

Facilitating critical thinking in an online environment



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***Abstract:** One of the problems faced in teaching critical thinking in an online environment, is how to foster an active engagement with materials. Without the interaction of face to face teaching, it appears to be easy for students working in an online environment, to accept materials passively – responding rather than actively engaging. Such learning is particularly counter-productive when it comes to developing skills in critical thinking, insofar as it is imperative that students not only engage actively and critically with unit materials, but interactively with other students. Furthermore, it is imperative that students recognise that such skills are not only applicable in the context of the particular unit and its requirements, but exemplify a tool of critical analysis important in both their further studies and everyday lives. The challenge as an online tutor is thus to foster in students such an active and critical engagement, with the desired outcomes being firstly students developing and honing skills in critical thinking, and secondly being able to transfer and practise these skills across a wide range of contexts. This paper documents my attempts to promote and facilitate such engagement by students in the online environment. Drawing on my experience as a successful online tutor at Curtin University, teaching the OLA unit REA11 Applied Reasoning, I will outline both some of the issues needing to be considered when teaching critical thinking skills in an online environment, and some of the strategies I have developed to best achieve the outcomes outlined above.*

***Keywords:** online teaching, critical thinking, problems and strategies*

Introduction

One of the foundational objectives of the university system is the acquisition by students of those skills and attitudes commonly grouped under the umbrella of ‘critical thinking’. Laurillard (1993, p.15) contends: “student learning is not just about acquiring high level knowledge. The way students handle that knowledge is what really concerns academics”. Fundamental to all learning within the university system (Marshall, de Reuck & Lake, 1997), students’ development of these skills and attitudes thus needs to be actively facilitated. It is this acquisition and its facilitation which is the subject of this paper, specifically the facilitation of these skills in an online environment. My discussion of this topic has been drawn from my teaching of an online Open Learning Australia (OLA) unit, REA11 Applied Reasoning, a unit designed to further students’ development of skills in critical thinking. Following a brief delineation of those skills and attitudes comprised by ‘critical thinking’, and how they have then been instantiated as both the major objectives and desired outcomes of Applied Reasoning, this paper will consider some of the issues at stake in teaching critical thinking in a purely online environment, along with some of the strategies I have developed to best enable students to acquire these skills.

Theoretical Context

Before, however, I begin to discuss these various points, I need to clarify several points with regard to the theoretical framework of this paper. Firstly, I must note here that I am assuming that for students to successfully develop skills in critical thinking, teaching and assessment methods, and the teaching and learning environment itself need to promote what Biggs (1999) has called a “deep” approach to learning. “Deep” learning “involves the refinement and assimilation of understanding” which in turn enables “students to feel confident in applying knowledge and/or to be critical in evaluating new ideas for themselves” (McNaught, 1999, p. 105). Furthermore, I assume here a constructivist view of learning – a view seen as particularly relevant to the online teaching and learning environment (e.g. Berge & Collins, 1996). Here learning is seen as an “interactive relationship between experiences, ideas and existing constructs” (Crebbin, 1999, p.14). Under this model students need to become active learners. Indeed, it is only as active learners that students become critical thinkers. What is thus of considerable import here, then, is the openness of the online environment to the promotion of deep – that is, active – learning and, hence, critical thinking.

To further situate this question, it is also necessary to briefly note some of the differences between online and face to face teaching environments. Although there is a general acceptance that online teaching can be as successful as face to face teaching (e.g. Hiltz, 1997; Nevin, Stutler & Zambo, 1999; Russell, 1999), there are significant differences between these teaching and learning environments:

[W]eb-based learning environments have been found to result in different attitudes, roles and behaviours, and performance among both students and teachers. (Ingram & Sweeney, 2000: 74; cf. McNaught, 1999; Geelan & Taylor, 2000).

