up • If you can draw sure it makes it a lot easier that obviously not everybody got confidence to do it or they think they can't do it. • if we introduce work around techniques like Flash and other techniques and just not focusing on this drawing we can address this lack of confidence or fear of drawing anyway |
| LNG03 | <ul style="list-style-type: none"> • I'm not sure if there is a confidence issue between us and |

| | |
|---------------------|--|
| | <p>paper because we've been grown up with computers</p> <ul style="list-style-type: none"> • Point: By sketching we don't mean only paper, screen is included I don't think it's so much that people are scared their drawing goanna look like or other people will think, I think when you are in the business or if you're doing it for some assignments or whatever, it's more the fact that you want to make sure what you draw can be read by other people and if your drawing is not that good and someone might end up interpret something else if you don't do that then everything goes out of control and if your drawing style is different to another one of your teams' style you'll end up drawing a dog which is not look like their dog you can get ending up confused and if people don't feel confident in their drawing styles they feel like they could be confusing everyone else so I think it's more of making sure people understand what you're drawing <ul style="list-style-type: none"> • You might have the skill but you might be not confident enough to feel it's good enough to be up to standard that you want ... • This confidence problem for whatever reason is a main issue rather than drawing itself • It's more about what you are doing it for. • When you are being marked on stuff • Even if it doesn't matter what your drawings look like the main thing that normally matter is that how well you are putting it together and how well you have thought about your story whether your drawing is rubbish or not and I'm kind of scared of getting a rubbish mark |
| <p>LNG04</p> | <ul style="list-style-type: none"> • For some people that's probably true. They're probably more worried about what people would think of their drawings as opposed to no they're not good • For me I know I can't draw and I'm not worried about people seeing my drawings and think they are bad • Point: By sketching we don't mean only paper, screen is included Still I don't consider myself a drawer / I agree with LNG03 points |

| | |
|--------------|--|
| LNG05 | <ul style="list-style-type: none"> • People like to go straight to the project rather than spend time drawing what it is but I think it is useful in the beginning • It doesn't have to be visually really good. Describing what you've done and you've thought about it and you have an idea is important. • Agreed with "If people know that rough sketching is enough they would be confident enough to just storyboarding." • I think you have to get a certain level of details depending what you're making I guess. |
| LNG06 | <ul style="list-style-type: none"> • Not necessarily. It could be that a lot of people don't see it as something important or see it as priority as it is cause it shows your initial ideas • We have many assignments. If we don't have any storyboards how do they want to know you've actually had an idea? It is like a prove that it's your work. Because a lot of problem nowadays people are cheating by using stuff on the internet. • Storyboards show that it is your work and you've put time and effort to evaluate what you're going to do. |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none"> • I found the opposite. I find if I work with Flash or on computer you can quickly undo and change whereas with pencil and paper you have to physically erase it. • If I was confident in drawing on paper I still did it on paper although in comparison to other people it might still not be good. • It is possible that the comparison and judgments would be the reason behind the confidence issue. • I am not as confident with pencil and paper as I am on screen but I suppose if I train myself to get better ability to draw it comes with practice. |
| IGD15 | <ul style="list-style-type: none"> • I do get that sometimes. Before I start drawing it always is how it's gonna look but I find that fear is a lot more if I use |

| | |
|---|--|
| | something like Flash because I know if I use pencil I have more control of it what's goanna happen |
| STU05 | <ul style="list-style-type: none"> • I think it's more I try I learn cause I've been rejected for many times trying to do something by hand just to draw it and I failed so many times I just might not have confidence just to try again. I just know that I failed and think it'll be easier and fast to go to Flash and trace something. |
| STU07 | <ul style="list-style-type: none"> • I'm not great at drawing but what I draw is similar to what I'm thinking • I'm fine with it and I use stickman and I'm not worried about make it a human • I don't have worries about communicating cause the other person knows it's a man (my stickman). • I've been seeing really rubbish drawings during past semesters but I don't think anyone was bothered about how good or bad the drawings were as long as others knew what it was. |
| Interview Question 09 | |
| What are the differences between creating ideas on paper and on screen? (Does sketching on screen decrease quality comparing to sketches on paper?) | |
| Emergent Theme: Other techniques | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • I don't know to be honest. • I wouldn't think communicating ideas via screen degraded quality because if you have to use these different tools then surely that's your storyboarding to them anyway. • If you are artistically minded then even if you had sketch on paper and you were doing it on the screen you have the time that it looks good anyway because they know what they're doing, they know about the shadowing, about the details they need to put in. • I scan in my work even if I could draw what I wanted to I find |

