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Developing critical thinking

Hazel Bryan

Introduction

When you first go into school, you may be dazzled by the sheer volume of activity that you encounter. Secondary schools are large, complex organisations that take time to understand, as there are multiple systems operating at any given time. The core business of teaching pupils is at the heart of the organisation. As a professional, you bring with you your graduate subject knowledge and your developing pedagogical skills. You have an increasing amount of 'professional capital' (Hargreaves and Fullan 2012: 2). However, as an 'extended professional' (Hoyle 1974), you also need to develop critical thinking skills that enable you to adopt an objective, questioning perspective. Critical thinking skills enable you to take a step back from any immediate situation (Barnett 1994; Education Scotland 2015) and 'read' it from an objective position, whether this is in relation to teaching, learning or the introduction of, for example, a new syllabus. The development of a critical perspective provides you with the skills to read any given text (for example, a government policy document or a more localised school policy) from an informed position. Such a perspective also supports you in the development of problem-solving skills (King and Kitchener 1994). Well-honed critical thinking skills empower you to ask questions of any given context and text and, by having this model of enquiry at the core of your professional self, you develop as an inquisitive practitioner, seeking to enhance your practice by understanding better any given context. However, 'critical thinking' should not be reduced simply to a set of skills. Rather, it should be regarded as an 'attitude, underpinned by curiosity . . . the motivation to understand at deeper levels' (Bryan et al. 2010: 62). Indeed, Brookfield (1993) uses the rather beautiful analogy of a conversation about learning to describe critical thinking. You adopt this approach in evaluating your lessons and in undertaking reflective practice and action research.

Poulson and Wallace (2004) suggest the following as indicators of a critical perspective:

- adopting an attitude of scepticism;
- habitually questioning the quality of your and other's claims to knowledge;
- scrutinising claims to see how convincing they are;
- respecting others as people;
- being open-minded to other perspectives;
- being constructive by using your scepticism to find better ways or interpretations.

Similarly, Scott (2000) offers the following four indicators:

- identifying and challenging assumptions;
- challenging the importance of context; n imagining and exploring alternatives;
- developing reflective scepticism.

The model outlined in this unit, the linden tree, supports your pedagogy in two ways. First, it provides you with a simple, elegant tool to develop your critical thinking capacity from the first time you enter a school. It supports you in understanding the school as an organisation, the learning spaces within school and learning as a concept. Throughout the process, the models offered above by Poulson and Wallace (2004) and Scott (2000) are drawn upon to illuminate critical issues. Second, this unit supports you in developing critical thinking, as a critical disposition in your pupils.

The linden tree

As a starting point, consider a cross-section of the tree, and the concentric layers revealed in this cross section (Figure 5.7.1).