Specifically, online and face to face teaching and learning environments differ with respect to such issues as interaction and independence. In the online environment, students engage in computer mediated communication and interaction, and are seen as possessing an extremely high level of independence with respect to their negotiation of material (Berge & Collins, 1996; Kennedy & McNaught, 1996). The asynchronous nature of much online communication and interaction – for instance, email and bulletin boards – exemplifies another differentiating characteristic of the online environment. Some obvious implications of the online teaching and learning environment, then, are that students work through materials at their own pace, resulting in discussion which, although moderated, is largely unsupervised. It is these inherent characteristics which must be taken into account when considering the facilitation of a deep approach to learning and, further, students’ development as critical thinkers within the online environment. Finally, I wish to stress that the sort of approach I am advocating here with regards to the facilitation of students’ development as better critical thinkers within the online environment, can be seen as strongly aligned with the teaching architectures identified by Schank and Cleary (1995) and seen as particularly relevant to online implementation. Specifically, the approach I am advocating combines three of these five architectures – ‘Simulation-based’ or ‘Learning by Doing’; ‘Learning by Reflection’; and ‘Learning by Exploring’ (see Berge & Collins, 1996 for discussion of these architectures).

Critical Thinking

Used to group a diverse array of skills and attitudes, ‘critical thinking’ is often argued to be at the heart of a university education (Laurillard, 1993; Marshall, de Reuck & Lake, 1997). Skills in critical thinking are required of students in all aspects of their learning: in tutorials,

and in their reading, research and writing. As delineated by Marshall, de Reuck and Lake (1997), the types of skills encompassed by critical thinking are those of recognising and assessing arguments/reasoning; distinguishing between different types of argument; distinguishing between facts and values; clarifying the meaning of terms; identifying and challenging both underlying assumptions and generalisations; and recognising and assessing alternative points of view. Associated attitudes include open-mindedness, flexibility and persistence, and inter-personal and inter-cultural sensitivity. In other words, such attitudes comprise a willingness to consider alternative points of view, and a respect for both the opinions of others and their cultural and/or socio-economic differences; a willingness to change one's own view in light of further or counter evidence; and a commitment to follow a line of reasoning through to its conclusion (Marshall, de Reuck & Lake, 1997; cf. Kurfiss, 1988; Geelan & Taylor, 2000). It is this sort of array of skills and attitudes – those tied, in other words, to a certain self-reflexivity – that units such as REA11 are designed to help students develop:

Applied Reasoning is about learning to think more effectively for yourself, and understanding how to use knowledge in argument and analysis. . . . This unit builds on what you already know about reasoning to provide you with an opportunity to study the central skills that you will need in this information-rich world: the skills of evaluating, analysing and using information. (Rooksby & Allen, 2001, p. 3).

However, before I begin my analysis of REA11, there are several issues relevant to critical thinking itself in need of clarification. First of all, critical thinking is by definition a set of skills and attitudes which should not be dependent on or constrained within the university context. Students need to recognise that such skills are not only applicable in the context of a particular unit, but exemplify a tool of critical analysis important in both further studies *and* their everyday lives. As such, these skills support a model of *lifelong* learning. A second point is that such skills need to be developed through a system of student-centred learning. In developing and honing skills in critical thinking, students need, in other words, to be active in their own learning. This becomes even more apparent when we consider that 'critical thinking' is comprised of not only specific skills but certain attitudes. Lastly, critical thinking needs to be seen not as a "private reflective activity", but as a "communal" one (Marshall, de Reuck & Lake, 1997, pp.29-30). As noted earlier, critical thinking requires that we engage with others, that we consider (and assess) alternative points of view, and that we are aware of the inter-personal and inter-cultural differences informing these alternative points of view – that we recognise that "the positions people hold reflect or grow out of different, often competing or conflicting, paradigms or world views" (15). Critical thinking, then, is premised upon interaction rather than isolation. These then comprise the three major teaching and learning issues underpinning students' development as critical thinkers. Firstly critical thinking skills need to be transferable across different contexts; secondly, such skills need to be developed within a system of student-centred learning, where students are active in their own learning; and, lastly, critical thinking requires interaction and critical engagement with others.

REA11: Critical thinking in an online environment

The question which premises this paper, then, is to what extent can these requirements be met in an online environment? Now REA11 has two major objectives. Firstly, it introduces students to "the basic concepts and skills of reasoning", and secondly aims to help students hone their reasoning skills with an eye to more effective analysis and communication. These

two objectives comprise a single aim – to enable students to become “better critical thinkers” (Rooksby & Allen, 2001, p.3). As such, REA11 not only introduces students to the basic concepts and skills of reasoning, but asks them to apply them by critically analysing given arguments, and constructing and strengthening arguments of their own design. Skills, then, are first learnt and then practised.