| | |
|--------------|--|
| | a picture on Google, put into flash and then line trace it and then do it my way then put the detail afterward |
| LNG03 | Covered above |
| LNG04 | Covered above |
| LNG05 | <ul style="list-style-type: none"> • Non-drawer people don't like to do it on paper cause they can do really basic or unfinished storyboarding • I think you can do it on computer if you can't draw |
| LNG06 | <ul style="list-style-type: none"> • I think with computer time is much quicker, on computer there is more flexibility and you can send it to each other quickly and on paper the rough sketch it's not like a visual product. |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | Covered before. |
| IGD15 | Covered before. |
| STU05 | <ul style="list-style-type: none"> • The limits of program is really important • You can't just tell someone to create something to create storyboard for doing some kind of project with some kind of program that he never actually worked with so for us is learning new things every day • I don't know if drawing on screen degrade the quality of drawing but I know I am faster with keyboard and mouse. • Argue that copy and paste facility make drawing for example an army of stickmen quicker. |
| STU07 | <ul style="list-style-type: none"> • I disagree. Drawing on paper with pencil is much quicker. • Time is really an issue in doing projects in Uni. • Replied for showing an army of stickmen she could use depths with pencil. |

Interview Question 10

How do you feel about relationship between creativity and drawing during the Games Design process?

Emergent Theme: Creativity

| CODE | Summary of Student's Reply |
|-------|--|
| IGD12 | <ul style="list-style-type: none">• It sounds quite harsh but if you have the creativity then you can try put your ideas across better, not necessarily by drawing but you need to have the creativity in the first place.• If you are trying to make designer level or character you need to have the creativity to see what you're going to do.• Creativity could be anything. there are always been that sort of relationship but I'd say like I believe I'm quite creatively minded but I can't necessarily draw like I like to but that doesn't stop me from sort of making really good 3D models or bringing out my creativity elsewhere. It would be, I would say Flash and Photoshop would help me. |
| LNG03 | <p>N/A</p> <ul style="list-style-type: none">• To LNG04: Do you suffer because you can't get your ideas across by drawing? It's more an issue when you are on your own. Normally when you are in a group someone does the technical stuff and someone does the drawing so when you come up with an idea• To LNG04: So you are a drawer. You can communicate your ideas by drawing but you are more worried about details and... Anyone can draw by grabbing a paper and draw something like a stickman but you don't want stickman drawing in University• At least you feel it should be high quality. Doesn't necessarily mean it have to be but people get the impression that you are in University, in business, it's got to be high standard to get |

| | |
|--------------|---|
| | this mark |
| LNG04 | <ul style="list-style-type: none"> • I don't think they're linked that closely really because you could be a very creative person but not have very good drawing skills. Cause I think I'm quite creative but I can't draw • To LNG04: Do you suffer because you can't get your ideas across by drawing? I draw the sketch of what I want to look like and then I say "you draw it better". But I can draw basic things obviously • To LNG04: So you are a drawer. You can communicate your ideas by drawing but you are more worried about details and... I choose not to • You don't want stickman in your storyboard. Your storyboard should be in much higher quality than stickman |
| LNG05 | <ul style="list-style-type: none"> • At early stages when you are doing lots of drawings it helps creativity. If you go straight onto computer you limit yourself • Starting on paper is more creative than on computer. |
| LNG06 | <ul style="list-style-type: none"> • Starting drawing either on paper or computer is a way to get more creative and helps you to start the project and gives you insight of what to do. |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none"> • I think I've got a kind of technical mind of things. I've got. I know the limitations of the things because I know what I can do and what is possible whereas if you literally use pencil and paper, it's design and creativity you don't have limitations. • What I think I know is limiting cause sometimes I think something is not doable but it actually is, so relying too much on kind of what I know |
| IGD15 | <ul style="list-style-type: none"> • You don't necessarily have to be the person who draws in the team to get your ideas across. Like STU02 is quite good at doing code. If I have an idea then he say yeah actually we |

