The Teacher’s Role in Developing Interaction and Reflection in an Online Learning Community

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Abstracts

New technologies provide the opportunity for teachers to make learning interactive and collaborative by using a social constructivist approach to teaching and learning. This involves creating a student-centred approach where the teacher takes the role of the facilitator and the students engage in peer learning. This paper reflects on the author’s role as a facilitator in a higher education online unit that was designed for science and mathematics teachers who were geographically and socially isolated. The goal in designing the unit was to create a networked community of learners that encouraged peer learning and focused on reflective thinking. Qualitative data from students’ and teacher’s postings to the Activity Room were analysed to identify the diverse roles of the online instructor in creating an online learning community. The ‘four hats’ metaphor of pedagogical, social, managerial and technical actions was used as a framework to discuss the activities of the instructor and to examine the extent to which she was able to establish and maintain a community of learners. This framework also served as a tool to analyse the pedagogies used by the instructor to promote peer-learning and reflective thinking.

Le rôle de l’enseignement pour développer l’interaction et la réflexion dans une communauté d’apprentissage en ligne


Die Rolle des Lehrers bei der Entwicklung von Interaktion und Reflexion in einer Online-Lerngemeinschaft

Introduction

Technological tools for learning are becoming increasingly interactive, widely distributed and collaborative (Bonk and Cunningham, 1998; Bonk and Wisher, 2000; Squires, 2000). These new technologies provide a challenge to make learning an interactive and collaborative experience that is guided by a social constructivist approach to teaching and learning (Tobin and Tippins, 1993; Maor and Taylor, 1995; Jonassen and Reeves, 1996; Blanton et al., 1998). This approach regards individual cognition as occurring within a social context and suggests that collaboration between individuals in a social learning environment is an essential aspect of any educational experience. Berge and Collins (1995) emphasize that ‘as an agent for socialization and collaboration, the networked computer has an even greater potential in education for providing an active environment for social learning’ (p. 8). Instructional methods, based on a social constructivist approach, focus on dialogue, instructor co-learning, and the joint construction of knowledge (Von Glasersfeld, 1990; O’Connor, 1998). This leads to the creation of a student-centred approach where the teaching staff take on the role of facilitator and the students engage in peer-learning.

Even though the new technology offers unique opportunities for promoting reflective and collaborative learning, the traditional teacher-centred knowledge transmission metaphor still dominates in online units. That is, information exchange is still the primary practice of many network groups where students find themselves scrolling through pages of online text. According to Hiltz, ‘Colleges and universities ought to be concerned not with how fast they can “put their courses on the Web” but with finding out how this technology can be used to build and sustain learning communities’ (1998, p. 7). Furthermore, the world’s increasing dependence on lifelong access to new knowledge is transforming the landscape of higher education and forcing the academy to rethink virtually all of its systems and traditions (Rowly et al., 1998). Laurillard (2002) sees the challenges to university teaching in getting away from the transmissionist model and creating ‘reflective practicum’ by turning the academics into reflective practitioners. By being reflective practitioners, the higher education lecturers are engaged in understanding and evaluating the process of teaching and learning, rather than the teaching objectives. The objective now is to improve the quality of their teaching practice, as well as having the opportunities to learn about themselves (McNiff, 1993). This can yield evidence and insights that can and do assist in the critical transformation of practice (Kemmis and McTaggart, 2000).

In an attempt to implement a community of learners, engaged in reflective discourse, the online unit discussed in this paper was designed on the basis of a social constructivist perspective (Tobin, 1993; Duffy and Cunningham, 1996; Jonassen and Reeves, 1996). The purpose of the unit was to foster interaction, collaboration and negotiation of meaning among participants in order to construct knowledge. The lecturer, Maor, has been using the Web for distance education teaching while at the same time adopting constructivism as a referent (Von Glasersfeld, 1990; Tobin, 1993; O’Connor, 1998) for her research on teaching (Maor, 1998, 1999). These experiences have enabled her to conclude that good teaching involves learners actively participating, reflectively thinking and collaborating with one another. Emerging technologies, therefore, have enabled her to justify the definition of learning as ‘improved participation in interactive systems’ (Greeno, 1997) and to extend this way of learning by engaging students in rich learning possibilities. The role of the teacher in the online environment becomes a significant element in creating quality learning; a task that has required a change in pedagogies for the higher education lecturer. The change in pedagogy also included the need to inspire reflective thinking amongst the learners, while at the same time attempting to be a reflective practitioner. Bonk et al. (2001) identified four action areas in which the online instructors need to venture: pedagogy, social interaction, management and technology. The metaphor of the pedagogical, social, managerial and technological hats is highly relevant to this research and provides a framework to analyse and explore the different roles of the instructor, and the influence of these, in online teaching and learning.

