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## ABSTRACT

This paper explores how the blended use of a Virtual Learning Environment (VLE) can impact on student learning in a specific module within a small university in the UK. Students studying a module about crisis situations faced by children in different parts of the world were asked to contribute to online forums as part of their learning. 47 students participated in the study. Student questionnaires, Moodle reports and student assessment grades were analysed to explore the benefits of online forums. In line with previous research, online forums were found to be popular with students and multiple perceived benefits were identified, such as flexibility, greater sense of community and enhanced higher learning skills. Analysis of student assessment grades suggest that online forums may also enhance student performance, however, a larger scale longitudinal study is necessary to determine this more clearly. Overall, the findings highlight the importance of viewing VLEs as a communication, collaboration and knowledge focused medium with the potential to enhance higher learning skills through the use of interactive online activities such as forums.

### INTRODUCTION

Over the last twenty years the teaching and learning landscape of universities has encountered unprecedented change as institutions adapt to the challenge and innovations of technology (Schneckenberg 2010). Blended learning, the integration of online materials with face to face teaching, has become part of normal university life with benefits well documented for students and teachers (Higgins and O'Keefe 2004; Jelfs and Kelly 2007). This report focuses on how the blended use of a Virtual Learning Environment (VLE) can impact on learning in a specific module in a small modern university in the UK. Moodle (a commercially produced VLE) was introduced to the University two years ago and tutors are required to provide a Moodle page for each module they teach to support student learning. This study explores the experiences of students completing a Level 6 module about crisis situations faced by children in different parts of the world, as part of their BA (Hons) in Early Childhood Studies course. Although the module was popular with students, some issues had arisen relating to the limited amount of time to discuss DVDs shown during teaching sessions. The blended use of Moodle was explored as a way of solving these issues, through the introduction of online forums.

#### LITERATURE REVIEW

One of the unique advantages of a VLE is the flexibility it offers students. Students are able to access Elearning materials anyplace and anytime controlling the pace at which they progress (Blass and Davis 2003; Casquero, Portillo et al 2010). Issues which might either be time consuming or of a sensitive nature can be explored in a more neutral environment, giving students more autonomy and time to consider and reflect (McFerrin 1999; Schoech 2000; Bertera and Littlefield 2003). VLEs help build a sense of community for both students and staff (Clarke and Abbott 2008). Feelings of isolation and disengagement are reduced and students feel more confident and engaged. Due to increased opportunities to engage with learning activities online students have more time to develop informal peer support networks (Aspden and Helm 2004).

Up until recently, evidence for improvements in student learning linked to use of VLEs has been scant (Fox and MacKeogh 2003; Williams and Cappuccini-Ansfield 2007). Institutions appear undecided about how to measure the impact of VLEs, usually resorting to measuring success in terms of the number of student hits on a particular online resource (Donelly and O'Rourke 2007). Such measurements are misleading as students may be simply downloading information as opposed to actively engaging and interacting with materials. Nevertheless, some online activities have great potential for supporting the learning of higher skills, for example, online forums expose students to multiple perspectives giving opportunities to learn from each other, building critical thinking and improved writing skills through peer and teacher review (Baud, Cohen and Sampson 1999; Greenlaw 1999; Grosseck 2009; Romanov and Nevgi 2007).

In order for VLEs to be successful, student engagement is essential, requiring interest, commitment and active participation (Aspden and Helm 2004; Romanov and Nevgi 2007). As Kearsley and Scheiderman's (1999) theory of engagement suggests, students need to be interacting with others and given worthwhile tasks, involving communication, planning, social skills, creativity and relevance, for effective learning to take place. However, VLEs have been criticised for merely providing a reading experience as opposed to a learning experience (Blass and Davis 2003). Gonzalez (2010) found that tutor conceptions of VLEs range from an information focused medium to a communication, collaboration and

knowledge building focused medium. An information focused conception views VLEs as a way of providing information to students in the form of lecture notes, online resources and links to external websites. Such an approach does not necessarily enhance learning or student engagement (Blass and Davis 2003). However, a communication, collaboration and knowledge building conception views VLEs as a way to engage students in discussing, debating, developing understanding and building knowledge, resulting in enhanced learning experiences (Gonzalez 2010; Laurillard 2000). The Moodle page for the module in the present study had historically been used as an information medium, providing lecture slides and reading materials for students, with minimal interactive learning opportunities.