| | |
|---|---|
| | <p>can do that in the code. It kind of helps us. Me create things and then he'll give me the ideas about we can make this ship a different size cause it probably look like better in the game.</p> <ul style="list-style-type: none"> • Agreed with STU02> If I make something I go to IGD15 say if it is possible. |
| STU05 | I don't know. |
| STU07 | I'm not sure either. |
| <p>Interview Question 11</p> <p>Which part do you think students struggle most while visualising their games elements: Characters, Props (objects) or Environment?</p> | |
| <p>Emergent Theme: Most Challenging part</p> | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • I would say people do seem to have different strengths like some people might be good at characters but their landscape are not that great and vice versa. • I have seen people who have done really good sort of terrains, structures and stuff but their characters are terrible. I don't know if that's because it's a physical and form and drawing it is just too daunting compare to like making roily mountains and lakes and stuff • obviously you goanna get people who are good at all of these things but it does tend to be some people are better at objects or landscape and other people tend to be better at characters. • It's quite evident in the 3D work. I know 3D as a post sketches but I would say from our presentation on Monday that 90% of the class hated their characters but they were happy with the landscape • obviously 3D is not sketching as such just trying to make a 3D tools to do what you want but it is a similar thing in essence |

| | |
|--------------|--|
| | |
| LNG03 | <ul style="list-style-type: none"> • Generally I've found that people are better in doing certain aspects of 3D. 3DSMax and 3D is such a big program cause you're working in up-down, left-right, round-round and so on • Generally I would do things like cars or individual objects better and I wouldn't be as good in landscape. LNG04 is better in that • Other people might be better in animated stuff • I'm rubbish at making characters and people, I possibly can do an animal but I don't have skill to do character • Is it because of the tools you use like 3D? Not necessarily. I think it's just my skill level at the moment. I'm sure if I practice doing characters I'll become good at it. |
| LNG04 | <ul style="list-style-type: none"> • For me environments are probably easier to imagine cause they're quite generic but characters specially for games are unique aspect |
| LNG05 | Agreed. |
| LNG06 | <ul style="list-style-type: none"> • It's quite hard to answer that question because we don't do much games design. We do more application design • My rough guess probably is characters maybe harder. |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | Agreed with IGD15. The field is field. The castle is castle. |
| IGD15 | <ul style="list-style-type: none"> • Probably the characters because people have very specific idea about what they like their character to look like and it is different from team to team • If you've got an environment, it's easier because it is more straight lines. • The character is supposed to have personality and look specific way so that can cause a lot of problem when you want to actually sketch it up • Skill wise I would say they are all difficult but I am nervous |

| | |
|--|---|
| | <p>more about a character surely because there are a lot more features actually put onto a character whereas with the environment you can always have either sky, a wall or a floor so you can kind of organize things.</p> |
| STU05 | <ul style="list-style-type: none"> • I agree. • Environment is easier to draw and think about it but the characters are more detailed and also the user gets their attention more on how the characters look like. • For example in the World of Warcraft the environment is rubbish but they have put all the efforts on characters. |
| STU07 | <ul style="list-style-type: none"> • I think props because when they're making games they first think about the characters and then environment and no one think about props until late • Environment is easier to draw |
| <p>Interview Question 12</p> <p>Which area do you think is more effective to focus when learning storyboard drawing for the first time: 1- working on visual awareness (fundamental visual understanding) or 2- Rapid prototyping (using all tools and techniques available to work around the design quickly?)</p> | |
| <p>Emergent Theme: Visual skills</p> | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • I don't know to be honest. • Well, I think if you're gonna focus on the visual aspect it take a lot longer to do cause you have to teach people to effectively draw be happy and confident to do it • In the example of upside-down drawing it's just lines you draw but as soon as you're trying to make sense of what you wanted to end up what looking like, it is something like a block of "I can't do it", "I can't do it" or make it look. |
| LNG03 | N/A |

