

We've thrown away the pens, but are they learning? Using blogs in higher education

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In today's university classrooms, "the time of restricting students products and learning opportunities to ink on paper are past" (Siegle, 2007). Blogs are only one of many computer-mediated technologies starting to dominate blended and wholly online courses. Most people assume that using these technologies, because it is what the students want, will translate into increased learning opportunities. As the literature continuously asserts, however, learning, and especially reflection, does not just happen (Boud, Keogh, & Walker, 1985). It seems imperative, therefore, that extra measures are taken when any technology is being implemented in a university classroom to ensure high levels of reflection and cognitive processing are being fostered. Studies must be conducted to understand how blogs can be used to help students engage in reflection, at all levels: Stimulated Reflection, Descriptive Reflection, Dialogic Reflection and, the highest, Critical Reflection. This study explored the use of blogs in a tertiary setting to learn how the tool was used, and could be better used, to foster reflection and higher-order thinking. This paper focuses on how blogs were used as one element of a learning activity in an Accounting unit in an Australian university to promote reflection. We provide an analysis of the learning environment set by the instructor, including the learning task, learning resources, and learning supports, student perceptions of the value of the task, and an examination of students' blogs. Finally, we discuss the outcomes of the blogs in terms of levels of reflection being accomplished.

Keywords: blogs, reflection, cognition, tertiary education

Introduction

With the increasing demand in today's tertiary classroom to both mould and create reflective practitioners whilst simultaneously 'throwing away the pens' and using many different forms of technology, it is not surprising that many have turned to technology to help facilitate reflective thinking. One very common computer-mediated tool being used in university blended and wholly online courses is the ever-popular weblog, or blog. The blog has become almost fashionable in the public sector for all types of people hoping to share their thoughts with the world-at-large. Blogging, then, is encouraging a once conservative society to share their thoughts and feelings on basically anything, journal-style, with anyone who will 'listen'. Educators, many who blog themselves, have realized the potential of blogging for the university classroom. If people are willing to analyse, explore and share their personal thoughts on the most intimate things on public blogs, and others are willing to respond, perhaps the same could be true for students trying to grasp concepts in a university course. Instructors are now implementing blogs hoping that students will write and share reflective pieces about all kinds of topics with both their classroom peers and, sometimes, the general public. The move to use blogs for journal writing type activities is almost unavoidable with today's technologically-savvy cohort. The advantages of using blogs to facilitate deep learning, however, will be lost if those implementing blogs in the classroom do not understand first what reflection and higher-order cognition are, and second, instructional strategies to use when implementing blogs to help students reach deeper levels of learning.

Blogs in education

To understand how blogs can be effectively used in tertiary education to encourage higher-order learning, perhaps it is best first to understand what is meant by the term 'blog' for the purpose of this paper. Most

people today have a general understanding of what the term means. It was not that long ago, however, that the term blog was unknown but to a few and the creation of a blog was beyond the ability of most computer-users.

Blogs initially appeared on the internet in the early 1990's. In 1997, Jorn Barger christened these sites 'weblogs' and in 1998, only a few such sites existed (Blood, 2000, p. 1). Blood (2000) notes that in 1999, Peter Merholz began calling weblogs 'wee-blog' which was then shortened to 'blog' with the author/editor of the blog referred to as the 'blogger'. These original blogs could only be created by people who knew html coding and were able to create their own web pages. The blogs were "link-driven sites. Each was a mixture in unique proportions of links, commentary, and personal thoughts and essays" (Blood, 2000, p. 1- 2).

While the original type of blogs still exist, another type has emerged, possibly encouraged by the introduction of free, 'do-it-yourself', add-any-content-you-want, no- html-coding-experience-required, weblog sites (Blood, 2000). These blogs, available to anyone, take on more of a "short-form journal" style, giving the blogger a resource to share their thoughts, as often as they want, on pretty much any subject (Blood, 2000, p.3). Usually, these blogs appear as a list of postings in "reverse chronological order" (Williams & Jacobs, 2004, p.232). The postings often contain hyperlinks to "third party sites", and give readers the ability to "enter personal responses to articles" (Williams & Jacobs, 2004, p.232). The links can lead the reader to sites that are relevant to the topic, as well as other blogs. The interactivity afforded by the blog may be key to its popularity; blogs allow the audience to respond to the author's writings and posted items, they also offer the opportunity for the author to respond to the feedback (Williams & Jacobs, 2004). Bloggers also often have conversations with each other using the blogs as 'chatting space'. Often conversations occur between several blogs, "each referencing the other in their agreement or rebuttal of the other's positions" (Blood, 2000, p. 3). An advantage for the reader is the concept of "trackbacks" in the blogs, where links are bi-directional, allowing the reader to see what "other bloggers have written about and linked to that post" thus permitting the readers to "follow links back and forwards, exploring a networked discussion" (Walker, 2005, p. 113).

