LEARNING AND TEACHING GUIDE

On

Critical Thinking

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Introduction

Since the 1980s, critical thinking has become a buzz word in educational studies (Fisher 2001), embedded within institutional objectives and curricula development (Potts 1994), and is seen as a product of liberal undergraduate education (Greenlaw and DeLoach 2003). However, all too often institutions and teachers merely convey subject content knowledge with little attention given to underlying thinking concepts. From a teaching perspective there is the need to encourage critical thinking among students and recognise it as a complex way to examine students’ process of thinking. This seems particularly relevant in today’s learning and teaching environment where academic accountability, students’ employability and graduate marks seem to direct the future of many institutions. However, this implies HE teachers’ awareness of the complexities of critical thinking. Moon (2008:134) argues, “[s]taff knowledge and development have a key crucial role in fostering critical thinking”. Thus, this subject guide aims at being a supplement for teachers in HLST to become involved in a wider critical thinking debate. In addition, some practical applications of teaching methods to encourage critical thinking among tertiary students are introduced. To facilitate its adoption, this subject guide opens up a wider debate and awareness of criticalthinking within HLST curricula and will help teachers as well as students.

Guide structure

This guide aims to provide an introduction to the notion of critical thinking through an overview of related concepts, activities and case study exercises. It is divided into two main parts, with the first part exploring reflection, thinking skills, personal development and experience, learning outcomes and assessment settings, their relevance and cohesion with critical thinking. The second part introduces the reader to eight case studies of teaching and learning activities, which are aimed at informing critical thinking.
What is Critical Thinking?

Critical thinking is a complex and dynamic process that encourages different thinking skills, all of which can inform deep learning (Biggs 2003; Ramsden 2003) and complex learning (Elander et al. 2006). Both, deep and complex learning, reflect a learning process where a deep approach intend to understand the topic or subject matter is taken through questioning, researching, comparing and contrasting of the familiar and unfamiliar (Biggs 2003; Ramsden 2003). Thinking skills form the basis for developing critical subject content knowledge as, regardless of the actual subject areas, the development and furthering of thinking skills lead to a more critical and thus advanced understanding of one’s subject (Van den Brink-Budgen 2000). In other words, critical thinking is a continued questioning of one’s own understanding of what to believe and do (Ennis 1987; Tierney et al. 1989).

Defining Critical Thinking

Numerous definitions exist which frame critical thinking. Presenting a defining statement of critical thinking is difficult as it presents different meanings for different people and can be explored using different approaches, such as logic, development approaches, pedagogic approaches etc. (Moon 2008). Thus, in order to develop a synopsis of what critical thinking is, there is the need to explore components of different critical thinking definitions.

The complexity of critical thinking becomes further apparent when exploring a variety of different definitions (such as Ennis 1985; Brookfield 1987; Paul 1995, cited in Walker 2003:264; Cottrell 2005). Critical thinking thus becomes an umbrella term for different elements, which can include reflection, different thinking skills, personal development through experience and social situations. These are now looked at in more detail below:
Reflection

Critical thinking is closely linked to reflective thinking (Fisher 2001; Moon 2008) so that Dewey’s (1903, cited in Fisher 2001:2) exploration of reflective thinking still presents a foundational work for many critical thinking definitions. It defines reflective thinking as “[a]ctive, persistent, and careful consideration of a belief or supposed form of knowledge in the light of the grounds which support it and the further conclusions to which it tends” (Dewey 1903:9, cited in Fisher 2001:2). Comparing Dewey’s definition to other critical thinking definitions, clear links can be drawn between reflective and critical thinking. In other words, critical and reflective thinking are active and systematic processes, which explore different reasons, consider potential implications, influenced by individual’s attitudes (Rodgers 2002; Fisher 2001). Please note that reflective thinking and writing is also referred to in Case Study two.

Thinking Skills

Different thinking skills exist, many of which underline definitions of critical thinking, such as reasoning, recognising, arguing, interpreting, summarising etc., as they can be used to “manipulate knowledge” through the analysis and questioning of existing knowledge to inform new knowledge (Moon 2008). Thus, whether critical thinking is taught in a direct or indirect way, the argument can be made that students engage in various thinking skills which constitute critical thinking. A closely related concept is Bloom’s Taxonomy (1956), which argues for a development of different thinking levels (ranging from pure knowledge gain to evaluation). This is further explored in case study one, which provides an overview of Duron et al.’s (2006) five step model aimed at encouraging critical thinking through active involvement in lectures.