Many studies claim success in the creation of communities of learning and in engaging students in reflective discourse (Evans and Nation, 2000; Stephenson, 2001). However, most of these discourses involve using the web as an information resource and a platform to exchange information between the members of the community, rather than promoting reflective and more complex thinking. Curtis and Lawson (2001) suggest that the most common behaviours in collaborative learning were planning, contributing, and seeking input from students. Other common events were initiating activities, providing feedback and sharing knowledge. Their research contends that very few students actively challenged others or attempted to explain and elaborate on others ideas. Hendriks and Maor (2001) too found that even though the learning environment was underpinned by a social constructivist epistemology, the most common behaviour was sharing and comparing information and, to a lesser extent, negotiating meaning and applying newly constructed knowledge which required reflection. As suggested by current research (Angeli et al., 1998; Bonk and Wisher, 2000; Stephenson, 2001), online teaching is an entirely new type of educational experience, which requires a re-examination of the online instructor’s role.
Purpose of the study

This paper focuses on the role of the lecturer in facilitating an online unit in higher education. The unit was designed to create a community of learners engaged in interactions and peer learning through computer mediated communication (CMC). There was an attempt by both the teacher and the students to engage in reflective thinking. Laurillard (2002) recommends that taking dialogic activities, as the criteria for the reflective practicum and the learning community, can enable us to measure the success of the use of the technology.

The paper addresses the different roles that the author, as a lecturer in this particular setting, had to fulfil in order to establish and maintain a community of learners where the aim was to shape the quality of learning, and to promote interactions, peer-learning and reflective thinking. In analysing these issues it has been useful to examine the degree to which the facilitator was able to provide social, pedagogical, technical and managerial support to students, based on Ashton et al. (1999) ‘four-hats’ of the instructor model as cited in Bonk et al. (2001). The teacher’s perspective is presented in this paper and is supported by students’ perceptions and feedback.

Methodology

The unit and its structure

The purpose of the online unit was to familiarize learners with learning technologies and to engage them in utilizing the technologies for their own learning as well as in their science, mathematics, or computer science classrooms. The 12 participant students were distance education or internal students who were science and mathematics teachers undertaking a postgraduate degree. They were required to interact online on a regular basis. Each week a different student took on the role of discussion leader. The list of these discussion leaders for upcoming weeks was distributed on the web.

The students were required to post their ideas and reflections to the Activity Room where text-based asynchronous communication with the facilitator, and the other twelve students, took place. Each week, students were required to respond at least once to the readings for the week and to engage with each other in communicative acts in relation to the topics. The unit was completed over a 13-week semester, covering a range of selected focused activities and topics. Students’ contributions and discussions in the Activity Room accounted for 40% of the assessment in which they were evaluated for the quality of their participation and their role as a Discussion Leader. As the semester progressed the Activity Room became the place of interactions and construction of knowledge, and it became the hub of the unit.

Data analysis

A qualitative case study approach (Erickson, 1986, 1998) is presented in this paper, as part of a larger study which aimed to understand the quality of learning on-line. The social constructivist perspective that guided the teaching pedagogies used by the facilitator also provided the framework for the data analysis. In order to understand the different roles of the instructor, excerpts from online discourse that comprised lecturer and students’ ongoing contributions during the semester to the Activity Room, are presented and analysed. Data were triangulated (Mathison, 1988) from personal notes by the lecturer (reflective story), students’ and instructor’s conference transcripts, and end-of-semester evaluations.