Specifically, students access both an online Learning Space and Discussion board. In the former, students work through lecture materials and readings which are divided into three consecutive modules. Modules One and Two each introduce a separate but related stream, both of which are then revisited in more depth in Module Three. In contrast, the Discussion board consists of an open discussion forum, where students are encouraged to discuss unit materials and practise those skills introduced in the Learning Space. Furthermore, students are asked to post responses in this space to a series of unassessed exercises set out within their study materials. Hence students are encouraged to use this discussion space to exchange and debate questions and possible answers, discuss problems, and to constructively comment on ideas posted by other students. The Discussion board is thus configured as a forum for ‘safe’ critical discussion and dialogue, where students are able to practise those skills which are then assessed formally through assignments.

Following this model of presentation, discussion and practise, assignments are, in turn, each designed to build upon the previous one. In successive assignments, students are asked to critically analyse, revise and resubmit work done for the previous assignment. In this way, using a system of scaffolding, REA11 works to instantiate its objectives as student outcomes. However, as I have observed, there are a number of issues specific to both critical thinking itself and the online learning environment which need to be considered. Further, the teaching of critical thinking skills in a purely online environment itself gives rise to a number of issues which impact upon student learning.

On the surface, then, the online environment of REA11 would appear to directly meet the latter two requirements of critical thinking. Not only are students necessarily active in their own learning, but the unit encourages discussion and interaction with other students via its Discussion space and attached participation mark. Additionally, the unit’s focus on using and practising skills in both open discussion and formal assignments would certainly seem to allow for the recognition that these skills are not only relevant in the context of the unit or university study. Nevertheless, despite these indicators of REA11 fulfilling these requirements, I have noted several trends in student engagement which would appear to conflict with this, suggesting that skills in critical thinking are not being fully instantiated – that students are taking more of what Biggs (1999) has called a surface approach to their learning.

The first of these trends is the problem that whilst students working through an online unit are necessarily active in their learning, the materials comprising the Learning Space may themselves be received passively and uncritically – responded to rather than questioned or critiqued. Related to this is the problem that although the unit strongly encourages the application and use of desired skills, these skills still seem to be seen by some students as primarily of use in an academic environment. That is, although these skills are seen as important in the context of study, their possible application to everyday life is not so apparent. Finally, students may have a tendency to use the Discussion board as a forum for tutor-directed questions or postings, instituting a model of teacher-centred rather than student-centred learning (this problem is also identified by Ng, 2001; Geelan & Taylor, 2000). Such

trends indicate that although the online learning environment of REA11 would appear to strongly support students' acquisition of skills in critical thinking through deep and active learning, there are nonetheless some possible problems relevant to this (and any) online environment which need to be considered. Failure to counter these would entail that the desired instantiation of unit objectives as student outcomes would not be fully effective. The following section will consider these trends in more detail, whilst also outlining those strategies I have developed to best counter them *and* facilitate the development of students as better critical thinkers.

The online environment: Some problems and strategies

As stated previously, I have noted several trends in student engagement with REA11 which, I believe, negatively impact on their development as critical thinkers. The first of these trends is the passive acceptance of unit materials. By this I mean that without the stimulation of face to face or synchronous interaction, students tend to work through materials passively, rather than actively and critically. For instance, student discussion of unit materials tends to be confined to questions of meaning and understanding – the ascertaining of 'what is being said'. Such an approach is further supported by the multiple choice format of online quizzes, where answers are to be found through a close reading of the relevant material. Now, although a close reading of 'what is being said' is certainly important – the basis for critical analysis – what also needs consideration is whether the argument presented in the reading is itself valid. It is this latter type of questioning – questioning marking the point where close reading for meaning becomes critical analysis of argument – which has often been lacking from online discussion, despite the fact that REA11 is specifically aimed at teaching skills in argument analysis. What seems to be happening, then, is that although students are successfully working through pertinent exercises and assignments in the construction and assessment of arguments, there seems to be a gap between this type of practical work and the application of these same skills to other sorts of unit materials.

