

Enhancing cooperative education placement through the use of learning management system functionalities: A case study of the Bachelor of Applied Management program

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This exploratory case study researched the benefits of integrating information and communication technologies (ICT) to enhance cooperative education placement (CEP) for the course coordinator and the learners in their third and final year of study in the Bachelor of Applied Management program. The findings supported an addendum to the Kolb's current model of learning to incorporate reflection into an adapted three stage model. This was due to participants in the study lacking adequate reflective practice during their placement. The study reported that participants need to be engaged in reflective practice to achieve deeper learning, enabled through more interactive discussion online coupled with regular contact by supervisors and the coordinator to strengthen the CEP experience. Suggestions are made for exploring other forms of ICT within a blended learning conceptualization to engage learners through ICT functionalities as well as face-to-face contact. (*Asia-Pacific Journal of Cooperative Education*, 2010, 11(2), 47-56)

Key Words: cooperative education placement, learning management systems, work integrated learning, reflection

INTRODUCTION

This paper outlines the findings and implications from a study which investigated the use of learning management system functionalities to enhance the experience of students undertaking cooperative education placements (CEP). CEP is defined as a working partnership between the learner-employee, the college, and the employer which enables learners to earn college credit for learning on the job. The importance of workplace learning has become well recognized and value is attached to the design of programs of study which require learners to spend time off-campus in an approved work environment which might include international placements. Consequently, there is a twofold problem associated with cooperative placement. Firstly, for academics, the main challenge is to co-ordinate, implement and administer the learners over varying locations in a consistent manner. Secondly, for learners, it is essential to have regular contact with the course coordinator and peers to support their academic learning at the workplace.

The use of information and communication technologies (ICT), such as learning management systems (e.g. Blackboard), video conferencing, email, teleconference, and webcam has provided an opportunity to address these challenges. Although these technologies had been used within the program for the last four years, evaluation of their effectiveness in terms of management issues and learning had not been conducted.

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CONTEXT AND AIMS OF THE STUDY

The context for this research study was the Bachelor of Applied Management, a three year undergraduate degree program, with a full semester of CEP in its final year. The CEP program creates a working-learning environment which is not normally possible in a college classroom. The two discourses relating to the value of learning integrated with work and the potential for increasing the use of ICT in facilitating that learning have been used as a theoretical framework for this study. Thus, this research study provided an exploratory case study researching the benefits of integrating ICT to the process of CEP. The literature review revealed that CEP is an informal type of learning that aligns with Kolb's theory of experiential learning.

The aims of this research were to investigate these questions.

1. How effective are the current ICT and teaching approaches being utilized in coordinating cooperative education learners and facilitating their learning?
2. What are the issues for the cooperative education learners and coordinators using Blackboard⁷ as an online learning and management tool?
3. What are the pedagogical principles that enhance cooperative education learning through the use of modern ICT?
4. What are the forms of ICT that could support these pedagogical principles?

LITERATURE REVIEW

The literature review identified the increasing importance of CEP which had been evident since the inception of CEP in programs of study. The review of the literature noted relevant theories, including Beckett's (2002) new "paradigm of learning" theory, which supported informal learning, and aligns with the foundation for CEP. In addition, the relevant literature revealed that it is important to understand the debate around the different types of learning, and why cooperative education is being implemented worldwide in many educational institutions today, and its justification through models and theories provided by Dewey (1934, as cited in Kolb, 1984), Burns (1982), Kolb (1984), and Beckett and Hager (2002).

The synthesis and analysis of the literature supported the notion of informal learning as an effective way of educating learners who engage in cooperative work placement. For example, there is a paradigm of learning that has had implications for a replacement of the standard paradigm of formal learning (Halliday & Hager, 2002; Lum, 1999; Mulcahy & James, 1999; Schön, 1987). This paradigm incorporates the standard paradigm of formal learning rather than discarding it. The main characteristics of the emerging paradigm of learning have strong connections and commonalities with practice-based informal learning from work. The focus on action and affecting change fits with informal learning as well as contextuality. This emerging paradigm of learning and informal learning recognizes the importance of individual activity as well as collaboration and collegiality in learning (Beckett & Hager, 2002).