Blogging has evolved since its original appearance in the late 1990's to become not only popular in the public sector, but also a popular trend for computer-mediated learning in higher education. Touting blogs advantages, many list the prospect of blogs becoming a learning space for knowledge management and thus a "potential to be a transformational technology for teaching and learning" (Williams & Jacobs, 2004, p.234). Specifically, many hope that blogs will help facilitate higher-order learning and reflective thinking (Farmer, Yue, & Brooks, 2008).

Technologically speaking, there are several benefits of using blogs in education, including that blogs technology is open-source, and thus available to instructors and students at no cost; blogs are easy to use; they can act as a repository for student knowledge: once it is created, students can continuously add to it; and blogs offer a place for students to engage with other students and the instructor asynchronously, anytime, anywhere, thus allowing them to "share and update the knowledge base" (Raman, Ryan & Olfman, 2005, p. 313).

Indeed, blogs are one of several "conversational technologies" that can be used to manage knowledge (Raman, Ryan & Olfman, 2005, p.313). They offer students the ability to share their reflective journals, as they might have once done with pen and paper, but in a learning space surrounded by other learners. Students can share their thoughts not just with the instructor, but with their peers, and even, outside the capacity of a learning management system, with the public at large. In this way, students can participate in their own, and others' learning, the benefits of which abound. Specifically, Farmer, Yue, and Brooks (2008) cite Ferdig and Trammell (2004) who "usefully explicate the four central pedagogic benefits of blogging for students":

1. Assisting students to become subject matter experts by regularly scouring, filtering and posting information.
2. Increasing student interest and ownership in learning.
3. Giving students legitimate chances to participate and enculturating them into a community of practice.
4. Providing opportunities for diverse perspectives.

Blogs allow students to share what they are thinking at any time with anyone. In this way, blogs offer students increasing autonomy while at the same time allowing for more interaction with peers and experts (Williams & Jacobs, 2004). Blogs can empower learners by allowing them to write whatever they are thinking and by encouraging them to confront their own thoughts and opinions (Blood, 2000). Over time,

most bloggers gain confidence sharing and interacting with others on a regular basis, they become aware of and start trusting their own perspective, and their reactions start to “carry more weight” as they become accustomed to articulating and expressing their thoughts (Blood, 2000). Ideally, using blogs, the blogger “will become less reflexive and more reflective, and find [his/her] opinions and ideas worthy of serious consideration” (Blood, 2000).

Reflection in education

When using blogs for promoting reflection in education, it is necessary to understand the thought processing students engage in as they reflect. Reflection can be described as a process, it is a

complex activity aimed at investigating one’s own action in a certain situation and involving a review of the experience, an analysis of causes and effects, and the drawing of conclusions concerning future action, and which results in a changed conceptual perspective (Woerkom, cited in Hoyrup & Elkjaer, 2006, p. 29).

As a complex process, reflection can be seen to have several levels: stimulated reflection; descriptive reflection; dialogic reflection; and critical reflection. Essentially, the student is stimulated with new information, in an attempt to make sense of that information, the student may use prior knowledge and past experiences to help them describe the experience or event in a detailed way and avoiding judgments while identifying others’ views and perspectives and “attempting to provide reason and justification for actions” (Strampel & Oliver, 2007). If the student continues to engage in reflective thinking, he/she will then re-evaluate the experience and be able to create possible alternative solutions. Finally, students who engage in the highest levels of reflection will be able to critically analyse the situation, or event, and “come to a decision for action” this may involve association, integration, validation, and appropriateness (Strampel & Oliver, 2007). At this point, the student should be able to evaluate the situation and come to a decision following action.

