

Embedding TEL in an initial course in Teaching & Learning in HE: a co-design approach

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Abstract

This research project explored how best to embed the use of social web tools in an initial teacher education programme by involving participants in the design process. A mixed-method approach was used to find out participants' experience of participatory learning using social web tools and interest in learning more about their use in higher education as part of the course. It also sought out participants' preferred ways of learning and levels of interest in giving and receiving peer support. Results indicate that, overall, many participants have experience of using a range of social web tools as students, professionally or for personal use. The social web tools most participants selected to learn more about were cloud-based software for creating slides and topic curation tools; the least popular choices were video and podcast creation for courses or as assignments for students. Although participants expressed interest in a range of ways of learning, using the technology as part of a session and reading a bi-monthly newsletter were the most popular means. Following on from the findings, a proposal for introducing social web tools into the programme was drawn up and the activities have been reviewed and adapted as part of a continuous process.

Key words: teacher education, technology-enhanced-learning, social web tools, curriculum co-design

Visiting lecturers, Graduate Teaching Assistants and technicians who are given teaching hours in universities are often required to complete a postgraduate course in teaching and learning in higher education. Developing teaching skills has become even more important in the light of the new teaching excellence framework (TEF), which aims to recognise and reward excellent learning and teaching (Times Higher Education, 2016). If technology-enhanced learning is to be successfully embedded within this type of course, it is important to consider how best to encourage and empower participants to use a range of current learning technologies. It could also be argued that social web tools should be included within the course if it is the case that they can enable teachers to explore new pedagogic methods (Tynan and Barnes, 2011, p. 371), Yet, as Bennett (2012) points out, a postgraduate course in teaching and learning in higher education may focus primarily on principles of teaching and learning. If mentioned at all, the use of technology in teaching and learning might be a bolt-on session rather than being so embedded into the course that experimenting with the technology and discussion about pedagogy become interwoven.

As a new tutor on such a programme, the author decided to carry out research to find out about participants' experience of and interest in participatory learning using social web tools and their preferred learning methods, in order to involve them in designing this element of the course. I felt that involving participants could help foster and model more faithfully a partnership approach to course design. Whilst there are prior studies on staff development in using technologies in higher education (see, for example, Georgins and Olson, 2008; Ertmer

and Ottenbreit-Leftwich, 2008; Lefoe *et al*, 2009), there didn't seem to be any research on embedding technology in courses for tutors preparing to teach in higher education that focuses solely on social web technologies or includes students as co-designers of this element of the course.

Literature review

The social web or Web 2.0, (a term coined by O'Reilly in 2005), is a wide-ranging concept that refers to an extensive range of social networking and mass authoring tools. The two features many of them have in common are a focus on participation and the fact that they are based on a social understanding of knowledge (Eijkman, 2011, p.346). Thus, the Jisc report (2009, cited in Conole, 2010, p.10) found that students had different opportunities for interaction, collaboration and expression in Web 2.0 environments. While Conole (2010, p.40) shows how different tools can be used, depending on the pedagogic approach, such as inquiry or community-based learning, the following examples of current popular (and mostly free) social web tools (McLoughlin and Lee, 2011, p.45) are helpful in identifying their functionality as well as pedagogical possibilities:

- enabling collaborative writing: wikis, Google Docs
- for sharing ideas publicly: blogs, vlogs
- social networking for idea sharing: Facebook, Twitter, Yammer
- media sharing applications: Youtube, Flickr, Instagram
- enabling different forms of feedback: podcasts, screencasts, audience response system
- using multimedia in presentations: cloud-based presentation software
- curation and visual storytelling: Storify, Scoop.it, info.gram

Why include social web tools in the curriculum?

One of the reasons for including social web tools in the curriculum is that, within these participatory spaces, students have the opportunity to learn using a more self-directed approach, moving towards communicating and collaborating in a community of practice (see Eijkman 2011, p.344 and Conole, 2010, p.10).

Another is that students can develop their digital literacy skills as part of their course, which is important, given the emphasis on continuous professional development in the workplace. Marjaryan and Littlejohn (2008) point out that social web tools such as blogs and wikis are currently being used in organisations to share knowledge and for communication. They ask how well students are being prepared for the world of work if social media tools are not included as part of their studies.