Studies highlight issues for both teachers and students which effect engagement with VLEs, such as social and cultural issues, technical ability and relevance. For teachers, habitual and motivational issues may present barriers, for example, the belief that VLEs may reduce attendance at lectures or lead to deprofessionalisation of the teacher role (Schneckenberg 2009; Donelly and O'Rourke 2007). For students, engagement with VLEs may be influenced by learning styles or personality type and should be adapted accordingly (McNulty et al 2006; Maltby and Mackie 2009). Introverts may prefer anonymous discussion forums on a VLE as opposed to extroverts who may prefer face to face discussions in a classroom situation (Romanov and Nevgi 2007). Although, anonymous online postings are often preferred by students, increased learning benefits are associated with student identified postings. This may result from a greater sense of community created by getting to know other students by reading their comments (Bertera and Littlefield, 2003). In addition, some research indicates a 'knock on' effect to other areas of learning, for example, Dengler (2008) found that once students have contributed to an online discussion, they are more likely to participate in face to face discussions. Although it is arguable that blended learning may offer a more neutral environment where students are able to participate equally, evidence regarding the impact of social and cultural factors on VLEs so far is inconclusive (Ertmer, Richardson et al 2010; McNulty et al 2006).

For VLEs to be successful, both students and teachers require the necessary technical ability. It is well documented that good support in using Elearning materials is a motivating factor for teachers to use VLEs (Donelly and O'Rourke 2007). However, being capable of using a VLE does not necessarily mean that students are more likely to participate (Davis and Wong 2007; Romanov and Nevgi 2007). Technical problems are commonly cited by students as reasons for not using VLEs. The malfunction of an Elearning resource is likely to create a higher rate

of discontent for students, over and above the general lack of the same (Fox and MacKeogh 2003; Moeller, Spitzer and Spreckelsen 2010).

Alongside technical competence, teachers may find learning new technological methods time consuming with demands of continuous updating and refining materials outweighing the benefits (Alexander 2001; Donelly and O'Rourke 2007; Fox and MacKeogh 2003). However, time issues may be related to types of use, for example, setting up a multiple choice test may take much longer than writing a comment for an online forum (Dengler 2008). More recent studies suggest that use of Elearning activities need not cause excessive time demands possibly reflecting increasing teacher competence and improved technology (Hughes 2005).

Other factors likely to create barriers for students relate to issues such as relevance, for example, online activities which mirror offline materials may result in disengagement (De Leng, Delmans et al 2006). Equally, too much information may lead to students becoming overwhelmed and demotivated (Jelfs and Kelly 2007). Students are more likely to engage with VLEs if they are closely linked to individual courses and perceived as being relevant and useful (Davis and Wong 2007).

The issues discussed relating to engagement and benefits of VLEs contribute to the basis for the research in the current report. The next section of the report discusses the methods used, followed by a section on the findings and discussion. The final section of the paper relates to the conclusions and implications of the findings.

#### **METHODS**

The aim of the research was how the blended use of a VLE can impact on learning in a specific module. The module related to crisis situations faced by children in different parts of the world, consisting of twelve weekly three hour long teaching sessions, culminating in a group presentation summative assessment. Most sessions consisted of the watching and discussion of a DVD with a short time for a whole group discussion at the end. The nature of the DVDs was often challenging making it difficult for some students to engage in the large group face to face discussions. One session included a guest speaker from a children's charity. Due to issues raised by students regarding the lack of time to discuss DVDs, the use of online forums was introduced as a means of continuing a discussion which had been started within the teaching session. Students were given the opportunity to use both Moodle

online forums and Lino, a freely available online sticky note tool which could be imported into Moodle (available at: <u>http://en.linoit.com/</u> accessed 22 May 2013). Students were automatically identified as the author for discussion forums, however, for Lino students were asked to keep their comments anonymous, to see whether anonymity impacted on student participation.

The whole module cohort participated in the study. Out of the 47 participating students, 31 were in their third year of the three year BA (Hons) Early Childhood Studies course and 16 were enrolled on a one year top up BA (Hons) Early Childhood Studies course. All students were female, predominantly white English and aged between twenty and fifty years, with 32 students (68%) aged between twenty and twenty-six years; 8 students (17%) aged between thirty and thirty-eight years; and 7 students (15%) aged between forty and forty-seven years. The wide age range and all female cohort were typical of the course.