Stages of cognitive processing are closely linked to the levels of reflection. When the student is stimulated with new information, they are put in a state of cognitive disequilibrium. When the student tries to make sense of the new information using prior knowledge, they engage in cognitive retrieval and challenge their existing knowledge to make sense of the new information. When the student begins to critically analyse the situation and synthesize and integrate knowledge, they engage in reconceptualisation by replacing existing concepts with new ones. Finally, when the learner is able to make decisions about following actions, they should be able to apply their new knowledge to a variety of situations.

Figure 1 (adopted from Strampel & Oliver, 2007) portrays how the levels of reflection and the stages of cognitive processing fit together. This process is a dynamic one: students do not always go through all levels of reflection and at any time, students may be faced with new information, causing them to begin the process again. Instructors in any learning environment should aim to have students reaching at least dialogic and critical reflection levels in tertiary education.

Structuring the learning environment to promote reflection

Most educators believe that instead of hoping for students to ‘just become’ reflective thinkers, conditions in the learning environment can be structured to encourage and facilitate reflective thinking (Moon, 1999). Further, most agree that it is the role of the instructor to construct a space for learning, provide support to the learner, and encourage the learner to engage with useful resources (Strampel & Oliver, 2007). Regardless of the technology being used, student learning in higher education takes place in what has come to be known as the ‘learning environment’. In terms of creating an optimal learning environment for promoting reflection, three constituent elements have been identified: Learning Tasks; Learning Supports; and Learning Resources. Ensuring the task is engaging provides students with reason to participate in reflective thinking. Learning supports, including conative supports, scaffolds, and social support, “helps students complete the task and encourages them to eventually become autonomous learners”. Finally, giving students access to and encouraging them to use multiple resources “allows contact with content, information, and underpinning knowledge they need to fully engage in reflective thinking” (Strampel & Oliver, 2007) (Figure 2).

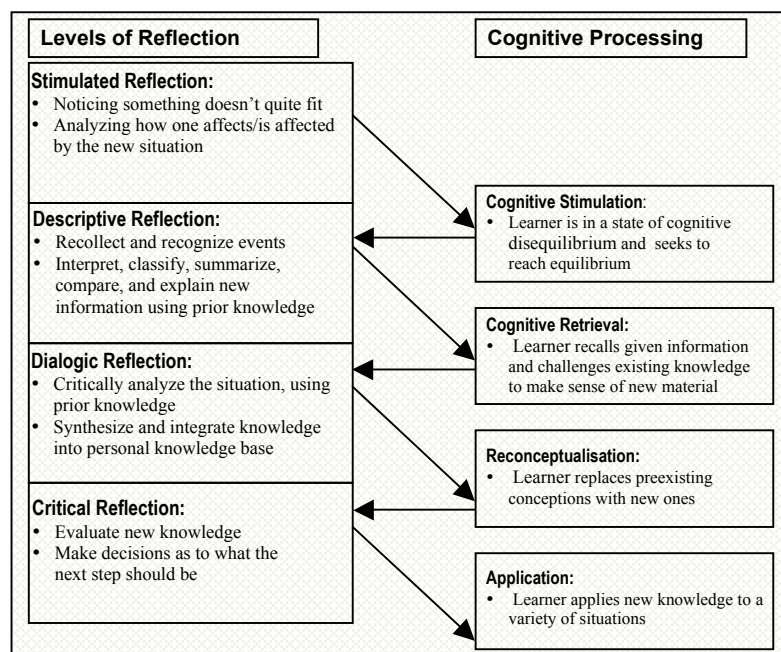


Figure 1: Levels of reflection and stages of cognitive processing

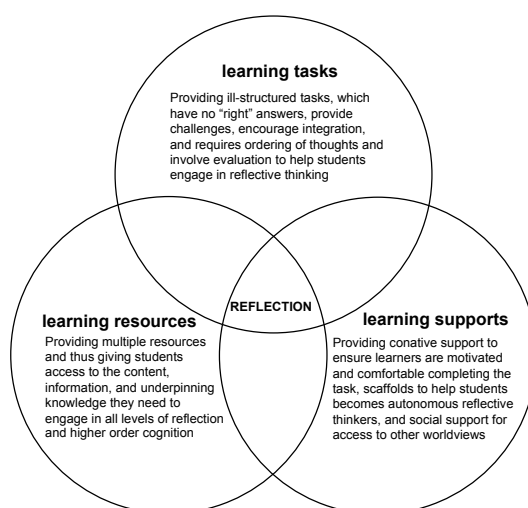


Figure 2: Constituent elements of a learning environment promoting reflection

Aim of the study

The purpose of the study was to explore the use of blogs in a tertiary setting in order to discover:

1. The critical conditions (learning tasks, learning supports, and learning resources) that exist in an online learning environment using blogs to promote reflection.
2. The extent to which blogs help foster and promote reflective thinking when the critical conditions are present in the learning environment.