By thinking of students as producers, teachers can design activities that require higher-order thinking skills, as students create, analyse, synthesise and present knowledge to peers (Sessoms, 2008, p.95). They are therefore given the opportunity to think critically, by creating their own view of the subject. As Dron and Anderson (2014) point out, research shows that the learning value of artefacts that learners create and share is of equal, if not greater, value than content offered by teachers. Instead of being used solely as instructional media, learning technologies can thus be taken away from instructional designers (in this case, teachers) and given to students, so that they may construct their own knowledge, an

approach in line with a more student-centred curriculum (Jonassen, 2004, p.228). Students may be empowered by being given the autonomy to plan, make decisions and self-assess as part of the process. Activities can be set up so that students can take full advantage of the distributed nature of digital spaces. As Conole (2010, p.17) highlights, this includes access to the knowledge of others and communicating with a wider audience.

Rethinking curriculum design

However, designing activities using social web software will demand a major rethink about what the role of the teacher is and the level of control the teacher has over the learning process. In addition, McLoughlin and Lee (2011) suggest that tertiary educators in general may not be fully aware of the range and potential of social software tools to support teaching and assessment in a range of meaningful and authentic ways. Similarly, Vogel (2010, p.6) found that having the infrastructure and equipment in place doesn't mean that technology is effectively integrated into the curriculum. There are also differences in the way institutional and social web technologies are viewed. Marjaryan and Littlejohn (2008) found that well-established tools such as the learning management system (LMS) are perceived as the most up-to-date technologies, whilst some lecturers view social media tools as 'fads'. Similarly, an OECD study found that the use of social media in the higher education curriculum is, for the most part, experimental (OECD, 2009, cited in Conole, 2010, p.21).

As Britland (2013) reminds us, staff cannot be expected to use new technology unless they are confident users or creators and can see how it will support and benefit teaching and learning. Because of this, Conole (2010, p.22) suggests that initial teacher education needs rethinking and thus discussion about new and emerging pedagogies should be considered a vital aspect. Ertmer and Ottenbreit-Leftwich (2010, p.268) argue that new definitions of learning and effective teaching need to include using technology as tool, process or method as an integral component. This is important because, whilst there are several examples of individual teachers using a variety of online collaboration tools with their students, empirical evidence suggests there are not always sound pedagogical principles in place (Huijser and Sankey, 2011, p.272).

Essentially, a teacher's experience of teacher- or student-centred teaching, habitual ways of learning, her/his own personal use of technology and experience of using it as a student might come into play. Angeli and Valanides (2009, p.162) note that if, for example, the teacher has deep-rooted beliefs in teacher-centred learning, then without a chance for reflection, technology integration in teaching will most likely be teacher-directed rather than learner-directed. In addition to past experiences of teaching methods and technology use, a teacher's perceived self-efficacy and such personal attributes as the willingness to try new things will also have a big influence (Ertmer and Ottenbreit-Leftwich, 2010, p.263). Therefore, once they are aware of the potential pedagogical uses of social web tools, teachers need to be given time to explore how to use them, take risks and have opportunities for practice.

Incorporating the use of social web tools into this type of course also provides:

- an opportunity to explore and discuss the barriers to including them. For example, students might not have much experience of or interest in using them for learning. In their study of students' ICT preferences and behaviour, Gros *et al* (2012, p.207)

found 'considerable variation in patterns of access, use and preference for a wide range of different technologies'.

- a chance to discuss how third-party platforms use and monetise data so that teachers and students are aware of how to protect content and make informed decisions regarding their use.

Research methodology

The social software and participatory learning framework of McLoughlin and Lee (2007) was the theoretical lens that framed this study. This pedagogical approach posits that social web tools enable personalisation of the curriculum, enquiry as part of a community and joint knowledge creation. Although this framework was conceived in relation to study in Australia, it was considered to be a relevant model, as the approaches used are similar, even though in different cultural contexts. The framework is adapted from a Dutch model (Efimova, 2004) and the pedagogical activities afforded by the social web tools are also discussed within the UK literature (see, for example, Conole, 2010 and Marjaryan and Littlejohn, 2008).