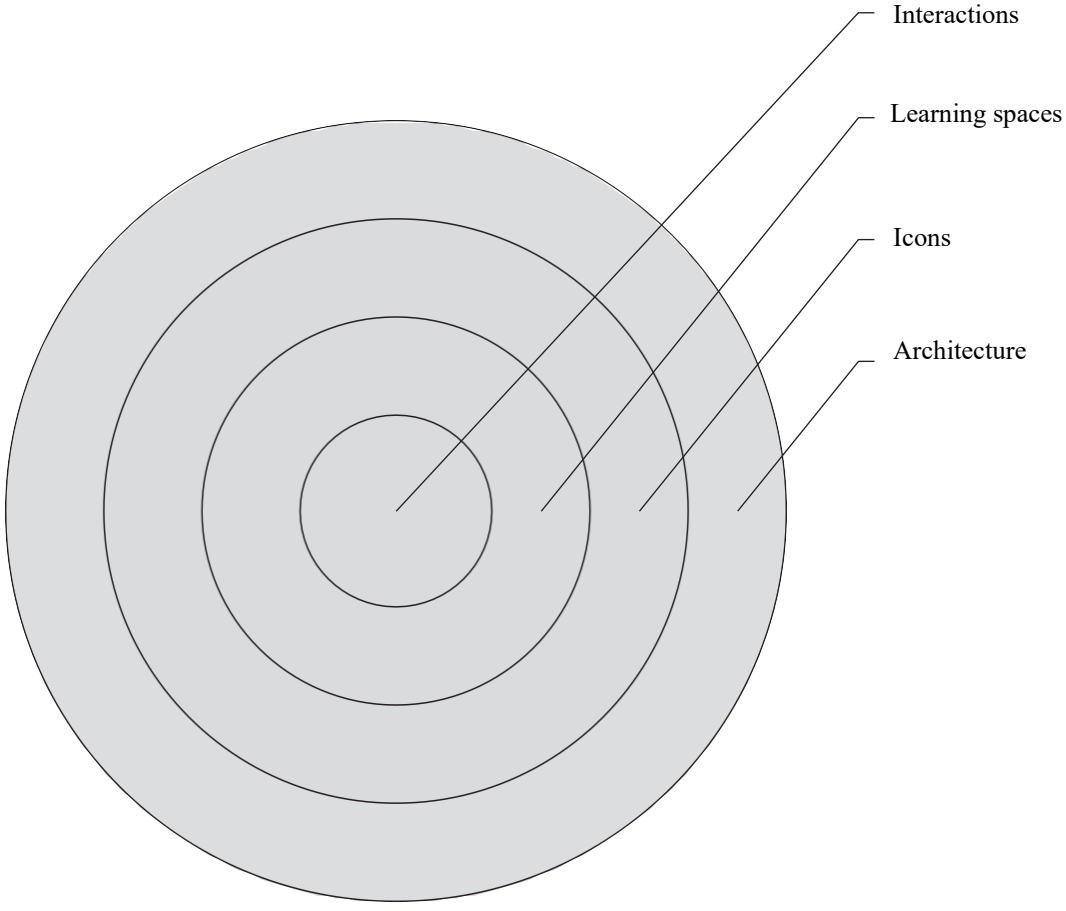

Figure 5.7.1 Critically evaluating the learning environment

Each concentric circle represents that which is visible as you approach, enter and spend time in school. Within each concentric circle, you are introduced to theory and practice from a national and international perspective and offered tasks that develop your critical thinking.

Architecture

The outer layer, the bark, is what you see as you walk up to the tree. If you apply this model to the school, the outer layer is that which is visible from the outside. What is there to see as you approach the building? The design of the school represents the intentions of the architects, and those who commissioned the building of the school. It is common practice today for architectural design teams to work with stakeholders (community representatives, governors, parents, teachers and pupils) in discussions around school design, but of course this was not always the case. The school architect Mark Dudek discusses his work in terms of the psychological and spatial requirements needed in school design to accommodate and respond to theories of learning and cognitive development that inform pedagogy today: 'More esoteric factors such as the effects on behaviour of colour, light, surface texture and imagery are considered in addition to the more practical aspects of designing for comfort and health' (Dudek 2000, dustcover). So, as you might expect, a boys' grammar school built in the 1930s has a different provenance from, for example, an academy commissioned and built in 2016. And yet, embodied within the obviously visible, the design of the school represents a range of values in relation to beliefs about learning, teaching and the place of the school in any given community.

At the award-winning Rumi Jiya School in Hyderabad, India, the architects sought to design a school that would challenge assumptions about traditional models of rote learning. The design principles include:

- building a learning community;
- treating stakeholders as partners;
- making nothing rote;
- extending the spirit of entrepreneurship;
- celebrating constraints.

(http://architecture.about.com/od/schooldesign/ig/Winning-School-Designs/Rumi-School-of-Excellence.htm)

Similarly, in the Building Tomorrow Academy, Kiboga, Uganda, the design principles included the importance of community use, as the community had invested so much in the building. The design principles also included a requirement for the teacher to be able to see all the pupils in her classroom at any one time, as, in Uganda, teachers are scarce and numbers of pupils in each classroom are relatively high (http://architecture.about.com/od/schooldesign/ig/Winning-School-Designs/Rumi-School-of-Excellence.htm).

There are, of course, other design features in each of these schools that focus upon green initiatives and safety requirements, but the design principles outlined above relate to the ways in which the buildings have been conceived in relation to learning and teaching.

In Reggio Emilia in Northern Italy, the Reggio schools are designed in partnership with the famous Domus Academy, Milan. The resident Reggio architect, Professor Andrea Branzi, refers to the concept of 'liquid modernity' when articulating his vision for the school buildings (Branzi 2004). That is, buildings within which everything is moveable, including walls and floors, in order to respond to the changing needs of pupils. Task 5.7.1 invites you to critically evaluate the external features of your placement school.

Task 5.7.1 Consider your placement school from the outside

Questions	Critical thinking indicators
What, in your opinion, were the design principles upon which the school was constructed?	Being open-minded to other perspectives (Poulson and Wallace 2004)
In what way is this a community school?	Challenging the importance of context (Scott 2000)
How well does this design work for the purpose of educating young people today?	Imagining and exploring alternatives (Scott 2000)

In this task and the following tasks in this unit, record your notes in your professional development portfolio (PDP) and reconsider your observations when you know the school better. Then make notes about what you would like to see in the school in which you are working when qualified and consider these points when you are being shown around the school prior to interview.