This study forms part of a larger study which aims to develop best practice models of instructional strategies that effectively foster reflective thinking when using blogs in tertiary education.

Participants and instruments used

The study was conducted with an advanced accounting unit in Australia. The class was an online unit: the unit content was delivered through the university's local learning management system and most interaction occurred on Elluminate Live!, an online meeting room which "enables instructors and students to interact and collaborate in real time" as well as allowing students and instructors to "add synchronous

content to asynchronous distance learning or combine blended online/onsite learning activities” (Elluminate, 2008). The unit built on what students had learned in earlier units, with the unit statement describing a focus on the “application of accounting and disclosure requirements of the Australian Accounting Standards and Corporations Act, 2001”, which was to be achieved by having students complete case studies, participate in group activities “designed to stimulate professional judgment as applied in accounting practice” and share reflective posts on the class blog, ideally weekly throughout the semester, but also as required for various corresponding activities.

The instructor volunteered to participate in the study after personal communication with the researcher and, although the instructor used several different technologies within this unit, researching his use of blogs met the needs of the researcher for the larger study. The instructor introduced the study to the students during class about two weeks into the semester. Nine students volunteered to participate in this study. The data collected from this study included: a “pre-activity” questionnaire emailed to the instructor before the students began the learning task, a student questionnaire administered online after students had completed the task, a “post-activity” instructor questionnaire, completed by the instructor after the students had completed the activity and the activity had been assessed, and, finally, access to students’ blogs. The instructor pre-questionnaire specifically sought information about how the learning environment was constructed and how the instructor perceived the task to promote reflection. The post-questionnaire then asked for the instructor’s comments on the success of the activity, any changes that might be made in the future to improve the activity, and the instructor’s perceptions on the levels of reflection evident from the task. Both instructor questionnaires included only open-ended with unlimited space for responses. The student questionnaire canvassed student perceptions in three main areas: the learning environment; levels of reflection; and stages of cognitive processing. The questionnaire consisted of three sections: a list of Likert questions regarding levels of reflection and cognitive processing, followed by two open-ended questions seeking clarification of the responses provided for the Likert questions; a list of Likert questions about the learning environment, followed by two open-ended questions seeking elaboration on the responses gained by the Likert questions; and four overall open-ended questions regarding the learning experience.

Analysis of the data collected

Analysis of the data supplied through the instructor post-activity questionnaire, the student survey, and the blogs themselves revealed several areas to be explored which would meet the needs of the research aims. These areas included: instructor and student perceptions of the quality of the learning environment, instructor and student perceptions of reflection and cognitive processing, evidence of reflection and cognitive processing.

Learning environment

To fully describe the learning task, the learning supports, and the learning resources, the instructor was asked to complete two questionnaires: a “pre-activity” questionnaire, and a “post-activity” questionnaire. From these questionnaires, it was evident that all elements of an optimal learning environment for promoting reflection were in place:

- *Learning Task.* The instructor created a task with clear goals and objectives, but with no ‘easy answers’: students were to self-select themselves into a group and argue one of three perspectives in a case. They were to meet with their group both on the wiki and in Elluminate to discuss and prepare their response and presentation, which was delivered to their peers using Elluminate. The final part of the task required that students write and post an individual reflection on the lessons they had learned on the class blog (hosted on the learning management system, visible only to the instructor).
- *Learning Supports.* The instructor took a supportive and facilitating role throughout the learning activity: he was available and willing to assist students by clarifying questions and giving directions, when they requested his help. While he was available to offer conative, scaffolding, and social support, his primary role, in his words, was to “stay out of the process unless invited in (or unless [he] saw the need to step in)”.
- *Learning Resources.* The instructor supplied his student with a plethora of resources to help them fully engage in the learning task. The students had access to several unit content features in the learning managements system. They also had access to the Australian Accounting Standards, as well as other accounting pronouncements; the Code of Ethics for Professional Accountants; and other professional information which could be accessed through the library databases. Students were specifically asked to engage in background reading for the case, they also needed to access the case scenario from professional journals and the scenario itself provided additional resources that could be