The research questions explored were:

1. What are participants' experiences of and interest in participatory learning using social web tools as students or teachers, with regard to:
 - producing learner-generated content?
 - open, peer-to-peer and multi-faceted communication?
 - consuming/producing media-rich resources?
 - support from teachers, peers and communities?
 - learning tasks chosen by themselves (personalised)?
2. What are participants' levels of interest in learning more about the selected social web tools that encourage a more active role in the learning process?
3. How and to what degree are participants interested in learning about these social web tools as part of their course and/or teaching their peers or receiving support from them?

For the first and second survey questions a range of current and free social web tools and their affordances were chosen, based on those previously mentioned (building on McLoughlin and Lee, 2011).

The following aspects were selected for the third survey question as they were recommendations for pre-service teacher education and professional development in using learning technologies in the work of Ertmer and Ottenbreit-Leftwich (2010) and Rogers (2000):

- peer learning in communities of practice; both face-to-face and online;
- active learning;
- duration;
- learning individually.

Participants

Eighty-three participants from the Arts, Science and Social Science faculties participated in the study. A mixed-method research approach was used; a paper survey was given on the course introductory day and a focus group discussion was held during each lunch break, with several participants chosen from different departments by means of stratified sampling. The focus groups involved semi-structured interviews which were loosely based on the questions in the survey. The participants were asked to comment on their interest in technology in general, their experience of any technologies used in teaching and learning and how they normally learn to use new technologies.

Discussion of results

The key themes identified provided some useful insights which formed the basis of an initial proposal for embedding the use of social web tools within the ITE programme.

1. What are participants' experiences of and interest in participatory learning using social web tools as students or teachers?

It became apparent from the survey responses that a considerable proportion of participants had experience, as students, teachers or professionals, of using several of the social web tools in the survey or knew how they were used. Many participants were interested in how technology could enhance learning. Some already had experience, either as students or teachers, of media-rich technology; others had experienced collaborative writing online. Interestingly, over 50% of participants had experience of using Facebook as a student, and several participants mentioned using Facebook as an informal study group and how helpful it had been. For others, forums were popular. The drawbacks of using technology were also discussed, during which some criticisms were made about some lecturers' use of such technologies as PowerPoint and Moodle.

2. What are participants' levels of interest in learning more about participatory learning using social web tools?

The most popular choices were learning to create slides using cloud-based software and topic curation, whilst learning about how student-created podcasts or videos, or how to give audio or audio-visual feedback, yielded the lowest number of responses. If participants had seen only PowerPoint slides used by their lecturer, this might have influenced what they thought it was important to learn, as Marjaryan and Littlejohn (2008) and Gros *et al* (2012) found. Their choices might also have been limited because they had a minor teaching role. Where a web tool was not selected in the survey, this could also have been, as Loughlin and Lee (2011) point out, because there was a lack of awareness of the potential of social web tools. Furthermore, although the survey results revealed that most people had participated in or knew about a class Facebook page, over half of participants did not want to know more about setting up an online class group; this could have been because they didn't need help with it, but might also be related to the three main concerns that came up during the discussions: of technology potentially being a distraction; keeping social media for private use and online privacy. This accords with research findings that academics might not be willing to use technologies that students use in their daily life (McLoughlin and Lee, 2011, and Vogel, 2010), and shows that the benefits of using technology may be overlooked if participants are not made aware of them.

At the same time, two focus group participants expressed an understanding of the fact that the younger generation might be more motivated by using technology in an educational context and felt that it was important to keep up-to-date with the latest technologies. This suggests that some participants might already be aware that student engagement can be a key reason for using technology (Kirkwood and Price, 2005, p.257).

As a final point, those participants who did not select certain tools might already have been taking responsibility for their own learning. They might have been happy to experiment on their own and not have felt the need to learn with others. Angeli and Valanides (2009) suggest that new teachers need explicit training, but this would not necessarily have to be the case. If they are self-motivated, they can do their own research to gain a deeper understanding of an activity's potential pedagogical benefits and shortcomings.

3. How and to what degree are participants interested in learning or teaching their peers about these social web tools as part of the programme; how far are they interested in giving and receiving support?

Experimenting with web tools in face-to-face sessions and accessing online materials seemed to be the most popular ways of learning; participating in a synchronous online session was an unpopular choice. A possible explanation for this might be that this was a new way of learning for many participants and they might be reluctant to deviate from the norm (Shor, 1992, cited in Bovill, Cook-Sather and Felten, 2011). However, they might simply have preferred having discussions in face-to-face settings.