Personal Development, Experience and Social Situation

Approaching critical thinking as development process presents it with a longitudinal dimension, which acknowledges a person’s past and encourages development through construction of past and new knowledge (Moon 2008). This approach of critical thinking is closely interlinked with cognitive constructivism and experiential learning in that it sees a
person’s knowledge development through questioning of past knowledge and experiences. In other words, it is particularly one’s construction of knowledge through experiences, social situation and background, which needs to be questioned to ensure critical thinking to occur. Placing this within the HE context, there is a need for teacher’s to recognize students’ assumptions, knowledge and beliefs through acknowledgement of their individual pasts. This can be achieved in different ways, some of which are explored in the following case studies.

**Learning Outcomes and Assessment Setting**

There are a number of ways to encourage critical thinking among learners, such as challenging students to think beyond their comfort zone (King & Kitchener 1994; Moon 2008), the provision of a positive and encouraging class room environment (Moon 2008), the setting of clear learning outcomes and using assessments as a way to not only encourage learning but also critical thinking (Moon 2008). Donald (1992:428) argues that, “if we are to promote thinking in our students, our teaching strategies must reflect that intention”, which includes the development of appropriate learning outcomes and assessment setting.

Setting intended learning outcomes is crucial, which is reflected in Biggs and Tang’s (2007:60) statement: “The intended learning outcomes are central to the whole system. Get them right and the decisions as to how they are to be taught and how they may be assessed follows”. Different approaches exist with regard to curriculum structure and the setting of learning outcomes, such as constructive alignment of teaching, learning and assessment (Biggs and Tang 2007). This approach follows four stages:

1. Describe the intended learning outcome in the form of a verb (learning activity), its object (the content) and specify the context and a standard the students are to attain
2. Create a learning environment using teaching/learning activities that address that verb and therefore are likely to bring about the intended outcome.
3. Use assessment tasks that also contain that verb, thus enabling you to judge with the help of rubrics if and how well students’ performances meet the criteria.
4. Transform these judgments into standard grading criteria.

(Biggs and Tang 2007:54f)
Such an interlinked and aligned approach to teaching, learning and assessment within a module is crucial as, to encourage autonomic learning, expectations have to be clearly articulated and students have to gain an understanding of why they are given a certain assessment method (Ramsden 2003). In other words, learning outcomes should encourage and reflect students’ ability to think critically. Even though the subject content is linked to the learning outcomes, it is important that skills are recognised, particularly as a transfer of skills “is most likely to occur when a person understands the underlying principles” (Brown et al. 1997:35), which could be presented through learning outcomes.

While a variety of reasons exist for assessing students, providing formative feedback and summative grading are the two most prominent rationales, though both have different underlying purposes (Biggs and Tang 2007). Formative assessment provides students with feedback during the teaching and learning process, with the aim to improve one or both aspects. Differently, summative assessment is used to grade students’ performance and learning. Various assessment methods are discussed as tools to encourage critical thinking below, such as student peer assessments, debating etc.. All of them can be applied as both formative and summative assessments. However, whether an assessment method encourages critical thinking largely derives from assessment criteria (Elander et al. 2006) and feedback (Gibbs et al. 2003). In other words, assessment criteria and the quality, quantity and timing of feedback all determine whether an assessment supports learning (Gibbs et al. 2003).

**Placing Critical Thinking within the Tourism Context**

Research on tourism education over the last decade has often been informed by the interdisciplinary nature of tourism programmes and can be largely divided into curriculum design (such as Tribe 2002; Cooper 2002; Inui et al. 2006; Zehrer and Mössenlechner 2008), students’ employability (see Hjalager 2003) and the programmes’ link to the industry (such as Zehrer and Mössenlechner 2008; Conceição and Skibba 2008; Lee 2008). Thus, the result might be that even though thinking skills are taught, these are often not recognised enough due to a focus on repeated subject content rather than reasoning processes (Van Courland Moon 1986). The following case studies provide different examples of teaching and learning approaches aimed at encouraging critical thinking.
To conclude, the above discussion has discussed different dimensions of critical thinking, such as cognitive learning, underlying thinking skills and the role of an individual’s knowledge, experience and understanding of critical thinking. However, these dimensions are interlinked with each other, which provides for the complexity of critical thinking.
Case Study 1: Reflective Engagement

Synopsis:
Critical and reflective thinking are closely linked so that reflective enquiry can be seen as a key skill of critical thinking (Fisher 2001; Moon 2008). Thus, both critical thinking and reflection is a meaning-making process and requires active engagement of the learner (Rodgers 2001; Rodger 2002; Duron et al. 2006). Based on the need for students to take charge of their learning, Duron et al. (2006) developed a five-step model aimed at encouraging critical thinking through active involvement in lectures (see Figure 2).

