Title of Project
Understand our digital teachers: Using mobile technologies to connect formal and informal learning

Project team
Professor Kwok-Wing Lai (Principal Investigator), Dr Lee Smith (Assistant Research Fellow)

Snapshot of the case
This project aimed at investigating how Otago teachers conceptualised the connection between formal and informal learning and how they used mobile technologies to support such a connection. A total of 308 teaching staff completed an online questionnaire, and 30 participated in a follow-up interview in the second semester of 2014. A preliminary analysis of the questionnaire shows that Otago teachers recognised the importance of informal learning in augmenting students' formal studies. The majority also felt that they and the University played a significant role in supporting this connection. However, Otago teachers failed to use mobile technologies to bridge students' formal and informal learning and there was also a lack of understanding of how these new technologies could be used to connect the two forms of learning.

Introduction
There is a growing recognition that a semiotic relationship exists between formal and informal learning. This learning ecology perspective (Barron, 2006) suggests that while students learn differently in formal and informal settings, learning can take place across boundaries. On other words, what has been learned informally can help shape what is learned formally and conversely, what is learned in formal institutions can motivate students to learn in informal settings, such as community centres and at home (Greenhow & Robelia, 2009). To develop strategies to support teaching and learning across contexts and settings, it is important to understand how tertiary teachers conceptualise the connection between formal and informal learning and how new learning opportunities can be created, which relate informal learning to formal learning. With the advent of mobile technologies, there are also opportunities to use these new technologies to connect formal and informal learning. Educators need to understand how these new technologies can best be utilised. This project addressed the following research questions:

1. How do higher education teachers understand informal learning and its role in supporting formal learning?

2. How do higher education teachers use mobile devices and applications in teaching and how do they facilitate their students in using them in informal learning to augment their formal learning undertaken in coursework?

Approach
This project involved researching the practice of Otago teachers, It also aimed to capture an overall picture on how Otago teaching staff were using technology. This information would have implications on how technologies should be supported at Otago for course design, assessment, and ultimately improve the quality of teaching and learning.

Key findings

- The majority of questionnaire respondents considered informal learning as important as formal learning.
- Almost all respondents believed that informal learning could enhance formal learning, and all encouraged their students to engage in informal learning in general, while 88% of the respondents also encouraged their students to engage in informal learning to augment their formal learning.
- 90% of respondents felt that the university should encourage students to engage in informal learning to augment their formal course work.
- Two-thirds of the respondents believed that students' learning was enhanced by digital technologies and these technologies would enable students to become knowledge producers, and over half of the respondents disagreed with the common belief that using mobile technologies to access information would make them less critical learners.
- While almost all of the respondents believed that mobile technologies could help create informal learning opportunities, and two-thirds believed that all students should have access to mobile technologies to support their formal and informal learning, only just over one-third had used mobile technologies to create learning opportunities for their students outside formal class time. However, 80% of the respondents were willing to learning how to incorporate mobile technologies in their teaching to support students to engage in informal learning to augment formal learning.
- Three-quarters of the respondents believed that by using mobile technologies in teaching the teaching programmes at the University of Otago could be improved. However, over one-third of respondents preferred students not using mobile technologies in their class, and over half of the respondents believed that using technologies in their teaching would increase their workload.
- 80% of Otago teachers perceived a change in the learning characteristics or preferences of their students over the last ten years, due to their students' usage of mobile devices.
- The majority of teaching staff considered their students highly computer literate but, only in regard to their ability to access online information. They also stated that their students also wanted access to fast information and demand immediate feedback. There was some evidence to suggest that students engaged in multitasking, but little to indicate that students preferred images to text. There was some, although not strong evidence that students preferred collaborative group learning and little evidence to support the notion that students prefer active learning. It is clear however, that teachers considered the current generation of students as preferring to access small chunks of information on their mobile devices, which the participants considered a factor in making students surface, uncritical learners and thinkers.
- In terms of using mobile technologies (i.e., smart phone and tablets) and applications (e.g., social networking, podcast, blogging), very few Otago teachers used them for their own learning, and even fewer of them used these technologies for teaching. Just over half of respondents never used any mobile devices or applications in their own learning, and three-quarters did not use them in their teaching, The digital technology that teachers most frequently used were podcasts.

Implications

The higher education community is currently grappling with how best to utilise mobile technologies to support and connect teaching and learning in formal and informal contexts (Lai,

Khaddage, & Knezek, 2013a: 2013b). Our preliminary analysis shows that while most teachers at Otago recognise a close connection between formal and informal learning, how these two forms of learning can be seamlessly connected through the use of mobile technologies is not well understood. Professional learning and development needs to be provided to Otago teaching staff to better understand this connection in practice. A review of how this has been done in other universities will be needed to provide examples of exemplary practices.

References

Barron, B. (2006). Interest and self-sustained learning as catalysts of development: A learning ecology perspective. *Human Development, 49*(4), 193-224.

Greenhow, C., & Robelia, B. (2009, May). Informal learning and identity formation in online social networks. *Learning, Media and Technology*, *34*(2), 119-140.

Lai, K.W., Khaddage, F., & Knezek, G. (2013a). Blending student technology experiences in formal and informal learning. *Journal of Computer Assisted Learning, 29*(5), 414-425.

Lai, K.W., Khaddage, F., & Knezek, G. (2013b). *Advancing mobile learning across formal and informal contexts*. Briefing paper, International Summit on ICT in Education, October, 2013, Washington, D.C. Retrieved from: http://www.edusummit.nl/fileadmin/contentelementen/kennisnet/EDUSummIT/Documenten/2013/Pre-summit_brief_paper_TWG2_-Mobile_learning.pdf

Other output:

A paper has been accepted for presentation at the European Distance and e-Learning Network Conference, June 9-12, Barcelona, Spain. The paper will be published in its peer-reviewed conference proceedings.

Title of the paper:
Lai, K.W. & Smith, L. A. (2015). *Mobile Technologies and Changing Learner Characteristics and Preferences: Teachers' Perceptions*.