Participating in their own time in an online course with short activities and reading a bi-monthly newsletter were also selected as preferred ways of learning. Again, this could indicate that students do already take ownership of their own learning process. However, it could also reflect a lack of time. As one participant commented in the survey:

'Just bear in mind that although we might be interested in many things, our participation...will be subject to time constraints with our PhD and teaching activities'.

Several participants suggested that a combination of face-to-face meetings and follow-up tasks were useful. Others mentioned watching online tutorials on channels such as YouTube or requesting practical demonstrations from friends when they wanted to learn how to use a new technology. This is consistent with research on staff preferences for training in technology, where it was found that tutorials were popular, in addition to learning with peers (see Warhurst, 2006 and Cochrane & Narayane, 2013).

Yet perhaps one drawback of participatory approaches is where the views of the students are uncritically accepted (Bovill *et al*, 2011, p.7), as a teacher may be best-placed to advise on the most beneficial ways of learning. Moreover, whilst participants may be making selections based on their current learning experiences or preferences, this is not necessarily an indicator of the best way to learn how to use technology. It could be argued that synchronous sessions are an essential element if potential activities are to be designed with pedagogy at the heart of them.

The proposal

An initial proposal for the academic year was set out in the following table based on the survey results and focus group discussions.

Findings	Proposal for the academic year 2013/14:
38% of participants would like to research and present a web tool as part of a session.	Arrange sessions in which participants can present a social web tool to the group of their own choosing.
77% experimenting with web tools as part of sessions; 40 participants are on Twitter; 39.7% of participants would like to learn more about using a backchannel in lectures. 50.6% of participants would like to learn more about curation of a topic.	Use Socrative during the sessions as a classroom assessment technique and for receiving session feedback. Optional opportunity to use Twitter can be set up during the 'Lecturing' session. Participants can pose questions/ comments, followed by a discussion on using a backchannel and the potential to open the class up to external participants. The topic can be curated using 'Storify' and participants asked to consider if they would use it with their classes.
67.5% of participants were interested in a bi-monthly newsletter.	A summary of activities and discussion in the sessions and links to literature and video clips to be added to a newsletter using Padlet and posted on Moodle. Participants are to be invited to add their own links.
61.7% of participants were interested in watching video clips of tutors using web tools + discussion in a session.	Ask lecturers to be filmed using web tools in HE settings or explaining how they use them for discussion in programme sessions.
56.7% of participants would share ideas through a Twitter/Facebook group; 70 participants are on Facebook.	Set up a Facebook group to: <ul style="list-style-type: none"> • share and discuss research and practical ideas for using social web tools; • reflect on and share experiences of using them in class. This could continue once they have finished their studies/left the College.
48% of participants would like a monthly hands-on drop-in session.	Timetable workshops based initially on the most popular choices: -creating slides using a range of current software (65%) -class wiki (46.9%) -creating podcasts (34.9%) -setting up a blog (38.5%)
62% would participate in an online course with short activities provided through Moodle / a blog	Start to set up an online course, focusing on the most popular choice (creating slides using different software) and trial that element.

Within that year, the following changes were made:

- An optional technology-enhanced learning (TEL) session was offered, so that participants could get an overview of and a feel for some of the social web tools currently being used in course design in higher education and design an activity they could use on their courses. Approximately a quarter of participants completing that year came to a workshop.

- Socrative was used at the end of any workshops by the author to ask for feedback. As a result of this and the quizzes in the TEL session, several participants used it on their courses. Small case studies, based on their experiences, were compiled to share with colleagues asking for advice on audience response systems.
- In Moodle, Padlet links to resources were shared on all aspects of teaching and learning, including technology, and participants were invited to add their own links. These were updated regularly, instead of introducing a newsletter.
- A Yammer group was set up instead of Facebook as this was already being used within the College, but there was no take-up.
- Participants were shown examples of student-created videos, podcasts and blogs within the TEL workshop and were asked to get in touch if they needed any one-to-one support. It was also decided to make a wiki activity part of the assessment, so that they would gain first-hand experience of contributing to one.