Furthermore, it also supported Kolb's theory of experiential learning which supports informal learning through experience. Beckett and Hager's (2002) new paradigm of learning, by their classification, details what is also common in Kolb's theory of experiential learning, whereby learning is activity and experienced based. This literature review also supported the inclusion of ICT into a cooperative education program as a means of communicating and completing required academic work. Given that CEPs might be at a distance from the institution which hosts the program of study, ICT enable enhanced communication

functionalities. The Technology Acceptance Model (TAM) conceptualized by Davis (1989) was established as being relevant for this research study as its focus is on perceived usefulness and perceived ease of use which is linked to effective implementation of ICT tools. In the TAM, Davis noted that perceived ease of use directly affects perceived usefulness, with both of the use beliefs affecting computer technology adoption (Pituch & Lee, 2004). Davis has also suggested that external factors may be important determinants of the usefulness constructs of TAM. These include Internet experiences and learners' prior technical skills in using the Internet which might influence their intention to use technologies.

eLearning and blended learning literature were reviewed and linkages with TAM were evident. For example, Roffe's (2002) emphasis on the learner in eLearning could be understood in relation to TAM, as Roffe suggests that learners are more likely to adopt eLearning if the accessibility, usability and perceived ease of use are appropriate for the learner. Similarly, the literature reflects a growing trend that supports a shift from eLearning to blended learning. Blended learning allows the learner to combine location-independent, electronically-mediated approaches with place-specific, contiguous learning approaches (Edwards & Finger, 2007). Fundamentally, blended learning can be defined as a learning program where more than one delivery mode is being used to optimize the learning outcome and cost of delivery (Edwards & Finger, 2007).

RESEARCH METHODOLOGY

A case study approach was adopted to undertake this research study. Following the process of obtaining ethics approval, to enhance validity, triangulation of data was enabled through data collected through interviews, surveys and documentation analysis. Data collected through surveys were from the cohort of 20 learners completing CEP within the Bachelor of Applied Management program. These learners were completing a semester of cooperative placement in an industry associated with their major, which was completed in the third year of the degree in their final semester. The demographics of the participants included males (60% of students studied) and females (40% of students studied), and 60 percent of participants were in the age group of 18-28 years.

For the interview, the CEP coordinator involved with that particular cohort was chosen because of having the sole responsibility for coordinating all the course information, assessments and discussion boards associated with the CEP. Online documentation analysis was conducted using a checklist that included usability, complexity, and level of ICT, including functions. In total, 13 learner surveys and one staff interview were analyzed. NVIVO was the program used to analyze the thematic responses of the data collected from the initial learner survey, not the documentation survey. Learner responses were transcribed and coded. Coding was determined on themes that emerged based on the learner responses. These included items that covered non-technological, personal, process, structure, communication, reference and access. The analysis of the collected evidence focused on the impact of ICT on the effectiveness of learning, and the ability to manage and coordinate the learners' learning.

As the participants were in workplace settings for a full semester, their learning was largely driven by their own motivation and self-direction, combined with the ability to integrate with the online program on a regular basis. This was reflected in the surveys gathered from the learners and also adds to the information required by the coordinators to successfully deliver future cooperative programs. After the results were analyzed, recommendations and suggestions emerged and these are presented later in this paper. The positive and negative

factors of learning incorporating ICT whilst engaged in CEP were explored. The information obtained is discussed in the following section, and this is intended to assist in informing actions to lead to improvements in CEP in this undergraduate degree program. While there are limitations to generalizations when case study approaches are employed, these findings might be transferable to other similar programs nationally and internationally.

MAJOR FINDINGS AND THEIR IMPLICATIONS

The key findings of this study are organized according to four main categories: communities of learning, on-going reflection, blended learning, and variety of ICT.

1. COMMUNITIES OF LEARNING

This study reported that it was important for communities of learning to be established in which there was a motivated, involved, participative group of learners within this program. The four seminars delivered by the institution encouraged face-to-face meetings of learners, academic supervisors and the coordinator on a group basis. Within this context, the learners were together, engaging and interacting with the supervisors and coordinator. As a sequel to this interaction, perhaps a number of workshops could be offered to assist in academic practice for the learners. These could include academic writing, project layout and referencing, presentation of results and PowerPoint presentation skills. In these sessions, rather than being seminars, the learners could work in groups to complete tasks designed for them to meet set outcomes and objectives.

These types of workshops are offered at various universities in Australasia, for learners who are on site and also off site. The adoption of group work tasks as a learning strategy would also encourage learners to meet other participants completing the same course, and encourage contact after these sessions. This might act as a catalyst for the learners to form a community of learning and would certainly stimulate this option. The integration of daily online discussions would increase the likelihood of learners forming a community of learning. Communities of learning also encourage discussion, interpretation, new knowledge and support for those participants involved.