| | |
|---|---|
| LNG04 | N/A |
| LNG05 | <ul style="list-style-type: none"> • Rapid prototyping. I think |
| LNG06 | <ul style="list-style-type: none"> • If they don't have visual awareness the next best thing to do is probably write up what they want to do as long as a very rough sketch. |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | N/A |
| IGD15 | N/A |
| STU05 | N/A |
| STU07 | N/A |
| <p>Interview Question 13</p> <p>Which area do you think is more effective to focus when learning storyboard drawing for the first time: 1- working on visual awareness (fundamental visual understanding) or 2- Rapid prototyping (using all tools and techniques available to work around the design quickly?) Do you think there is any relationship between the person's learning style (VARK: Visual, Aural, Read/write, and Kinesthetic sensory) and this whole matter of storyboarding and communication of ideas?</p> | |
| <p>Emergent Theme: Learning style</p> | |
| CODE | Summary of Student's Reply |
| IGD12 | <ul style="list-style-type: none"> • Didn't know this subject. |
| LNG03 | <ul style="list-style-type: none"> • You're either a hands on person or you're a thinker. You think about the stuff before you do things but a lot of people try when they put stuff down • I get a piece of paper and draw and draw and I come up with |

| | |
|--------------|---|
| | <p>an idea</p> <ul style="list-style-type: none"> • I think these characteristics depend on learning style |
| LNG04 | <ul style="list-style-type: none"> • Probably if you are more a visual learner you're goanna be... actually no. That's not true. I'm a visual learner and I learn from watching videos and stuff but I'm still not confident with drawing |
| LNG05 | <ul style="list-style-type: none"> • Some might want to have descent research then get into it |
| LNG06 | <ul style="list-style-type: none"> • Depending on what your learning style basically, some people might want straight away practical and want to draw straight away but some might want to have a look at it • There is definitely a point between learning style and storyboarding |
| LNG07 | N/A |
| LNG08 | N/A |
| STU02 | <ul style="list-style-type: none"> • It is related. |
| IGD15 | <ul style="list-style-type: none"> • Because I'm a visual person when I draw my storyboard I can actually see the story |
| STU05 | <ul style="list-style-type: none"> • Yes of course. If you are a visual person you can more quickly imagine everything cause you've already seen that |
| STU07 | <ul style="list-style-type: none"> • Yes, definitely |

Summary of Longitudinal Interview with Business Students

Interview Question 01
 How important do you think having drawing/storyboarding skills are in getting your ideas across?

Emergent Theme: Necessity of drawing skills

| CODE | Summary of Student's Reply |
|-------|---|
| LNG01 | <ul style="list-style-type: none"> • it motivates us to find out we can do this project • Have you done storyboarding before designing your project? Yes. When it comes to creating it also helps you to have structure. it makes it easier when you come to create it. you know what to do next |
| LNG02 | <ul style="list-style-type: none"> • just making initial ideas and generalizing ideas it makes it come through if you see something coming together then you can implement it into 3D |

Interview Question 02
 What is your idea about the effectiveness of an art workshop on students' storyboarding skills?

Emergent Theme: Effectiveness of Art workshop

| CODE | Summary of Student's Reply |
|-------|----------------------------|
| LNG01 | N/A |
| LNG02 | N/A |

Interview Question 03
 Do you think that learning how to storyboard through software can replace tutor-led storyboarding sessions?