Icons

The second concentric circle of the cross section of the tree relates to the things that are visible as you enter the school. These are referred to here as icons. Icons were traditionally Christian images represented in art form, but today are used widely in marketing and fashion to depict values through well-known symbols.

It is likely that you enter the school on your teaching placement via the school reception, in order that you can sign in. Reception in secondary schools in the UK today is likely to be used by visitors and parents, rather than the main entrance for pupils. By learning to read the messages relayed by these icons, you are developing a critical perspective on what the school is saying to visitors. As such, the reception area is a space where values about the school are expressed, and a critical reading of the icons in this area provides you with a sense of how the school wishes to be understood by visitors.

If your school is a faith school, there may be religious artefacts in the reception area, if this is appropriate to the faith. What can you see? Are these artefacts what you would also see in, for example, a church? If so, what does this say about the relationship between the school and the

church?

Secondary schools welcome visitors every day, including prospective parents and Office for Standards in Education (Ofsted) inspectors. There is likely to be a mission statement in the reception area. Similarly, there are likely to be badges of school success or school validation by external bodies such as Healthy Schools or Investors in People. Schools increasingly provide visitors with a file containing newspaper clippings of events and pupils' success, promoting the positive image of the school. There might be a noticeboard for parents and school prospectuses. Finally, there might be work by the pupils on display in the reception area. Task 5.7.2 invites you to critically evaluate the reception area of your placement school.

Task 5.7.2 Consider the reception area

Questions	*Critical thinking indicators*
What artefacts are in the reception area? What is the relationship between these and the mission statement?	Being open-minded to other perspectives (Poulson and Wallace 2004)
What are the badges of school success or sponsorship? What does this suggest to you in terms of the way the school values external validation?	Identify and challenge assumptions (Scott 2000). Adopting an attitude of scepticism (Poulson and Wallace 2004)
Is pupil work on display in reception? If yes, is it written work or only art work? How long has the work been on display?	Adopting an attitude of scepticism (Poulson and Wallace 2004)
What would you expect to see in this school's reception area?	Being constructive by using your scepticism to find better ways or interpretations (Poulson and Wallace 2004)

As suggested in Task 5.7.1, record your notes in your PDP and reconsider your observations when you know the school better.

The learning space

As you leave the reception area and walk to your classroom, pause. On entry into your classroom, take a moment to consider the learning space. If you are in a traditional classroom, start by looking at the layout of the classroom furniture. How have the desks and chairs been arranged? In what ways has the furniture been organised to accommodate or reflect what you know about effective learning? Is there flexibility for the teacher to rearrange the furniture to create specific learning environments for specific purposes?

From a behaviourist perspective the teacher is placed at the centre of the learning process.

The role of the teacher in a predominantly behaviourist-influenced classroom would be as director, instructor and transmitter. The role of the pupil in such a classroom would be as passive recipient of a predetermined, tightly structured, linear curriculum. Knowledge in such an environment is conceived as residing with the teacher or within selected texts, and pupils are rewarded for correct answers or behaviours. Task 5.7.3 invites you to critically evaluate learning spaces from a behaviourist perspective.

Task 5.7.3 Consider the learning space – from a behaviourist perspective

Questions	*Critical thinking indicators*
Does the layout of the furniture suggest a behaviourist approach to learning? If yes, why do you think the classroom is laid out in this way? What has been the guiding principle for the teacher whose layout this is?	Being open-minded to other perspectives (Poulson and Wallace 2004). Imagining and exploring alternatives (Scott 2000)
Does the layout suggest the teacher plays a dominant role in addressing the class?	Identifying and challenging assumptions (Scott 2000)
Does the furniture dictate a passive role for the pupils?	Imagining and exploring alternatives (Scott 2000)

Discuss your responses with another student teacher and store your findings in your PDP.

Within a classroom organised upon constructivist principles of learning, the pupil is regarded as an active agent in their own cognitive development. They are viewed as meaning makers, motivated to construct their own understandings of the world, rather than passive recipient sponges, if you like, of knowledge. Of course, meaning making is a complex concept, 'whether learning is meaningful can only be judged by the learner because meaningfulness is an expression of the relationship between the material of learning and the learner's existing understandings' (Moon 2005: 106).