The Bachelor of Applied Management cooperative learners are automatically part of a specific learning community. Unfortunately, the benefits of this participation have been largely unexplored and this issue needs to be addressed. To enhance this notion amongst these groups, it is essential to build an online community through the ICT available. In this instance, Blackboard7 was the learning management system employed to enable the online community to be developed. Recommendations to enhance this activity include the design of regular online discussions, use of message boards and announcements, and the use of Skype and Elluminate for communication. This was supported by the coordinator feedback:

we need to have a webcam so that we can use Skype... my learners would be happy and comfortable to use that type of technology and certainly I see that as a valuable tool and something that we should be investing in. Another area that I have just been introduced to is Elluminate and this may be another possible scenario, again, more for out of town or even learners based in Dunedin who have other commitments that they can't come in. That may be another opportunity to get more informal groups going on to have those learning discussions.

Furthermore, ensuring that learners are able to meet each other in person was found to be important in and of itself, as well as enabling online communication. This could be enhanced through more workshops offered, or, alternatively, workshops attached to the seminars held.

Learners would be given the option to discuss their own issues, brainstorm suggestions, and work through queries regarding their academic assignments.

2. ON-GOING REFLECTION

Reflection is included as an essential component of deeper, more critical thinking, and deep learning. The learners in this study were involved in CEP, with the majority of their time spent in the workplace whilst they continued to complete academic work and a project. As these learners were only on campus for supervisor meetings and four seminars, the learning style was different from more traditional approaches. Kolb's experiential learning cycle has been cited in this research study as the primary pedagogical model of learning for this cohort, and Kolb provides four stages in that model. Kolb's model of experiential learning was explored further by asking respondents about this model. A number of respondents indicated that they felt Kolb's model was definitely how they learned; however, they did not feel that they included the reflective stage in this process, only the feedback. Another response was 'I typically learn theory, apply it (either practically or theoretically), then at some later date get feedback either formally (from my teacher) or informally (usually from my self-reflection) which I then use to modify my theoretical models to practical application.' This suggests that the respondent does believe that Kolb's model of learning does relate to their learning in this situation. However, it is only when the respondent is asked to expand and think about this model, that they actually realize it. The reflective stage of Kolb's model is not apparent to the respondent until they are prompted.

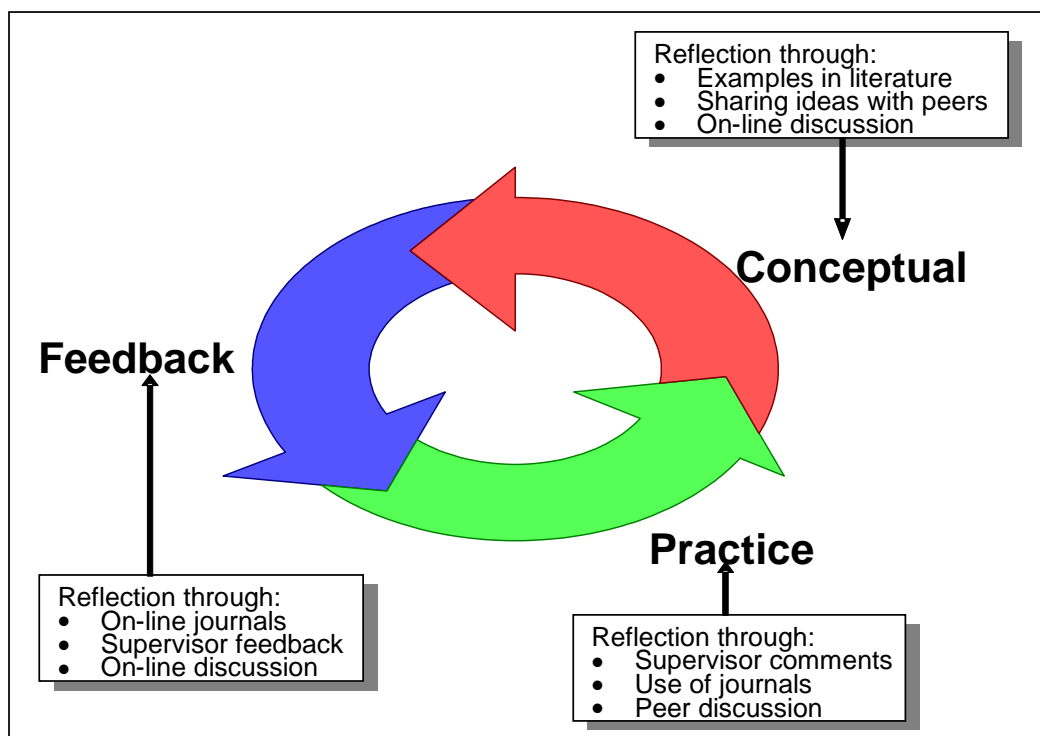


FIGURE 1
Adapted Experiential Model of Learning (Howison, 2010)

A key finding from this research study was the importance of reflection to promote deep learning in the CEP, and this led to the inclusion of an addendum to the original model of experiential learning by Kolb as illustrated in the diagram below (see Figure 1). This resulted in the need for reflection to be included in each stage of the process rather than at only one stage.