The following year (2014-15)

- Participants in the optional TEL session were invited to present a social web tool or other technology they had used as part of the session.
- Socrative was used as a quiz on the introductory day as well as in the 'Small group teaching' session to show different questions types and teaching methods. Several participants used Socrative on lectures/seminars and one participant asked for support in trying out their quiz on different devices.
- Padlet links to resources were again shared and participants were invited to add their own links. Links were added to Padlets on teaching and learning, but not the technology ones.
- Based on the lack of response in the Yammer group and following a suggestion from a colleague, a Moodle forum was set up (with optional subscription), where links to events, articles and webinars were posted. This also replaced the need for an online course. Although nobody posted in the forum, some participants would say in passing that a resource/webinar was useful.
- As part of the portfolio assessment, a semi-public group wiki (the public has read-only access) was introduced, using Wikispaces. Participants were asked to join and post a critical discussion on a topic of interest to them that was related to teaching and learning in higher education.
- During the year, we began asking academics who had made teaching prize submissions to make short videos on their teaching practice for the new Teaching and Learning Space web page. Some of the case studies involved the use of different technologies in course design, so these were included in workshops to initiate discussion between teachers.

2015-16 (in addition to the above)

- As part of the 'How students Learn' session on the Introductory day and the 'Lecturing' session, we explored the use of Answergarden as a means of sharing and discussing responses.
- In the wiki assessment, participants in some cases linked to and built on posts in the previous year's wiki.

Conclusion

This aim of this study was to find out about participants' experience of and interest in learning about a selection of current social web tools with their peers or in their own time. The key responses and themes identified were then picked out to form the basis of a proposal for embedding the use of the social web tools into the programme. The results provided some useful insights and enabled significant re-design of the programme sessions and assessment.

There was a mixed response in terms of experience and interest in learning about social web tools as part of the programme. It is not surprising that a large group of participants will bring with them diverse motivations and experiences (Bovill *et al*, 2011, p.3). As a result, one of the limitations of the study is that the findings are specific to this teacher education programme and it would therefore be difficult to generalise from them. However, when considering validity in qualitative research, narrowing the focus in relation to a specific setting or group can be more important to qualitative researchers than conducting a highly generalizable study (Maxwell, 1992, quoted in Onwuegbuzie and Johnson, 2006).

Even though these results might be useful only in relation to this particular group of participants, the methods used could be replicated in other, possibly longitudinal studies. Another limitation, previously mentioned, is that it can be difficult to draw conclusions from the survey results as individual knowledge of the social web tools presented is so varied. It cannot be assumed that participants were not interested in learning more about specific tools that can encourage students to participate more in the learning process or to produce rather than consume knowledge. For a more reliable picture, it would therefore have been useful to present the participants with an overview of the tools and different ways of learning online before they completed the survey. Moreover, while the participants might have liked to attend some of the face-to-face activities, as one participant commented, realistically this might not be possible due to time constraints. A perceived lack of interest in some methods of learning could, therefore, be an indication of external demands on participants' time.

Future research

Implementing and evaluating the different aspects of the survey responses has taken a long time and it has been an interesting process. As Bovill *et al* (2011, p.9) point out, curriculum evaluation and redesign are continuous and necessary if the same level of ownership for each group of course participants is to be achieved. As a result of this study, the author decided to research the use of a wiki as a collaborative digital space. Following portfolio submission this year, participants were asked for feedback on their levels of interest in creating and sharing knowledge for the class digital space assessment and perceived usefulness of the task. They were also asked whether, as a result, they would introduce a similar kind of assessment in the courses they teach.

Final thoughts

Just as teachers are being encouraged to experiment with and evaluate the effectiveness of new technologies (Marjaryan and Littlejohn, 2011, p.439), it can be argued that educational developers should model good practice in this area. This could help to implement a culture in which experimentation is actively encouraged. Moreover, inviting trainee teachers to co-construct the curriculum not only challenges the roles of academic developer and participant but models a participatory learning approach. This is important because, as Student Voice research suggests, academic staff should explore how students can become co-designers of

teaching approaches, courses and curricula (Bovill *et al*, 2011, p.133). Working together with new teachers offers many opportunities to try out, discuss and reflect upon new pedagogies and influence practice, perhaps inspiring them to involve their own students in elements of curriculum design.

A final point to consider is that the continuous updating of technologies makes it more difficult for any individual to be an expert; teachers cannot be expected to be up-to-date with all the latest tools and their potential uses (Conole, 2011, p.405). Therefore, the year-long course can be seen as a starting point and a range of relevant and engaging professional development options needs to be in place.

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