Within the constructivist classroom, the role of the teacher is to scaffold the individual pupil's learning, to provide appropriate learning experiences and opportunities so that the pupil can actively make sense of their world, and create understanding themselves. As such, the place of knowledge shifts from residing with the teacher or text, to the pupil, who, given the right conditions, naturally moves through stages of learning. Vygotsky built upon Piaget's constructivist theory by making the case for language within learning. Vygotsky's model of social constructivist learning emphasised the centrality of language in cognitive development. Other modes of learning (imitation and learning from observation) come to the fore within this approach (Bandura 1969). Task 5.7.4 invites you to critically evaluate learning spaces from a constructivist perspective.

Task 5.7.4 Consider the learning space – from a constructivist perspective

Questions	*Critical thinking indicators*
Does the layout of the furniture facilitate group learning? If yes, why do you think the classroom is laid out in this way? What has been the guiding theory of learning or pedagogical principle for the teacher whose layout this is?	Being open-minded to other perspectives (Poulson and Wallace 2004). Imagining and exploring alternatives (Scott 2000)
Does the layout of the furniture facilitate an active role for the pupil?	Developing reflective scepticism (Scott 2000)
Does the furniture suggest a scaffolding role for the teacher?	Identifying and challenging assumptions (Scott 2000)

Discuss your responses with another student teacher and store your findings in your PDP.

Within a classroom organised around a belief in experiential learning, experience is the starting point for learning (Miller and Boud 1996). Kolb's four-point model of experiential learning suggests that concrete experiences, followed by reflection, enable the learner to theorise what they have learned in order to use it in future (Kolb 1984b). As learning is viewed in this model as subjective, when it does happen it is transformative as it occurs through a process of reflection. Task 5.7.5 invites you to critically evaluate learning spaces from an experiential learning perspective.

Task 5.7.5 Consider the learning space – from an experiential learning perspective

Questions	*Critical thinking indicators*
How might first-hand experiences occur in this classroom?	Developing reflective scepticism (Scott 2000)
In what ways are pupils supported in reflecting on their experiences in this classroom?	Being open-minded (Poulson and Wallace 2004)
What would it take to enable pupils to reflect upon their learning?	Imagining and exploring alternatives (Scott 2000)

Discuss your responses with another student teacher and store your findings in your PDP.

Interactions

Teachers create the conditions within which learning opportunities occur. In addition to the concrete structures of classroom organisation considered above, teachers also construct opportunities for pupils to interact with each other and with texts, with the teacher them self or other adults. For example, within the behaviourist classroom considered above, the pupil interacts mainly with the teacher and selected texts. On the other hand, the principles that underpin a constructivist classroom would give rise to interactions between the pupil, teacher and first-hand resources. The social constructivist classroom brings into play interactions between pupils, resources, texts and the teacher or knowledgeable other, and within the experiential classroom, pupils are interacting with first-hand resources including texts, other pupils, the teacher and other adults.

It is possible, then, to map visible interactions against learning theories. Interactions, though, can be understood differently, as pedagogical actions within consciously created contexts. The term pedagogy is used to describe the 'artistry' of teaching (Moon 2005), collaborative practices (Pickering et al. 2007) and the 'science of teaching' (Bryan et al. 2010). Pedagogy, though, is far more than practices undertaken by teachers to bring about specific learning outcomes. Pedagogical practices have the potential to oppress or liberate the learner, and as such can be understood to be political actions (see Giroux's notion of 'critical pedagogy'; Giroux 2011). Critical pedagogy locates learning within the wider context of society, and as such positions the teacher as a significant agent in this endeavour. This is in line with Freire's belief that pedagogies create social justice or injustice, thereby creating or denying the 'humanising' potential of education (Freire 1992). Task 5.7.6 invites you to critically evaluate interactions within your placement school.

Task 5.7.6 Consider the interactions

Questions	*Critical thinking indicators*
In what way do you construct your role in relation to your pupils and talk about your role to other student teachers in relation to pupils?	Scrutinising claims to see how convincing they are (Poulson and Wallace 2004)
What are your expectations of pupil relationships?	Scrutinising claims to see how convincing they are (Poulson and Wallace 2004)
Do the learning opportunities draw from a range of disciplines?	Imagining and exploring alternatives (Scott 2000). Habitually questioning the quality of others' specific claims (Poulson and Wallace 2004)
What would you do differently?	Being constructive by using your scepticism to find better ways or interpretations (Poulson and Wallace 2004)

Discuss your responses with another student teacher and store your findings in your PDP.