accessed through the library. Finally, students were encouraged to use the technology available to them as resources: Elluminate to meet and share ideas; the wiki to access resources identified in their unit notes; and the blog to seek help and clarification from the instructor, as well as reflect on their own thinking.

Quality of the learning environment: The instructor perspective

On the whole, the instructor was satisfied with the way the students engaged in all elements of the learning task. He noted that he was pleased with students' use of the blogs. Students did not use the blog intermittently throughout the activity; they only chose to use it to share their final reflective piece. In their posts, however, the instructor noted that students took advantage of being able to share whatever they liked on the blog and often revealed what was causing "blockages" to their work:

It confirms (in my experience) how easily uni work slips to the bottom of their priority list...and they share what the higher priorities are! This allows me to offer very "personalised" support and encouragement which they translate into a desire to get back on task and get things done – raise the priority a peg or two...in most cases (certainly not all).

While the instructor recognized that other technologies and even more traditional methods of teaching might also allow for this type of communication and instructor/student relationships, he believed that the way the blog stores and organises information and material made it easier for him to track and follow. He also appreciated that students may have felt more comfortable "sounding off without judgment" because the blog was imbedded in the Learning Management System.

In terms of the support the instructor gave students, he noted that some students seem frustrated by his push for them to be self-directed learners. These students would prefer more guidance about the processes they were meant to follow with the cases throughout the unit. He stated:

I think about this, but stick to my strategy for throwing them in to the task to create a richer context for discussions across the remainder of the semester about their developing their own strategies in light of their own experience by reflection and discussion of additional scenarios.

The instructor recognized that, as a facilitator of learning, his role was to guide the students' "journey of discovery" instead of fulfilling expectations they might have of having answers provided, but he also realized that some students were quite unsatisfied with his response.

Quality of the learning environment: The student perspective

Despite a few misgivings, most students were pleased with the learning task and overall learning environment created for them by the instructor. When asked if the task set to them was challenging, four students disagreed. However, when asked if the task required that they engage with various materials, and if the objectives/goals of the learning task were clear, important characteristics of a learning task meant to promote reflection, the majority of the students agreed.

Most students also agreed that the necessary elements of instructor support were present throughout the learning activity: the instructor motivated the students to engage in the activity; the instructor provided timely feedback and engaged in scaffolding support; the instructor provided opportunities for collaboration throughout the learning activity; and the instructor created a safe and comfortable learning environment for the students.

Finally, there was almost unanimous agreement to questions relating to student perceptions of the quality and quantity resources either the instructor provided, or the instructor encouraged students to use: all students felt that they had sufficient access to information to complete the activity; 8 students agreed they had been provided with plenty of opportunities to communicate with their peers, one student declined to answer; 7 students agreed there was a good variety of resources available to them, one student declined to answer and one was unsure; and, 8 students felt that interaction with their peers enabled their learning process, one student declined to answer.

Based on analysis of the Likert-style questions in the student survey, most students perceived that the learning environment, created by the instructor, offered the constituent elements of a learning environment hoping to promote reflection: an engaging learning task, conative, scaffolds, and social support, and access to several resources.

Reflection and cognitive processing

The learning environment the instructor constructed for the students was meant to foster and promote high levels of reflection. Both the instructor and the students provided evidence that the constituent elements of an optimal learning environment hoping to foster reflection were in place: learning task; learning supports; and, learning resources. The following sections of the paper will discuss the levels of reflection and cognitive processing evident in the learning activity.

Occurrence of reflection and cognitive processing: The instructor perspective

One of the goals for the learning task, and indeed, the entire learning environment, was to foster and promote reflective thinking. With this in mind, the instructor specifically chose several learning activities, as discussed previously, to help in this endeavour. He noted that the wiki, Eluminate tools, and the blog were all used to foster reflection. The first two were intended to promote both reflection-in-action and reflection-on-action, whereas the blog was meant specifically to foster reflection-on-action. The instructor was happy with the reflection he saw taking place. He noted that it was particularly apparent in the students' final group presentations where there were:

a couple of excellent exchanges expressing very intransigent alternate perspectives. I decided to intervene before they became too heated, but was ecstatic that such passion was evoked in the defence of their judgements for their roles.