The metaphor of the ‘four hats’ of the instructor model, suggested by Ashton et al. (1999) and Bonk and Wisher (2000), was used to analyse the data. This model categorizes the online acts of instructors into four categories – social, managerial, technical and pedagogical – and is helpful in understanding the role of the instructor in collaborative online environments with emphasis on ‘reflective practicum’ (Laurillard, 2002).

Findings

Creating a community of learners

In the past few years, as I have engaged in ‘teaching’ on the web, my own learning curve has been steep. I was concerned about using online technology, as students involved in my units appeared particularly apprehensive about CMC. It was not easy to introduce new technology as it required considerable time to prepare and organize and I was constantly concerned with appropriately challenging the students within the offered curriculum. My goal was to involve students in CMC, so that together we would create dynamic and reflective
learning community where the students felt comfortable and confident enough to take cognitive risks and share with the community their successes and challenges.

My objectives in developing this course were twofold. Firstly, the aim was to promote interactions amongst learners and to promote interactions between the learners and myself. Secondly, the aim was to create a student-centred approach to learning where students could own their learning and feel a sense of responsibility towards their own and the learning of others. To facilitate these goals, an Activity Room was set up in which discussions between students and between students and myself could take place. My role was that of the facilitator, with the greatest challenge being a reflective practitioner who could also inspire the students to become reflective practitioners.

Due to my past experiences with previous online courses, I was aware of the heavy commitment both in time and effort that is required of the lecturer to facilitate discussion groups of this nature. Technical issues can be time consuming in courses of this type, but the constant interactions among participants also demands intense effort. Aside from taking part in the discussion group, I also engaged constantly in reading postings, synthesizing discussions and responding to student email messages. I was fortunate to have information technology support for assistance in any technical issues that may have arisen. However, to adequately manage my facilitation role required that I limit my participation in the Activity Room to once or twice a week. I explained my decision to limit my postings in the following message to the students during week 1:

My role [as facilitator] is to summarize your postings for each week and to introduce the new topic. … I want to promote an active, willing and responsible participation in the Activity Room that will provide all participants with rich opportunities for learning collaboratively about the issues raised in each week’s topic…(Article No. 16).

I set out my expectations both in relation to the style of postings and to the format:

During the semester, I encourage you to first and foremost challenge your own ideas and beliefs and then to reflect on and respond to other online participants’ discussions and reflections. Post your contributions at least once per topic and be clear and concise (no more than one text page or 500 words) (Article No. 16).

In order for me to act as a facilitator, and hand the learning over to the group, I created the role of discussion leader for each of the students in turn. The discussion leader was required to present the weekly topic, pose relevant questions – in addition to those already in the study guide – read and reflect on the others’ responses and provide a synthesis of the discussion. The requirement for students to take on the role of discussion leader enabled them to take leadership responsibilities in the Web community, and to develop ownership of the discussion. This served to enhance the opportunities for peer and student-centred learning. To sustain ‘learner centredness’ and promote interpretation and reflective thinking in them, I persuaded the participants to reflect on their own ideas and the ideas of others before committing themselves to writing. CMC, by acting as a pool of resources and providing a means for disseminating those resources, enabled me to engage students in reflective and collaborative learning.

Cognitive communities: peer learning and the pedagogical role

Using social constructivism as a referent for my teaching approach, I encouraged students to engage in peer learning through focused discourse that was based on the theoretical ideas they read and shared with others. It was made clear to the students that the unit, and in particular the Activity Room (as the hub of the unit), was designed based on social constructivist theory to enhance opportunities for peer learning. In an initial posting to students, the relationship between social constructivist theory and peer learning was described as follows:

Social constructivist theory … suggests that knowledge is socially constructed through reflection on your own ideas and other learners’ ideas. Thus, the purpose of the Activity Room is for students to share ideas related to the relevant topic based on the readings, personal experiences and beliefs and to learn from the other on-line participants - in order to achieve open-discussion and critical discourse (Article No. 16).