By now, you have begun to develop an inquisitive, consciously questioning state of mind in relation to the school. That is, the start of a disposition of criticality. By working through the concentric circles of the tree, you have looked at that which is visible from the initial impressions given by the architecture, and then applied the linden tree model to take you step by step through the school into the heart of classroom practice. The activities you have undertaken using the concentric circles lead you towards a 'critical stance . . . [which] has the connotation of sharpness and precision' (Moon 2005). That is, a disposition that enables you to analyse, question, interrogate to engage in different 'ways of seeing' (Berger 1972). This approach emerges in some methodological approaches. Clough and Nutbrown (2007) refer to 'radical looking' and 'radical listening' when introducing pupils to data analysis. That is, they encourage pupils to actively seek information. Similarly, Holliday (2007) encourages pupils when considering research in familiar settings or with colleagues, to make the 'known strange'. That is, to step back, remain objective, look for details and resist complacency. The section that follows supports you in developing a critical disposition in your pupils in school.

Fruits of the tree: creating a critical disposition in your pupils

The development of critical thinking in your pupils requires you to focus first upon the word 'thinking'. Guy Claxton, in his very accessible book Wise Up (Claxton 2001; see also Claxton 2015) draws upon the work of Diane Halpern (1998) in promoting a fourfold model of critical thinking that you might develop in your pupils. Halpern's model is as follows.

Part 1: develop the right disposition

Halpern argues that pupils should expect thinking to sometimes be hard, and that they should not be dispirited in this possibility. Developing the right disposition involves your pupils in persisting with complex tasks. In a sense, this is about developing 'learning resilience' and 'thinking resilience' (Johnston-Wilder and Lee 2010). A task for you in relation to developing the right disposition in your pupils is to reflect upon the opportunities you provide for your pupils: do you include complex thinking tasks as part of your pedagogical menu? When do your pupils have good opportunities to discuss, rationalise and problematise in their work?

Part 2: skills training

Halpern suggests that in order for critical thinking to be able to be engaged in successfully, certain skills need to be developed in young people. For example, Halpern advances the case for a focus upon the use of language in learning. Ask yourself, when do your pupils have opportunity to think about developing a precise language; a sound, persuasive argument; a questioning mind that interrogates arguments and claims? In addressing these areas, your pupils are engaging with issues of validity and reliability.

Part 3: recognising when to activate critical thinking

Halpern argues that the teaching of thinking skills involves you in supporting your pupils in finding out for themselves how to approach complex problems, and having opportunities to reflect with others upon the success or otherwise of the approach.

Part 4: metacognition

Developing in your pupils an awareness of the process of critical thinking brings about a state of self-awareness, and this, Halpern suggests, is crucial to the teaching of thinking. In this way, your pupils develop an ability to use critical thinking with 'conscious intent in a variety of settings' (Claxton 2001: 130).

Halpern's fourfold model is a useful starting point for focussing the mind on developing critical thinking in pupils in school.

Thinking

Your pupils need time to think. Moon (2008) suggests that you introduce your pupils to the concept of 'think time' or 'quick think'. This has the potential to be valuable to your pupils, but there are implications for you to consider to ensure your practice is appropriate. The following approach set out in Tables 5.7.1–5.7.4 is based upon Moon's (2008) 'pedagogy of critical thinking'.

The suggestions in Tables 5.7.1–5.7.4 provide you with approaches to the development of critical thinking in class. They offer the opportunity for pupils to work collectively in the development of critical reading, the development of a critical perspective and the start of critical writing.

Table 5.7.1 Introducing 'think time' and 'quick think'

Concept	*Pupil activity*	*Implications for your practice*
Pupils are invited to 'stop and think' or take part in 'think time' at appropriate times in the lesson.	Pupils might reflect upon the task independently or discuss with other pupils.	You should ensure that pupils have adequate time to engage in deep thinking and discussion.
Pupils are invited to 'quick think'.	Pupils write down notes based upon their deep thinking and discussions with fellow pupils.	Moon (2008) reminds us of Tobin's (1987) concept of 'wait time'. Thinking takes time: do not be tempted to fill the pauses with teacher talk.