He noted that other group exchanges also gave "vivid views" into students' decision-making processes while they struggled to use "techniques learned from earlier accounting units". The instructor gave several examples of group debates and relished the ability to see students' engaging in the learning process. He thought it was particularly powerful to be able to give students support "but without providing the way forward, rather a path for them to choose to move forward". Following such discussions and debates, and after hearing other groups' presentations, the instructor noted that many individuals wrote in their final reflective pieces that they had "had their eyes open to the range of outcomes that reflect (framed) different perspectives". In terms of reflection and cognitive processing, then, the instructor believed that each student accomplished the goals he had set out but for some, the "realization of just how far they [had] journeyed remains to be as clear as it needs to be".

Occurrence of reflection and cognitive processing: The student perspective

To match student perspectives with the instructor's, several questions in the student survey asked students if they engaged in the characteristics of different levels of reflection. Table 1 presents the results of the questions asked to understand students' perceptions of whether or not these different levels were reached. Note that SR = Stimulated Reflection, DesR = Descriptive Reflection, DiR = Dialogic Reflection, and CR = Critical Reflection.

Table 1: Student perceptions of their engagement in levels of reflection

Response		Disagree		Undecided		Agree	
Level	Question: I felt that the incorporation of the blog in this case...	N =	%	N =	%	N =	%
SR	helped me learn many new concepts	1	11.1	2	22.2	5 *1=NA	55.5
DesR	gave me the opportunity to describe an event, action, or concept	0	0	0	0	9	100
DesR	required that I remember concepts that I'd previously learned	2	22.2	1	11.1	6	66.7
DesRDiR	helped me realize that other people have views that are different than mine	1	11.1	0	0	8	88.9
DiR	helped me create something new or generate new ideas	0	0	1	11.1	8	88.9
DiR	helped me change my previous thinking	0	0	4	44.4	5	55.6
DiR	required that I use my previous experiences and learning to make sense of the content I was learning for this activity	0	0	0	0	9	100
DiR CR	helped me change the way I would normally do things	0	0	4	44.4	5	55.6
CR	helped me critically analyse an event, situation, action, or concept	0	0	0	0	9	100
CR	helped me understand how to apply what I've learned to different situations	1	11.1	1	11.1	7	77.8

The quantitative data in response to the questions seeking to understand student perceptions of the occurrence of the different levels of reflection appears to lend support for the use of blogs to foster high

levels of reflection, at least in this unit, with some 90% agreement and above responses to five of the questions. Some disagreement and indecision was evident when asked about learning new concepts and remembering previously learned concepts. Less favourable responses occurred when asked questions about higher levels of reflection: changing previous thinking (55.6% agreement), changing the way things would normally be done (55.6% agreement), and applying new knowledge to different situations (77.8% agreement).

When asked to explain how using the blog helped their understanding of the subject, eight of the nine students responded positively, the ninth had no response. Not all students, however, were able to voice how the blog helped them reach deeper levels of learning. One student in particular stated: *'[using the blog] has improved my understanding of the issues and concepts involved with [the case study]'*. This type of positive response is encouraging, but gives no evidence of how using the blog engaged students in high levels of reflection and cognitive processing. Some of the other students, however, were well able to discuss their learning and the way they believed it was improved by using the blogs. Their responses to the questionnaire demonstrated that some students felt that using the blog gave them a chance to share and articulate their thoughts about their own learning in a way that they otherwise might not have done, as these selected quotes show. By sharing their thoughts in writing, some of these students found that they were forced to actually *think* about what they were learning. Five of the students found that writing on the blog helped them evaluate their own learning. The following selected quotes demonstrate this insight:

[Using the blog gave me] the chance to reflect. If not for the blog, I would not have done this and would have moved onto other work, rather than considering the case as a whole.

It made me revise and think about what I have been doing, learning and contributing to the unit...I guess [using the blog] has showed me that reflection and revision is useful to help me to learn, or at the least refresh things. [From now on] I will implement a better revision routine into my units and semesters.