Before the module begun, the teacher spent two 60 minute sessions with IT support discussing the options and receiving training for online forums. Lino was chosen as a reliable on line teaching tool to be used alongside Moodle's online forums. Additional training was given half way through the module due to difficulties associated with using Lino. Setting up, reading and responding to Moodle online forums took the module teacher on average 40-50 minutes each. Lino took less teacher time (10 minutes per lino), as a response to student comment was not required. It was estimated that a total of 7 hours was spent in training, extra IT support and setting up and monitoring Moodle online forums and Lino. All students were trained by the tutor to use Moodle online forums and Linos during the first session of the module. Once the forums and Lino were set up, both were relatively easy to use and monitor. Although there were some initial problems with student access to the second Lino (related to the technical ability of the teacher) this was soon resolved with additional IT support.

The following Moodle online forums and Linos were set up on Moodle at the beginning of the module:

- a) General Moodle Forum: for general questions about the module.
- b) Assignment Moodle Forum: for questions specifically about the module assignment
- c) Discussion Moodle Forum for DVD 1 about China (week 2)
- d) Discussion Moodle Forum for DVD 2 about Bulgaria (week 6)
- e) Best hopes for the module (week 1) Lino
- f) Student comments on the Guest Speaker session (week 3) Lino

Students were divided into small groups and were asked to make at least one comment per group for each Lino or forum.

An anonymous paper based questionnaire was completed by students in the final session. Questionnaires consisted of eight items, which required students to rate the usefulness and effectiveness of Moodle online forums and Lino on a scale of 1-10 (with 0 representing 'not at all useful' and 10 representing 'very useful', opportunity for written comments was also included. The number of views of Moodle online forums was also analysed, however, it was not possible to track the number of student views for Lino as this was an external resource embedded in Moodle. 31 questionnaires were completed out of a possible 47 questionnaires, a return rate of 66%. A number of students missed out questions 7 and 8, making the response to these questions smaller. The low responses may have been due to the last two questions being 'over the page' and not so easily noticed by students.

#### FINDINGS AND DISCUSSION

The findings and discussions were based on the analysis of Moodle reports (number of views for each forum), student questionnaires, student assessment results and informal comments from the Module tutor.

#### TABLE 1

Students engaged with all the Moodle forums and Lino, particularly those linked to discussions and the assignment, suggesting that the activities overall facilitated interest, commitment and active participation (Aspden and Helm 2004; Romanov and Nevgi 2007). DVD 1 discussion forum received the greatest number of student views (233), a significant greater of views than any other forum (see Table 1). The least viewed forum was the general Moodle forum (11 views), with some students commenting that they preferred to use email, supporting the view that where online activities mirrored other activities, students are less likely to engage (DeLeng, Dowmans et al 2006). Viewings decreased with time, which may have resulted from the increased time students spent preparing for their summative assessment towards the end of the module. In addition, there were technical problems with the second Lino, which may have led to lower student participation, as previous studies have noted (eg Moeller, Spitzer and Spreckelsen 2010).

#### TABLE 2 and TABLE 3

Overall, students were very positive about Moodle online forums and Lino (see Table 2 and Table 3). Over 80% of students found Moodle online forums very useful (rated between 7-10) for continuing discussions and asking questions. Students also found Linos very useful for commenting on the best hopes for the module and the best speaker, with 71% and 81% rating these between 7-10 respectively. A slightly smaller percentage (between 65% and 68%) found Moodle forums very useful (rated between 7-10) as a means of increasing engagement with the module and enhancing the quality of the learning experience. Results were similar for Lino, with between 70% and 73% of students finding Lino very useful (rated between 7-10) as a means of increasing engagement and enhancing the quality of the learning the learning experience.

Written comments from student questionnaires were analysed by looking for commonalities, differences and relationships between student responses in regard to perceived benefits and factors affecting engagement of Moodle online forums and Lino. Themes to emerge were similar to those discussed within the literature review.