Although the students were provided with this information, it became clear during the first few weeks of semester that they were not actively engaging in peer learning. Rather, they were confining their contributions to the relevant topic of the week. Whilst this was helpful in building on their personal learning, I wanted to encourage the students to consider how they had contributed, or could contribute, to the learning of their peers. Thus, I intervened and asked them to consider the two following questions to guide their subsequent contributions:

• Are you helping your peers to improve?
• How are you continuing/promoting the conversation? Conversation suggests a ‘dialogue’, a going back and forth rather than merely a one-way-one-time posting.
These questions also aim to promote some ‘reflective practicum’ among students, as it required them to think deeply on their contribution and others’ contributions to the discussion. Furthermore, because I was concerned with the quality of the postings, in a ‘stop the press’ message I specified the need to ensure that their postings contained the following elements:

- Criticalness – looking at the underlying assumptions, looking at theory base;
- Scholarship – quality of the writing/discourse community. Ability to use language to refer to other people such as other scholars. Are we referencing each other? Are we learning from each other?
- Connection to experiences – building on our learning from ideas and concepts gained from our experiences as educators and learners; and
- Professionalism – acting professionally, using the correct grammar and contributing on time (Article No. 78).

As a result of my intervention, the students became more aware of the need to continue the thread of the discussion. Moreover, they began to reflect on the readings and, most importantly, on their peers’ contributions. This resulted in a shared rather than individual perspective of each week’s topic. For example, the following week’s discussion on checklists saw many of the students referring specifically to each other’s ideas and questions:

I concur with James that Squires and MacDougall (1995) emphasize the context of educational software usage over technical attributes. I had to defer to the authority of their criticism of checklists, as I could find only two examples: one in Charlie’s posting (thanks) and the other in Squires and MacDougall (1996) (Article No: 86).

Jill (85) said: ‘Reviews on software are like those of movie critics …’ The real question is: What learning opportunities are our students potentially missing because of the review process? (Article No: 106).

Sam (88) said: ‘James asked the question if checklists provide motivation. I would have to say that after reading the articles and working through one it certainly made me assess, as I said before, the purpose behind using educational software. Are we just being trendy? … or is there real merit in using this media (Article No: 106).

Kim’s (106) idea speaks the heart of many teachers when she says, ‘Software that purports to be educational uses …’ (Article No: 106)

However, their contributions were not as deeply reflective as I hoped. Thus, I must conclude that further strategies and practice are needed to help students to engage in reflective thinking. In my role as facilitator, I was constantly evaluating the process that I was engaged in and the level of engagement by participants. I was most interested in ways and means to assist the learners to engage more thoughtfully in their interactions, and how best to understand what was being learnt. Student feedback was essential to this process.

In one ‘end of the semester evaluation’ a student wrote:

When I saw the Plan and Online Readings, and the Activity Room in your Unit, I was intrigued as to how I would adapt to this new {for me} learning style. Sharing learning in an electronic environment with group members who have never met has provided me with new opportunities for challenging my pedagogy … There has been clearly perceived positive interdependence, considerable interaction (built into the unit structure) and individual accountability and personal responsibility to achieve the group’s goal (End of semester evaluation).

Another student said that he had expected to be challenged more vigorously than he had been by the course. In fact, he stated, and I concur, that challenging ideas promotes deeper reflection of personal position and opinion.

Feedback from students enabled me to address the weaker aspects of the unit and attend to various pedagogical tasks. In particular, I have been keen to implement strategies to improve reflective thinking through the use of debates, role plays and modelling of reflective thinking.

The major and the most demanding role was that played by the facilitator. This was the most challenging role because it was necessary to constantly evaluate the process of peer interactions through the use of discussion feature, which was the main focus of the course. Indeed, the Activity Room became the hub of the unit. To achieve quality of learning online, attempts need to be made to enhance pedagogical outcomes.

When wearing the pedagogical hat one asks questions that relate to strategies of learning. For example, how does one promote student interaction? What is the level of reflective thinking? Do students’ contributions further
enhance dialogue and peer learning? This paper suggests that the enhancement of pedagogical outcomes may be achieved by:

- Creating a shift from individual to collaborative learning;
- Promoting reflection and creating reflective practicum among teacher and students;
- Providing students’ opportunities for peer-learning through interaction and negotiation;
- Changing the role of the lecturer from an ‘expert’ to that of a co-learner;
- Promoting and facilitating a student-centred approach to learning in which students become responsible for their own and others learning.