As illustrated in Figure 2, to start the process of critical thinking among students and teachers, key learning objectives for a particular module have to be clearly defined. Ideally, these should reflect critical thinking skills such as analysing, summarising, arguing etc. Step two within the process focuses on the need to explore topics via well-phrased and purposeful questions, which encourage student engagement with the topic. Step three calls for active...
learning through assessment practices such as reflective dialogue, discussion of primary and secondary sources and other critical thinking activities. This should be underlined by continued evaluation and refinement of courses through teacher reflection and student feedback, identified as Step 4. The final step refers to the provision of feedback regarding students’ assessments and learning processes. Duron et al. (2006) conclude that following these steps would encourage commitment to active learning processes, also in large groups.
Case Study 2: Critical Reading and Writing

Synopsis:
Critical writing and reading underline most assessment techniques in higher education. Tierney et al. (1989) explore the notion whether a combination of both activities, critical reading and critical writing, would lead to more critical thinking than engagement with only one of these activities. Empirical data shows that a combination of reading and writing can encourage students to extend their thinking and question their reasoning processes (Tierney et al. 1989).

Implications for Teaching and Learning:
- Focus should be given to the reasoning and thought processes of students with regard to various critical thinking activities such as questioning, debating, discussing etc.
- Acknowledgment of the reflexive nature of thinking with consideration given to time and contextual features of students' thinking processes
- Recognition of the dialectic nature of reading and writing

Assessment Tips
- A combination of critical reading and writing activities should be incorporated into each module to encourage students' exploration of a topic
- Critical reading and writing exercises should acknowledge critical thinking as a development process, which incorporates different thinking skills e.g. summarising, arguing, discussing. Thus, assessments could be built upon each other as this encourages reflection and exploration:

Suggestions for the Development of Assessment Tasks
Please note that this could/should be a combination of formative and summative assessments:
1. Students are asked to write an annotated bibliography of a certain topic
2. Students are asked to write a critical summary based on the annotated bibliography
3. In groups, students are asked to discuss, compare and contrast their summaries
4. Students are asked to submit a reflective document regarding how their thought processes have developed
Case Study 3: Reflective Writing

Synopsis:
As discussed above, critical thinking is closely linked to reflective thinking (Fisher 2001; Moon 2008), which should thus be encouraged and acknowledged in teaching and learning techniques. Sharples (1999: 7) developed the following figure to illustrate the “engagement and reflection that forms the cognitive engine of writing”.

![Figure 1: The cycle of engagement and reflection in writing (Sharples 1999)](image)

This figure clearly shows how different thinking skills, such as selecting, specifying, interpreting and contemplating are part of a reflective thinking process. While different assessment methods have been explored with relation to encouraging reflective thinking processes, for the purpose of this subject guide, learning journals are discussed as pedagogical tool to promote learning (Moon 2006).
Case Study 4: Learning Journals

Synopsis:
A learning journal encourages a learner to reflect on his/her social and subject-specific consciousness through different activities, such as set questions, development frameworks, argument mapping (this is further explored in case study six) (Moon 2006). This type of assessment can be used for different reasons such as project development, experiential learning and personal development planning as it centres on learners’ reflection and thus aims at enhancing critical thinking. In other words, through an accumulation of existing and new knowledge, learners are encouraged to develop a cognitive structure of a particular subject matter (Moon 2006).

Advantages of Learning Journals
- Learning journals encourage learners to reflect and think and thus learn independently
- Learning journals can lead to an increased sense of ownership of a learner’s development and thought processes
- Learning journals encourage writers to acknowledge their emotional involvement and feeling in learning
- Learning journals can challenge learners to deal “with ill-structured material of learning”
- Learning journals can encourage a greater awareness of the process of learning
- Learning journals “enhance learning through the process of writing”

(Moon 2006:26)
Case Study 5: Peer Learning

Synopsis:
Peer assessment learning provides students with the opportunity to share their learning experiences through an exchange and discussion of feedback (Vickerman 2008). It is often seen as a tool to encourage students’ active involvement in and awareness of their learning and thinking processes and thus advocates student-centre learning and critical thinking (Macpherson 1999). However, peer learning assessment requires supportive tutors and clear assessment guidelines (Lindblom et al. 2006). Vickerman (2008: 2, adapted from Race 1998 and Zariski 1996) summarised various potential advantages and disadvantages of peer assessment (see below).