Students' comments suggested perceived multiple benefits from both Moodle forums and Lino in terms of flexibility, a sense of community and development of higher learning skills. One student commented on the flexibility of using online forums, 'as was limited time after session, it was interesting to discuss in more depth via online forum'. In line with the findings of Bertera and Littlefield (2003), some students alluded to the sense of community online forums created, for example, 'great, loved reading others' and 'good to see additional points of view'. One student commented verbally, that she had never felt so well supported within a group, which may have resulted from a possible 'knock on' effect of using online forums (Ertmer, Richardson et al 2010). Finally, students commented on how online forums enhanced higher learning skills, such as, shared learning and critical thinking, for example, 'thought provoking comments offered another perspective I may not have thought of.' These findings were similar to previous research by Greenlaw (1999) and Stanley and Plaza (2002). The teacher also noted benefits for teaching and learning, including increased contact with students between sessions and a greater awareness of students' development as complex moral and ethical issues were considered during the course of the module.

TABLE 4

In addition, to the perceived benefits of Moodle forums and Lino for both students and the teacher, there also appeared to be benefits to students' performance. Students' marks for the module were compared to their overall average mark in year 2. Three students from each category (highest, average and lowest marks) were chosen and compared. Students who achieved the highest mark (74%) for the module scored up to 21% higher than their average grade in year 2 (53-56%). Students who scored an average mark for the module (65%) received a 4-5% increase compared to their overall average grade in year 2. Students who achieved the lowest mark for the module (between 54% to 57%) achieved an increase of up to 8% compared to their overall average grade in year 2. Students' higher marks for this module, compared to their average marks in year 2, suggests that online engagement may be linked to students' enhanced performance.

Overall, students engaged well with the online forums and commented positively. Students found Lino 'Particularly handy, as quick, easy and simple to use', supporting the findings of others that online forums are an efficient way of exploring issues (Blass and Davis 2003; Casquero, Portillo et al 2010). Students' commented on the relevance of the subject matter explored through online forums, eg 'I found this really useful and this is an area of great interest to me and I am now a volunteer for (*the charity*)', supporting previous research about the importance of linking VLEs to course content and interest of students (Aspden and Helm 2004). In a similar way to the findings of Romanov and Nevgi (2007), students commented that being able to 'to see additional points of view, gives people a chance to talk if not confident enough to do so in a lecture' suggesting that using a forum is less threatening than giving an opinion face to face in a large group.

Where students identified barriers to engagement, these related to common themes explored in the literature review, with technological difficulties, habitual and motivational factors and social and cultural factors (including time) identified as being key. In a similar way to previous findings (Fox and MacKeogh 2003; Enjelvin 2005; Moeller, Spitzer and Spreckelsen 2010), technological difficulties acted as a demotivating factor, with one student commenting, 'Found it really hard to get on to the post it page and put my comment on so I gave up with it'. The importance of easily accessible technical support was also raised by the teacher, particularly when something went wrong.

Habitual and motivational issues were highlighted as barriers by students in regard to lack of ability or experience, for example, 'Sorry but online forums are not my thing – maybe I'm

too old??' In contrast, another student remarked that their technological skills had been enhanced through the experience, 'never used before but really good'. Although, previous research has found that technical ability is not usually a barrier to using VLEs (Davis and Wong 2007; Romanov and Nevgi 2007), the first comment was from an older student, suggesting that age maybe a factor affecting motivation when faced with new technologies. As Prensky's theory of digital natives suggests, older students may be less skilled than more digitally experienced younger students (Prensky 2001).

Students comments highlighted further social and cultural factors, such as feelings of doing something 'wrong'. One student commented that 'Sometimes I felt a little scared and wary of posting my views in case they were 'wrong' or 'stupid', suggesting, as Romanov and Nevgi (2007) have found, that there may have been more engagement with discussions if comments were anonymous. However, there were no direct comments about preferring the anonymity of Lino over author identified discussion forums and the number of posts for discussion forums were slightly higher than Lino, suggesting that anonymity may not necessarily provide greater participation.