Social communities: the social role

To ensure a social dimension to the discussions I began the postings by introducing myself informally to the group and shared some of my background in CMC. From my previous experience with online teaching I have learned that using informal conversation serves to create commitment and greater enjoyment for the learner. This is also supported by the literature (Gunawaradena and Zittle, 1997), which suggests that students engage in various activities online to enhance their socio-emotional experience. The introduction set the scene for a safe and trusting environment for later discussions and offered the students an opportunity to explore common personal interests both with the other students and myself. The tone was very friendly and all students revealed details of their professional and personal lives.

Hi! My name is Nill and I teach at a high school. I am currently the Head of Mathematics Department and also an Assistant Boarding Housemaster. I teach Mathematics in Years 8–12, although this year I am only teaching Years 11 and 12.

I’m 28 years old and am doing a Masters in Multimedia in Science & Maths Education … I have been married for almost 6 years and have a daughter, Aimee, who is just over six months old. When I’m not working at school or in the boarding house or studying for Uni, I’m playing with my very beautiful and very precious daughter. My wife and I plan to have at least one more child - but whether or not there will be one or two or any is not necessarily up to us. (Article No. 4)

(This student even attached a photo of himself and his baby daughter.)

Those students whose initial postings were very brief eventually submitted more detailed responses after reading others’ comments. It seems that all students began to feel obliged to post and participate. One student’s initial posting read:

Welcome from Gisborne New Zealand, signed student Jim

After reading others’ postings, he felt obliged to resend a new greeting:

To all Class members, after reading your introductions I felt I had been brief in the extreme. I have had very little computer experience and have been a functional user of Word, Excel and the Internet. Several of you will have a lot to teach me.

I have had 40 years experience in education at all levels – Primary, Secondary and Tertiary and most recently (Last 5 Years) in a private training establishment here in Gisborne. I hold a BSc and have taught a wide range of Sciences at Tertiary level. My current position is Principal Tutor of Technical Forestry and Forest Management- the job is a real joy.

I am married to Mary. We are the proud parents of nine children and eight grandchildren. Mary is a wiz on the computer and she is my mentor. We grow flowers for the Asian market and derive much pleasure from this. I am taking this course to better prepare myself to be involved with Distance Education Development at Te Runaga (Article No. 17).

Aside from creating commitment and greater enjoyment for the learner, the blend of academic with social postings also appeared to facilitate the creation of an online community of learners. Based on discourse analysis of class discussions and my observations of the increasing frequency and type of postings, I found that the participants developed a sense of belonging to this community. The following contribution to the Activity Room, strongly suggests that for the distance education students, in particular, this unit enabled them to form close links to the facilitator and other members of the community.

I would just like to say thank you to all of you, my colleagues, in helping me ‘construct new knowledge and understanding’ in this unit. I have benefited greatly from your informed writing and I have appreciated all of your comments. Thank you too, Dorit, for your guidance over us. Charlie, as always, you were eager and active – thank you.
Kim, I seemed to align myself with a lot of your comments and your pragmatic view of students' learning in high school – thank you. Ben, your scholarly writing influenced my opinions greatly – thank you. Murray, you always succinctly summarize any reading and see straight to the heart of the matter. Your insight is magnificent – thank you. I have also really appreciated the manner in which Sam, Jim, Rob and Jill have written from their own discipline. It has always given me an alternative viewpoint from the high school maths discipline with which I am familiar – thank you all. David and Debbie, if you had managed to be able to be involved longer (although obviously out of our control) it would have been great to have heard your different viewpoints also – thank you. We all have been busy and it is with great pleasure that I have been involved in this unit…although I must admit I am finding it extremely difficult to complete the work for it! Good luck with your assignments. See you in the future, maybe Nill (Article No 207).