Rather than get frustrated with a certain task that may not be going according to plan, I would reflect on the issues I'm having and try to see an alternative to solve the problem. [I was able to put down ideas] and come back later for review when needed.

Several of the students also used the blog to specifically interact with the instructor. These students found that feedback from the instructor supported their learning. One student found that using the blog, they could put forward their ideas to the instructor and thus have someone challenge their thinking. Also, two students purposely used the blog to their advantage by seeking clarification from the instructor: Two students also specifically stated that they saw value in the way the instructor encouraged them to take control of their own learning, indicating that this aided their learning. A few students identified general support from the instructor, too, as a factor to aid their learning. Finally, one student found that the blog was a good place for him/her to vent his/her frustrations.

The questionnaire responses discussed above provide evidence that some students unwittingly began to take control of their own learning. Students were asked to construct their own meanings from the case and share those on the blog with the instructor, thus actively participating in their own learning process. The responses showed that instead of just articulating the conclusions they had arrived at, a few students used the blog to their advantage and began to monitor, control, and regulate some aspects of their own cognition by sharing their thoughts and ideas, not just their conclusions, asking for clarification and help when they thought they needed it, reviewing and revising what they thought based on what they learned during the task.

The results

The students in this study identified similar factors contributing to their learning as can be found in the literature. One of the underlying factors of student learning that was identified through student responses was that students perceive that the blog offered them the ability to evaluate their own learning, to revise their thinking, and, in their words, to reflect. This evidence suggests that by writing about their learning, students were better able to see and understand their thinking and change their conceptions when necessary – both important elements in higher levels of reflection and cognitive processing.

Given the strong perceptions of both the instructor and the students regarding the levels of reflection and cognitive processing achieved, it was important to delve further into the students' actual work samples: the blogs to see if these levels really were being realized. The following uses the constant comparative

method of data analysis (Mertler, 2005) to emerge with themes and findings which help to understand how blogs can be used in higher education to foster deep learning.

Although the students appeared to have a clear understanding of how using the blog *could* help them reach deeper levels of learning, it was essential to know if the way the students were actually using the blog *did* help them reach higher-order cognition.

The students were asked to write a piece about their opinion on the case and which perspective (of the three) they agreed with, specifically, to draw on their learning and experience in the cases they had worked on to respond to a question asking which perspective in the case was correct. The instructions were as follows:

Try to indicate in your response how (if) your decision has been influenced by what you have learned about earnings management and the quality of earnings. Feel free to acknowledge the extent to which you have been persuaded by the presentations of any of the group perspectives offered for this case. This is YOUR opinion and I would like you to be clear and concise about how/why you have reached that view (in other words, support your decision).

In their blogs, all nine students engaged in a form of journal writing. This type of writing, described as “a continued series of writings made by a person in response to their life experiences and events” may include a description of events, but should also “[reflect] on what took place and [express] emotions and understandings about them” (Lamb & Johnson, 2003). Writing and journaling, therefore, can actually foster several levels of reflection. Moon (2005) suggests that journal writing can, in the least sophisticated form, simply describe material linearly, but writing can, in more sophisticated forms, include questioning of events, evaluations of relationships, and the “mulling over” of meanings and conclusions (p. 118). At the highest level of reflective writing, students should understand that there may be “different frames of reference imposed; that different people may have different points of view; [and] that states of emotion are cumulative” (p. 118).

Stimulated reflection and cognitive disequilibrium

All nine students' blog posts portray that they were stimulated with new information. The students were given a choice – to choose to argue one of three perspectives – and this pushed them into the ‘awareness stage’ (stimulated reflection) asking them to analyse their feelings, become aware of their view of the world, and choose which perspective to argue. All nine students responded by clearly stating their beliefs and opinions about which perspective they agree with in the case and why. This is evident in the very common use of the phrases “I believe”, “I think”, “I agree (or not)”, “In my opinion”, “I understand that”, and even “I could convince myself”. This level of stimulated reflection evoked a state of cognitive disequilibrium among all students, as evidenced by the following selected comment:

After considering the [case] itself, although [perspective 1] did keep to the standards (from a very lenient point of view) in his treatment of some of the issues...the way he treated them did not appear to be fair and true.