Time was raised as a barrier for some students, eg 'time was very limited outside of uni so although I would have liked to read and think about people's comments properly often I had to skim read them'. This comment was in relation to a discussion forum which required the student to express an opinion about a statement related to a DVD. Arguably, this forum required greater demands in terms of critical thinking than the Linos, which required students to give a comment on a guest speaker or best hopes for the module. Although, time was cited as a barrier, as VanSoest, Cannon and Grant (2000) point out, the benefits for students in terms of developing higher learning skills are likely to be worth the time invested in online forums. For the teacher, although the overall time spent in setting up and monitoring forums was 7 hours in total, this is likely to be less for subsequent modules, as initial training in the use of forums and Lino would be unnecessary. Posting questions and monitoring forums was relatively quick and easy, and as Dengler (2008) points out, is an effective use of time for a large number of students. However, as Alexander has noted (2001), the initial time commitment for training may be a barrier for teachers with heavy work loads.

#### CONCLUSION

The study explored how the blended use of Moodle impacted on an individual module. Online forums and Lino were introduced as an alternative way for students to discuss issues relating to the viewing of DVDs during the sessions. As others have suggested, online forums create interest, commitment and active participation, evidenced by the high levels of student participation with the forums and Lino in the study. Although student engagement decreased with time, this may have resulted from assignment pressures rather than waning interest. Students were very positive about the usefulness of online forums and Lino, suggesting multiple perceived benefits in regard to flexibility of use, increased sense of community and enhanced learning skills. Comparison of average student grades to performance on the module, suggests that engagement with online forums and Lino may be linked to students' enhanced performance, however, a larger study would be needed to determine this more clearly.

Factors which facilitated student participation with online forums, reflected pervious research, and included: ease of use; relevance of the task; and the creation of a safe space to view others' comment. Barriers for students included: technological difficulties; habitual and motivational issues, such as age; social and cultural issues; and time. Lack of anonymity did not appear to affect student participation with online activities and was not highlighted as an issue in questionnaires. Although issues were identified with online forums and Lino, it is arguable that perceived and possible benefits in terms of enhanced sense of community, higher learning skills and performance outweigh the disadvantages. However, it is important that possible barriers for both students and teachers are considered carefully, and sufficient technological support is available in terms of training and on going support.

Overall, the findings highlight the importance of viewing VLEs as a communication, collaboration and knowledge focused medium, with the potential to enhance higher learning skills through the use of interactive online forum activities. Further research might involve a larger scale longitudinal study focusing on the benefits of online forums for student performance and learning skills.

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**Moodle Reports** 

Table 1

Activity	No. of views by students		
General Question forum	11		
Assignment Question Forum	97		
DVD 1 – China (week 2)	233		
DVD 2 – Bulgaria (week 6)	59		

#### **Online Forums**

#### Table 2

Table 3

Question	N	Not very Useful (1-3)	Useful (4-6)	Very Useful (-10)
1. How useful did useful did you find the online forums on Moodle for continuing discussions about the DVDs?	31	1 (3%)	4 (13%)	26 (84%)
2. How useful did you find the online forums for asking general questions about the course or the assignment?	31	0 (0%)	6 (19%)	25 (81%)
3. How effective have you found online forums as a means of increasing your engagement with the module?	31	1 (3%)	10 (32%)	20 (65%)
4. How effective have you found online forums as a means of enhancing the quality of your learning experience?	30*	1 (3%)	8 (27%)	21 (68%)

# Lino

#### Ν Question *Not very* Useful (4-6) Very Useful *useful* (1-3) (7-10)5. How useful did you find the lino it (posting a sticky note) for commenting on 31 4 (13%) 5 (16%) 22 (71%) 'best hopes' for the module? 6. How useful did you find the lino it (posting a sticky note) for commenting on 31 2 (6%) 3 (10%) 25 (81%) the 'guest speaker'? 7. How effective did you find the lino it (posting a sticky note) as a means of 23 3 (13%) 4 (17%) 16 (70%) *increasing your engagement?* 8. How effective did you find the lino it (posting a sticky note) for enhancing the 22 3 (14%) 3 (14%) 16 (73%) quality of your learning experience?

\*one student omitted this question because she did not know what to write 'don't' know'

# **Student Assessment Results:**

### Table 4

Marks for the Module	Overall average grade in year 2		
74% (Highest achieving)	53-56%		
65% (Average achieving)	60-61%		
54-57% (Lowest achieving)	49-57%		

# Comparison of marks for the module with overall average grade in year 2