Now, in order to address this problem, I have used the format of the Discussion board to initiate more active and critical engagement with all unit materials – encouraging students to apply the skills they are practising in exercises to the unit's readings, to critically consider, in other words, the arguments presented within these readings. Specifically, I have posted questions which encourage students to not only consider the content of readings, but how and why the arguments they present are structured in particular ways. For example, I encourage students to think about what sorts of assumptions might be underpinning the specific positions or arguments put forward in the readings, or what sorts of implications may arise from these arguments. However, rather than simply posting a series of questions per reading – a strategy which although easy can lead to quick and superficial responses – where possible I try to rework posts from the students themselves, using them to model the different types of questioning constituting critical analysis. Similarly, rather than posting 'the' answer to questions, or posting full analyses of readings, I leave them unfinished, but include with these suggestions a list of possible factors which would need to be considered in such an analysis. From this point I then encourage any attempts by students to carry the discussion further, often using these new posts as the bases for more modelled suggestions and open questions. Having thus encouraged students to both consider in more detail and practise the kinds of questioning informing critical analysis, I also encourage them to constructively discuss each other's critical engagement with the unit materials. In this way, from tending to passively accept unit readings, students start to engage with them actively and critically. These strategies further rely on and use the asynchronous nature of the Discussion board where each

post is also preserved and accessible for re-reading – students have time to reflect and form considered responses, and discussions can extend over several weeks.

The second trend, that of skills in critical thinking being seen as relevant only in the context of university study, can be seen as linked to the first. In the first, critical thinking is seen as specific to a certain type of exercise – it is formulated as a specific set of responses to a certain type of question (that is, those questions included in an academic text!). In both cases, the aim is for students to come to see these skills not as context-specific responses, but as tools applicable across a wide range of contexts and circumstances. To facilitate this recognition, I have tended to initiate discussions and analyses of current issues in the Discussion space. Specifically, through modelling, I aim to show that such issues are made up of a constellation of conflicting arguments which are themselves open to the same type of analysis being practised in the completion of set exercises. As before, I have used the strategies of asking open questions and modelling possible – necessarily, partial – analyses. Further, I have encouraged students to practise these skills not just through completing set exercises, but on arguments found in letters to the editor and politicians' speeches. In other words, my aim is to demonstrate not only that any argument can be critically analysed through the asking of certain questions – whether that argument be presented in a unit reading or a newspaper – but that such skills as practised in university study are indeed relevant and effective in the 'outside' world.

The final trend I have noted is the tendency for students to use the Discussion board to ask tutor-directed questions. In other words, to want to set up a teacher-centred method of learning. I found that, not counting queries to do with administration and the unit outline, there were posted a number of messages in the Discussion space which, directed to me personally, asked for 'the' answers to questions or problems encountered by the student. My main strategy with most of these was to open the question up to the group, along with some associated suggestions, and then moderate the ensuing discussion. Indeed, my tendency has been to encourage students to actively discuss problems between themselves. In moderating such discussion, I have focused on introducing further questions and potential lines of enquiry, and showing the limitations of and problems with points already introduced (for discussion of moderation see Berge & Collins, 1996). Indeed, I deliberately post a message at the beginning of each Study Period stating that I have a "terrible" tendency to avoid giving answers, but that I'll always participate in discussion. The main reason for refraining from posting 'the' answers, was that when such answers were posted, they had the effect of closing discussion – their presence suggested to students that they already had the 'complete' answer. Through such strategies, then, I have resisted this tendency to construct the Discussion space as a site for teacher-centred interaction, rather encouraging students to actively discuss questions and problems as a group. Such an approach has also helped students to recognise the communal nature of critical thinking – that, for instance, alternative points of view or positions need to be considered.

Conclusion

This paper, then, has argued that the online environment of REA11, whilst potentially able to create an environment of active, student-centred and collaborative – that is, deep – learning, nevertheless gives rise to a number of possible problems for the successful teaching of critical thinking. I have shown that in order to promote deep learning and facilitate students' development as critical thinkers, it is necessary to take account of several trends in student learning in an online environment. Specifically, students have needed to be encouraged to

apply these skills outside of set exercises. Further, they needed to recognise that skills in critical thinking, far from comprising a set of responses to be given only when facing a particular type of problem or question, are tools applicable to a wide range of texts, contexts and situations. Students also needed encouragement in the institution of a student-centred discussion and learning space, where students are actively engaged in their own learning. Facilitated by a combination of open questions, modelling and positive feedback, such a focus has meant that students come to recognise that critical thinking comprises a set of transferable skills and attitudes, and that, although reflexive, it is necessarily a communal activity. It is this recognition, then, that marks their development as better critical thinkers.

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