The main implication of this finding was to ensure that, at each stage, the learners were able to reflect on and make meaning of their learning to ensure that the knowledge was deeper and more critical. This was essential in this case study, because the learners were working off site with little face-to-face contact with their supervisor or peers. Their reflection would be enhanced through the adoption of reflective online journals. These reflections are currently available on Blackboard7 to provide ongoing thought and reflective practice for the learners during their cooperative placement experience. To further enhance this, the learners from this cohort were required to complete a reflective report as part of the assessment. As an addition to what was being administered, this should be maintained and could be supported with entries from the online reflective journal. Furthermore, the use of discussion boards would provide a good forum for reflective thinking, thus supporting the journal and reflective report of the learners.

3. BLENDED LEARNING

The main implications from this research study illustrate the need for focusing on enhancing the ICT tools currently offered to the learners completing CEP in the Bachelor of Applied Management degree program. Better use of the discussion board and reflective journal tool on Blackboard7 would encourage more reflection and critical thinking. This is essential in a program offered in a flexible format such as this. Enabled through a blended learning approach, the learners still need the face-to-face contact with their supervisor and coordinator, so the inclusion of Skype or Elluminate would be a way of providing this to the learners who are unable to attend seminars or meet with their supervisor. The emphasis on building a community of learning through the discussion boards, and also through providing group workshops, would assist in this objective.

4. VARIETY OF ICT

Pedagogical principles required for effective ICT learning were mainly drawn from Kolb's experiential learning model and also from the TAM (Saade & Kira, 2006). To enhance Kolb's model and deepen the level of learning, this study has proposed that reflection should be an integral part of the model at each stage, rather than being conceptualized as a separate component in the cycle. The reinforcement of reflection throughout each stage of the process would deepen the level of learning and enhance the critical reflection for the learners. Primarily, this is because the learners are off site in a workplace environment with only minimal contact with their coordinator or supervisor. Through the inclusion of daily discussion and an online reflective journal, the learners would engage in more critical thought, which is essential to deeper learning. It must be stated that this is not a replacement for Kolb's model of experiential learning but is an addendum to it for learners, and thus builds upon Kolb's model.

Furthermore, there needs to be more interactivity utilized by this cohort, reflecting connectivism (Siemens, 2004), between the learners enabled by the ICT available to them. Connectivism supports the notion that learners should engage with the ICT to enhance both their learning and their perception of the usefulness of these tools. The study found that learners were not engaging with discussion boards at all on Blackboard7, although this

facility was available. There needs to be some impetus for the use of this ICT tool, which could be stimulated through question and answer strategies by the supervisors or the coordinator. Posing particular questions would involve the learners in participation and more frequent utilization of the discussion board.

The findings from this research study might inform other situations where CEP learners are studying remotely while in a workplace environment. With ICT changing rapidly and increasingly networked technological capabilities being introduced, the options for CEP are enhanced. Forming communities of learning through ICT social networking sites, such as Facebook and Twitter, could be explored. This is a new field of communication possibilities for academic institutions and could be another way to build communities of learning that the learners are comfortable with. Obviously, the age and demographic of the learners is a component that might need to be considered, and this could be measured against the TAM highlighted in this research study.

RECOMMENDATIONS

From the findings of the study, there are four recommendations made for enhancing future CEPs for this undergraduate degree, and these might inform the design and implementation of CEP elsewhere, particularly where ICT might be used to enhance interaction and reflection to promote deep learning by the CEP students.

Recommendation 1: To enhance reflective practices

It is clear that learners were utilizing Blackboard7 as a learning platform; however, they were less inclined to maximize the full range of functionalities available with this ICT tool. The main challenge was in increasing the use of the online journal and discussion board functions. By utilizing these functions on the Blackboard 7 program, there would be more practice promoted for the learners. This would enhance deeper learning which is critical at undergraduate degree level. Alongside this is the need for the academic supervisors and coordinator to stimulate discussion on a regular basis through the discussion boards.

Recommendation 2: To increase connectivity to enable interaction and reflection

This study identified the need to complement the ICT available through Blackboard7 with new applications now available which enable face-to-face contact. Therefore, to enable an enhanced blended learning approach, options such as Skype and Elluminate should be explored. Connectivism (Siemens, 2004) can inform the successful participation of learners through Skype, Elluminate, podcasts and social networking applications alongside the Blackboard7 learning management system. Thus, providing a link for students beyond the institution-provided learning management system, whilst building an online community of learners, and enhancing reflection.