Emergent Theme: Software vs. tutor-led storyboarding session

| CODE | Summary of Student's Reply |
|---|--|
| LNG01 | <ul style="list-style-type: none"> It's still good to have workshop alongside it. It can get deeper explain and understand something as well as the software. But the software would be a good idea as well. |
| LNG02 | N/A |
| Interview Question 04 | |
| How this kind of software should be so that students feel it's going to be meaningful to them? | |
| Emergent Theme: Software attributes | |
| CODE | Summary of Student's Reply |
| LNG01 | <ul style="list-style-type: none"> Basic templates that you can modify to make it all relevant to your project. |
| LNG02 | <ul style="list-style-type: none"> See to do project really For example if it is for making films it should have storyboarding for films in it. There should be some templates how you are going to do it. A template for each project. You should be able to create your template |
| Interview Question 05 | |
| How do you feel about using other techniques (like diagrams, mind maps, tracing tool in Flash, other tools in other software) to communicate your ideas if you don't have drawing skills? | |
| Emergent Theme: Other techniques | |
| CODE | Summary of Student's Reply |
| LNG01 | <ul style="list-style-type: none"> It would be useful but I have not used them I'm a terrible drawer |
| LNG02 | <ul style="list-style-type: none"> There are loads of applications you can use for mind maps I'm good drawer on paper We had a module that we had to draw what we read and |

| | |
|---|--|
| | then implement it in the class so we make them understand what we have drawn including the measuring techniques (demographic drawing) |
| Interview Question 06 | |
| Do you think a person without visual skills can use any work around techniques to get ideas across? | |
| Emergent Theme: Visual awareness | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | N/A |
| Interview Question 07 | |
| How necessary are storyboards to deliver a game either individually or in a team from your point of view? (Can you create a game without storyboard?) | |
| Emergent Theme: Necessity of drawing skills | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | N/A |
| Interview Question 08 | |
| Some believe the main problem in communicating ideas via drawing is fear of drawing and lack of confidence. What does your experience say about this? | |
| Emergent Theme: Confidence | |
| CODE | Summary of Student's Reply |
| LNG01 | <ul style="list-style-type: none"> I just think I don't have the skill. I like drawing. I do it all the time but I'm just a terrible drawer. I doodle in the lectures a |

| | |
|---|--|
| | lot. |
| LNG02 | <ul style="list-style-type: none"> • He likes scribble a lot |
| Interview Question 09 | |
| What are the differences between creating ideas on paper and on screen? (Does sketching on screen decrease quality comparing to sketches on paper?) | |
| Emergent Theme: Other techniques | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | N/A |
| Interview Question 10 | |
| How do you feel about relationship between creativity and drawing during the Games Design process? | |
| Emergent Theme: Creativity | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | <ul style="list-style-type: none"> • To do with games it's just rendering process which takes a long time other than that it's fun. • To do games design you get to use many programs to get to play games |
| Interview Question 11 | |
| Which part do you think students struggle most while visualising their games elements: Characters, Props (objects) or Environment? | |
| Emergent Theme: Most Challenging part | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |

| | |
|--|-----------------------------------|
| LNG02 | N/A |
| Interview Question 12 | |
| Which area do you think is more effective to focus when learning storyboard drawing for the first time: 1- working on visual awareness (fundamental visual understanding) or 2- Rapid prototyping (using all tools and techniques available to work around the design quickly?) | |
| Emergent Theme: Visual skills | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | N/A |
| Interview Question 13 | |
| Which area do you think is more effective to focus when learning storyboard drawing for the first time: 1- working on visual awareness (fundamental visual understanding) or 2- Rapid prototyping (using all tools and techniques available to work around the design quickly?) Do you think there is any relationship between the person's learning style (VARK: Visual, Aural, Read/write, and Kinesthetic sensory) and this whole matter of storyboarding and communication of ideas? | |
| Emergent Theme: Learning style | |
| CODE | Summary of Student's Reply |
| LNG01 | N/A |
| LNG02 | N/A |