Advantages of Peer Assessment
- Greater sense of autonomy and ownership of assessment, which encourages motivation
- Students are encouraged to take responsibility for their own learning and development process
- Clear focus on learning so that peer assessment tasks are seen as opportunities rather than failures
- Peer assessment encourages development of transferrable skills
- Recognition and awareness of the process of learning
- Peer assessment leads to deep learning

Disadvantages of Peer Assessment
- Validity and reliability of peer assessment has to be taken into consideration
- Students’ inexperience in marking has to be considered
Case Study 6: Argument Maps

Synopsis:
Mind or argument maps are tools to help learners construct, deconstruct and reconstruct arguments. In other words, they encourage cognitive learning processes through an exploration of reasons. Computer software has been developed, such as Reason!Able, which provides clear layouts to help learners rearrange and reflect on arguments as well as add new knowledge (Twardy 2004).

Structure of an Argument Map
Argument maps reflect different claims related to an argument, where “arguments constitute a body of evidence in relation to some proposition (an idea that is true or false)” (Van Gelder 2005:4). These claims can be presented in a diagram format and arranged depending on whether or not they present reasons for a particular believe, with one end of the map presenting the final conclusion of an argument (Twardy 2004). Thus, a map is produced which illustrates why a particular conclusion was reached by clearly outlining its reasons and objections. Critical thinking is stimulated as argument maps encourage learners to question truth claims, which thus leads to cognitive development (Van Gelder 2005; Harrell 2007).

Advantages of Argument Maps (Van Gelder 2005)
• Reasoning process are clearly laid out, which allows students to focus on questioning and thinking processes
• Learners can more easily recognise areas, which still need to be explored to justify a conclusion
• The layout of argument maps encourages learners’ understanding of critical thinking procedures
• Argument maps encourage a comprehensive understanding of learners’ thought processes and enables teachers to provide detailed and effective feedback
Synopsis:
Following on from various critical thinking aspects discussed before, and with particular reference to critical thinking as a process in which one questions the own understanding, debate is now introduced as a critical thinking assessment. Debates encourage the learner to not only employ different thinking skills, such as questioning, arguing, judging, reasoning, clarifying and evaluating, but also active participation of the learner. Thus, debating introduce learners to an assessment technique or classroom activity, which goes beyond memorisation of facts to encourage thinking on the spot (Halonen and Gray 2001).

Advantages:
- Debate encourages usage of different thinking skills
- Debate allows for learners’ individuality
- Debates encourage students to present their own understanding of a topic and thus allows for deep learning experiences
- Students develop their verbal communication skills

(Coogan and Pawson 2006; Alford and Surdu 2002)

Debating Tips:
- Debates can be organized based on different sources such as:
  - case study scenarios e.g. debatable community development where students are divided into different stakeholder groups
  - academic papers e.g. all students read an article, which is then discussed in class; then different reasons and propositions are formulated which are allocated to the various groups, which then have to collect information to strengthen their arguments
- Assessment should focus on various aspects such as argument and debate content, strategic presentation of arguments, verbal communication skills and argument style

(Coogan and Pawson 2006)
Case Study 8: Experiential Learning

Synopsis:
Fieldtrips and experiential learning activities encourage critical thinking as one’s construction of knowledge is challenged and informed by new social experiences and understandings. This is closely related to cognitive constructivism in that learners actively construct concepts based on their past and new knowledge and experiences (Stewart 2004). Experiential learning refers “to a spectrum of meanings, practices and ideologies which emerge out of the work and commitments of policy makers, educators, trainers, change agents, and ‘ordinary’ people all over the world” (Weil and McGill 1989:3). In other words, an individual’s experiences inform the construction of his/her knowledge, while acknowledging that each individual’s experiential learning has diverse meanings as situational challenges (such as in personal life, education etc.) impact and define these experiences (Weil and McGill 1989). Thus, Train and Elkin (2001) argue that learning is most effective when grounded on experiential learning experiences.

Advantages:
- Situational experiences, which provide students with a critical understanding of contextual situations
- Learning of transferrable skills such as leadership and adoption of change
- Deep learning experiences through a combination of industry experience and application of classroom learning
- Identification and achieving of individual learning outcomes associated with experiential learning

Activities:
- Work based learning placement – students experience day to day activity within an industry setting
- Project-focused work placement – students gain industry experience by working on a specific project within an industry setting
- Short term Fieldtrip – to provide students with a contextual meaning of a certain subject area
• Long term Fieldtrip – to provide students with a longitudinal experiential learning situation to encourage application of classroom knowledge
References