Recommendation 3: To provide relevant training for students and staff

Another important issue is to ensure that learners and academics are aware of, and confident users of, the various ICT options and functionalities. The role played by course coordinator, the academics and the students is critical to successful CEP learning outcomes. As well as the ease of use and perceived ease of usefulness as depicted in the TAM, academic supervisors and the coordinator must be adequately trained and confident in the use of any ICT tools, and be encouraged to extend their ICT skills where necessary.

Consequently, a detailed training session for learners, supervisors and the coordinator needs to be designed and implemented. As depicted in TAM, the perceived ease of use and

perceived usefulness could be exemplified through training sessions. Furthermore, encouraging all stakeholders to utilize the discussion board technology on Blackboard7 would increase the likelihood of participation. Assessments may be tagged to the use of the discussion board which would increase the motivation of the learners to participate by using this ICT tool.

Recommendation 4: To use Kolb's modified model as a framework for designing CEP learning

It is recommended that Kolb's model of experiential learning (Kolb, 1984) be modified to meet the needs of cooperative education learners. Many of the learners are off site completing work placement, and are often in isolation from their peers and supervisors with very little regular, direct contact. The introduction of discussion boards and reflective journals, along with supervisor feedback and comments, would assist in enhancing reflective practice. Therefore, due to the nature of the learning and complexities around completion of academic work concurrent with work placement, the revised model of learning as shown in Figure 1 is proposed as a guiding conceptual model for designing the CEP learning.

SUGGESTIONS FOR FUTURE RESEARCH

Future research on ICT and CEP could be focused on new forms of ICT, such as social networking applications like Facebook and Twitter, to increase connectivity. Other forms of ICT such as iPads and iPhones could also be explored as these enable learner mobility as well as connectivity. Academics need to embrace these opportunities and explore them for their institutions. What has not been explored in this case study are the technological expectations of the learners from various generations to see if there are different needs and expectations. Given the recent literature which has identified characteristics of ICT use by Generation X and Generation Y students, research might be undertaken to establish if learning is different or the same between generations, and, if there are differences, to explore what the implications of these differences might be.

The need for cross cultural and cross disciplinary research in this area is also suggested as a possible direction for future research. This would provide more validity and credibility to the findings from this research and add to the body of knowledge in this area. It would be beneficial to see if similar issues are evident in learners completing CEP in other international settings. Furthermore, the issue of cross disciplinary research is important to identify whether or not the ICT needs are similar for learners in other discipline areas, such as health, engineering or the arts. Kolb's experiential learning model (Kolb, 1984) was found to be applicable for the study reported in this research study. What has been confirmed is that, whilst the learners are completing academic study off site while in a workplace environment, the need for reflection and reflective practice is critical.

It is suggested that future research could focus on creating other models of learning to enhance current pedagogy in a rapidly changing ICT field. As learners participate in different methods of delivery of course work, this has implications for the design of the blended learning through changes in the mode of ICT offered. Future research is needed to add to knowledge about the effectiveness of the ICT adopted for coordinating, managing, and delivering the academic work to the learners undertaking cooperative placements.

CONCLUSION

This research study has reported an investigation into the use of ICT for CEP. In summarizing the key findings, it has been reported that the learners confirmed that Blackboard7 provided structured information that was easy to access with easy-to-understand information around the assignments. However, there were definite gaps in the effectiveness of the current ICT technologies utilized with this cohort on this program. Some of the functionalities such as discussion boards were found to be under-utilized and the need for a greater emphasis on building a community of learning was evident.

Recommendations and implications from the research were provided. Specifically, there was a clear message from the findings that simply providing access was insufficient by itself. More communication is required, along with more supervisor and peer support. Importantly, the study found that learners were not engaged in ongoing reflective practice. Reflection, connectivity, and perceived ease in using technology were established as being central to developing deep learning throughout the CEP. The study found that, although Kolb's Model of Experiential Learning was the underpinning theoretical pedagogy associated with this research, there was a gap in the learning and reflection currently taking place around this cohort of learners. Encouragement of more ongoing reflection is essential to deeper learning and a suggested modification of Kolb's Model of Experiential Learning is recommended in this situation. The need for learners to engage with the ICT in a meaningful, reflective way is essential and this could be facilitated through the use of more reflective feedback from supervisors, greater use of online journals and also more encouragement to participate in online discussion with other learners. In summary, this study has provided both theoretical and practical findings and recommendations to inform the design and implementation of CEPs using ICT.

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