Table 5.7.2 Developing critical thinking through real-life scenarios

Activity	*Pupil activity*	*Implications for your practice*
Provide pupils with extracts from current newspapers of issues that are controversial (for example, global warming, legal rulings).	Pupils should work in small groups to discuss the issues and: • list the further questions they have; • offer a range of possible solutions in bullet point format; • consider the consequences of each solution, possibly written in a short paragraph.	You need to find current events that are well written in newspapers. Pupils need plenty of time to engage in this activity.
Provide pupils with the same current story, but presented in a range of newspapers	Pupils should read the same story in each newspaper and consider the ways in which each newspaper has presented the same event. What are the features of text in each paper that are effective? What is the overall impression of the event from each newspaper? Thoughts can be presented as a concept map or bullet points.	As above, but you need a range of newspapers offering the same event/storyline.

Table 5.7.3 Developing critical thinking through personal critical incidents

Activity	*Pupil activity*	*Implications for your practice*
Invite pupils to consider a personal critical incident at a time when they were faced with a dilemma that they are happy to discuss and explore.	Pupils work in small groups to first describe the dilemma. Pupils then move on to explain how the actions they took/the dilemma made them feel. Finally, other pupils ask questions to encourage the pupil to explore other ways in which they might have acted. This activity lends itself best to discussion rather than writing.	This activity must be set up in a sensitive manner, and only involve pupils who wish to discuss a critical incident. You should ensure that the 'rules' are followed in terms of the supportive nature of this activity.

Table 5.7.4 Developing critical thinking through creative scenarios

Activity	*Pupil activity*	*Implications for your practice*
Watch an extract from a film that provides opportunity for robust debate and differing perspectives; for example, Titanic, Jumaji, Baz Luhrman's Romeo and Juliet . . .	Explore options from various characters' perspectives – what could have been done differently? Invite pupils to consider a different storyline/different ending based on characters acting differently.	You need to find films that lend themselves to robust debate.
Watch an extract from, for example, Dr Who, Star Wars or Men in Black that provides complex ethical dilemmas for the characters.	Invite your pupils to consider all the options open to the characters, setting out the pros and cons, and seeking a resolution.	Pupils need time to watch the extracts, and maybe rewatch them. Pupils need to have been introduced to the notion of pros and cons in action.
Offer pupils dilemmas from literature; for example, Goldilocks' hunger and exhaustion. Present it as a critical incident. Pupils in the secondary school will appreciate the irony in this activity and enjoy the playful nature of the activity. Of course, any character (with imaginary related relatives/friends) can be hot-seated, such as the key characters from poetry (for example, 'The Charge of the Light Brigade') or literature (Anne Fine's Tulip Touch).	Hot-seat the following characters: Goldilocks; Goldilocks' parents; the three bears. Invite the hot-seated pupils to work collaboratively to create their storylines. The rest of the pupils should work together to construct questions for the hot-seated characters.	Pupils need time to construct their storylines and time to engage in the hot-seating activity.

Further reading

Moon, J. (2008) Critical Thinking: An Exploration of Theory and Practice, London: Routledge.

This comprehensive text introduces the reader to theory underpinning critical thinking. The book sets out for the reader the conceptual issues surrounding the notion of critical thinking. It introduces the individual as a critical thinker, exploring emotions, language and curiosity in thinking. The text engages well with the concept of knowledge, setting complex ideas out with a lightness of touch. Finally, Moon offers practical suggestions for the development of critical thinking in educational settings.

Bryan, H., Carpenter, C. and Hoult, S. (2010) Learning and Teaching at M Level: A Guide for Student

Teachers, London: Sage.

This text is designed for all student teachers. It promotes the importance of enquiry in professional practice, and as such makes explicit links between theory and practice. Starting with a belief in the importance of teachers having a deep understanding of learning, the book immerses the reader in issues relating to pupil learning. There is a chapter dedicated to the development of critical thinking, reading and writing.

Johnston-Wilder, S. and Lee, C. (2010) 'Developing mathematical resilience', BERA Annual Conference 2010, 1–4 September 2010, University of Warwick: http://oro.open.ac.uk/24261/2/3C23606C.pdf

Other resources and websites

Claxton, G. (2015) Building Learning Power: www.buildinglearningpower.co.uk/
Education Scotland (2015) Skills in Practice: Thinking Skills: www.educationscotland.gov.uk/resources/s/skillsinpracticethinkingskills/knowing.asp

Capel, S., Leask, M. and Turner, T. (eds) (2010) Readings for Learning to Teach in the Secondary School: A Companion to M Level Study, London: Routledge.
This book brings together essential readings to support you in your critical engagement with key issues raised in this textbook.

The subject-specific books in the Routledge Learning to Teach series are also very useful.