Another student expressed her feelings about the group relationships in the following posting:

This group started off very strong with both academic and social strands through the discourse. In fact, the conversation actually encouraged me to participate. It is like this with learners. (Article No 184).

In my opinion social discussions serve to strengthen the development of a community of learners thus, it was important to integrate the social and the academic. The following student posting supports this idea:

I am finding the regularity and snippets of a social nature are actually encouraging me to check the forums and emails more often (Course evaluation).

Some students wanted to increase the level of social engagement. One student even wanted to introduce a separate cyber café. I and other participants who did not want to increase their commitment to the unit ignored this offer.

In order to achieve quality of learning online the teacher should also emphasize human social interactions. The social elements of the discussions were interspersed among the academic content. This appeared to strengthen the development of this community of learners. Indeed, according to Bonk et al., the social side is an ‘important indicator of the online course’s success or failure’ (2001, p. 80). Undoubtedly, with the contributions of the participants we managed to create a positive environment conducive to interaction and peer learning.

When wearing the social hat one asks questions such as: What is the general tone? Is there a human side to this course? Is joking allowed? This paper suggests that the development of a community of learners may be achieved through:

- The promotion of professional as well as personal exchanges in order to create student commitment and greater enjoyment;
- The creation of a safe and trusting environment in which students feel comfortable about taking risks;
- Affective support between students and between students and lecturer; and
- Commitment of time from students and lecturer.

Organization and technical proficiency: the managerial and technical roles

The students participating in this unit were predominantly employed as primary or secondary school teachers and most were experienced in the use of IT in their personal and professional lives. Indeed all 12, except two, had a high level of computing experience. Many taught in computing and/or multimedia and all had a working knowledge of the Internet and the World Wide Web. This proved to be a significant advantage as it allowed the students to focus on learning and not technical issues. It was also an advantage for the facilitator as it meant that there were very few enquiries from students regarding technical issues. The only major technological issue that existed was that students needed some guidance in learning how to add hot links to the resource room using WebCT.

My managerial role included co-ordinating the unit, intervening during the semester to keep the momentum of discussion going and frequently e-mailing individual students. Due to the fact, however, that the students were so proficient in IT also served to reduce my managerial role. The students were able to easily navigate the website and thus were able to locate information such as due dates, calendars and resource rooms. Furthermore, the students had hard copies of the study guide and a reader that also clearly outlined the relevant managerial-type information.

The managerial tasks that did arise were easily dealt with and simply required flexibility in relation to the course structure. For example, when I sensed the silence in the Activity Room I responded in the following way:

I am concerned about the silence in the Activity Room…We will suspend Week Five discussions until we get your responses (Article No. 83).
In addition to this, because the course discussions began to run overtime and into the following weeks topics, it was necessary to cancel two of the discussion topics to enable the students to complete the discussion and to deal with their end of semester assignments.

It became clear, during the course of this unit, that students' proficiency in IT is a distinct advantage to both learners and the facilitator. The fact that the majority of the students taking part in this unit were so comfortable with the technology meant that both the students' and the facilitator's technical and managerial roles were significantly reduced. Consequently, all parties were free to concentrate on social and pedagogical aspects of teaching in this online unit. Contrary to this, my previous experience in facilitating online courses, where students were less technologically proficient, confirmed how a great deal of time can be spent explaining how to use and navigate the technology. The obvious consequence of this is that less time is spent engaging with course content and indeed with each other.

Assigning discussion leaders also helped me to manage the unit, as I was able to release myself for my facilitation role. I was flexible during the semester and gave extra time or deleted topics that may have become irrelevant. I also reinforced rules and gave instructions on how to improve the quality of interactions. At times, my managerial tasks overlapped into my pedagogical tasks.

When wearing the managerial hat one asks questions such as: Do students understand the assignments and course structure? Do they know how to navigate the web site? How does the instructor coordinate technical issues, external studies issues and pedagogical issues to create a supportive learning environment? The management of the online course, to ensure the flow of discussion, may be achieved by:

• Providing a well structured and easy to navigate website;
• Providing clear guidelines and course criteria for participation;
• Providing criteria for student assessment;
• Providing constant support for students and ensuring that assistance is available if required;
• Interventioning in discussions if dialogue between students stalls or goes off track; and
• Be flexible to accommodate unforeseen problems and issues.