Being cognitively stimulated students will often feel they must make sense of the new information which they can begin to do by engaging in descriptive reflection.

Descriptive reflection and cognitive retrieval

All nine students were observed to undertake the criteria of descriptive reflection. The students used the blog to summarize and compare the perspectives, interpret the information and state their decision. The following selected quote is typical of information stated in all nine blogs:

In order to propel my belief I will dispel some of the assertions that the [perspective 1] group has made pertaining to the appropriateness of the original financial reports. In regards to the provision for sales returns, they felt that the historical data...would be a better determinate of a probable outflow of resources; however this information is irrelevant as previously low end wall hangings were not sold. Thus the 5% figure determined by [perspective 2] using a variety of sources would be more reliable. It is more probable than not that sales returns will be made, thus not including the provision would overstate the company profits i.e. reduce quality of earnings.

All nine students also used previous knowledge to help them explain, defend, and argue their position in the case, as evidenced in the following selection of quotes:

Based on what I have learned in all the cases I have completed so far for this course, I believe...

Both [previous and present] case studies have increased my awareness of a number of issues...

As learnt during the compilation of the [previous case]...

The [previous] case raised a number of issues that have a bearing on the [present] case. Based on what we have learned so far in this unit and taking into account all perspectives of the three groups, I believe...

Some went more in-depth showing that they understood what they had learned previously, such as earnings management, and how it applied to the decision they made, as shown with the following selected quote:

Earnings management is a strategy used by the management of a company to deliberately manipulate the company's earnings so that the figures match a pre-determined target. The driving force behind managing earnings is to meet a pre-specified target. I believe [Character 1] applied at least a couple of bookkeeping changes or methods that adhere to the acceptable accounting principles for his purpose of reporting a better result in 2004 than 2003. [Character 1's] judgements in structuring certain transaction was used to alter financial reports and influence the outcome that depend on those reported accounting numbers.

For all nine students, descriptive reflection and cognitive retrieval were the highest levels of reflection evident in the blogs.

Discussion

While it seems possible, based on the responses to the student questionnaires, and the instructor's perceptions of the occurrence of reflection, that high levels of reflection and cognitive processing were occurring throughout the *entire* learning task, analysis of students' blogs showed that the blogs themselves were not as proficient as the *task as a whole* for gleaning higher order cognition. The blogs in this task were used as a final summary for students to share and argue their opinions. These opinions had clearly been formed and challenged over time throughout the learning activity and thus sharing them did not require high levels of reflective thinking per se.

So the question begs, we've thrown out the pens, but are they learning? Study after study touts the benefits of blogs. Indeed, they are a way of writing and sharing reflective journal entries online, anytime, anywhere. As this study shows, blogs offer the advantages of timely instructor feedback. When hosted in a learning management system, as opposed to public blogs, students feel they can write, unhindered, in a comfortable, safe learning environment. And students believe that by writing about what they have learned, they are reviewing and revising their own learning. Despite these benefits, as claimed by the students themselves, the actual blogs revealed that the students writing typically showed minimal sophistication, meeting only the criteria of descriptive reflection.

In this study, the blog was meant to be a safe place for students to explore their own learning. The blog allowed the students and instructor to interact in a way that may otherwise not be possible. This interaction may have encouraged unseen and unwritten learning. Perhaps by having students write in their blogs, reflecting was taking place but not being documented. Perhaps the instructor's feedback prodded the students into action that was not shared.

In summary, this study shows that the critical conditions that existed in the learning environment: learning task, learning supports, and learning resources did affect student learning. The learning task as a whole: the Elluminate chats, the Wiki, the group presentation, and the blog, along with the resources provided by the instructor, and the instructor's support, all had a positive part to play in student learning. The evidence suggests, therefore, that when these constituent elements of an online learning environment are structured appropriately: a task with no clear answers; scaffolding support; and a variety of resources, for example, they do indeed promote high levels of reflection and cognitive processing. The blogs themselves, however, were almost a standalone element in the case: they did not promote student collaboration; they did not necessitate back-and-forth communication between the instructor and student;

they did not require that students use outside resources to complete the task. In this way, the actual use of the blogs in this unit, did not include all the elements of an optimal learning environment and, therefore, did not promote high levels of reflection and cognitive processing.

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