The fact that most of the students were experienced IT users also meant that within a week everyone was comfortable and familiar with the site and were interacting in the Activity Room. This caused my technical hat to shrink and enabled me to devote more time to pedagogical and social issues or, rather, to wear my pedagogical and social hat more often.

When wearing the technical hat one asks questions such as: do the students have the basics? Does the equipment work? Technical issues to ensure accessibility and ability to work with hardware and software may be achieved by ensuring that:

• IT support is readily available to students; and
• Induction and training courses in the use of the technology are available.

Conclusion

This paper has outlined one lecturer’s attempts to introduce interactive and collaborative learning in a higher education online course. The theoretical approach was based on social constructivism (Klemm and Snell, 1996). When borne out in practice, social constructivism can be facilitated through activities that involve peer-learning, reflective thinking and the joint construction of knowledge.

The online course was structured so that it was student-centred and promoted students’ leadership (Tagg, 1994). This was facilitated through the designation of a student as a weekly discussion leader whose role it was to present the weekly topic, pose relevant questions, reflect on the others’ responses and provide a synthesis of the discussion. The discussions and reflection took place in the Activity Room where asynchronous communication with the facilitator and the other students took place. This unit offered a generic model of an asynchronous discussion environment for a small group talking around a set of shared resources.

The simple metaphor of the ‘four hats’ of pedagogical, social, managerial and technical actions was used as a framework to discuss the activities of the instructor. The same metaphor was used to analyse the data, enabling me to clearly delineate the complex tasks involved in teaching online, and to examine the extent to which the goals of social learning were achieved. Each of these roles was examined in turn, however, they can be, and were performed either simultaneously or as separate actions during a particular interaction. Each role must be
understood within the specific context in which it was performed. The social hat involved affective support, interpersonal communication, setting a positive tone and keeping the communication flowing. The managerial hat involved actions such as designing, co-ordinating the unit and overseeing tasks and course structure and requirements. The technical hat included actions such as helping and guiding in the use of technology.

Finally, the pedagogical hat, which appeared to be the most salient in terms of promoting interactive learning, included actions such as providing feedback and instruction, probing, asking questions, stimulating the discussion, synthesizing students’ comments, and referring to outside resources or experts in the field. In particular, although an attempt was made in this study to develop reflective thinking in both the facilitator and the students, it became apparent that more strategies were required to accomplish this goal.

In order to facilitate these approaches there are wider implications at the system level that need to be addressed. Firstly, the higher education staff responsible for academic decision-making in relation to course implementation should create opportunities and devote resources to assist academic staff in taking on the challenges of teaching online. Secondly, a wide range of professional development courses needs to be available in order to help staff and students develop knowledge and skills related to learning and teaching online. These should include activities to enhance the technical capabilities of the reluctant users among academic staff, and, crucially important, to enhance discussion of the pedagogical aspects of online teaching and learning amongst the enthusiastic staff. The professional development of the faculty is essential if the purpose of universities is to integrate online learning in their programs. In addition, there is a great need to formalize the support for academic staff and provide them with an instructional package that will address important aspects of the variety of roles of the instructor in the online environment. In order to fulfil the many roles of the online instructor, the academic staff need to be supported both technically and pedagogically. This is particularly so for those academic staff who do not possess qualifications in education and need further assistance to establish their pedagogies.

Thirdly, students also need induction on how to work online. In particular, they need scaffolding in relation to collaborative learning and reflective thinking, which are the more challenging, yet, elusive aspects of online learning. Fourthly, systems need to be set up in order that students can easily collaborate and benefit from the advantages of the technology that is available. On-going and rapid changes in technology means that we need to train students in the generic skills of technology. They must be able to adapt to new technology and applications, be flexible in their ability to adopt new learning styles and develop new understandings about their pedagogical needs.

This study’s findings and its implications emphasize the idea that the online lecturer and students must become reflective practitioners in order to ensure quality collaborative learning online.

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