

Learner-generated podcasts: a useful approach to assessment?

Lynne Powell and Fiona Robson*

Newcastle Business School, Northumbria University, Newcastle upon Tyne, UK

This paper focuses on students as podcast providers rather than receivers and answers the question, 'Are learner-generated podcasts a useful approach to assessment?' Through the use of a single institution case study, this paper presents an evaluation of 53 (taught) postgraduate business students' reflective learning assignments in which they chose to reflect upon their experience of podcasting. The evaluation of these reflective assignments focussed on five key themes that emerged; prior attitudes about the use of podcasting, benefits of podcasting, transferable skills, pedagogy and future use of podcasts.

Keywords: group podcasts; student-centred; assessment

Introduction This paper reports on an evaluative study of learner-generated podcasts as a means of summative assessment on a postgraduate International Human Resource Management (IHRM) module. The use of technology within the classroom is an ongoing issue, with tutors looking for ways to use it in support of the learning of students (for example, the work of Brett, 2011 reflects on the utilisation of SMS messages). This paper moves the debate forwards by focusing on how technology can help students to learn in order to deliver a technology-based summative assessment; in the form of group podcasts.

This paper begins by presenting the aims of this research and an overview of the anticipated distinctiveness. A review of the extant research base commences by reminding readers of the general benefits of technology before focusing in on the specific issues surrounding the use of podcasts, including the transferable skills gained by students. Our methodology section outlines the research approach that has been followed and provides assurance of adherence to the authors' University's code of ethics. The findings that have emerged from the content analysis are explored and synthesised with the review of the literature where appropriate, before the authors provide a further discussion and outline implications for practice.

Aims of the paper This paper centres on the use of technology, and specifically, learner-generated podcasts as an innovative approach to assessment thereby addressing the following aims:

*Corresponding author. Email: f.robson@northumbria.ac.uk

- To explore the importance of incorporating technology in Masters-level teaching in a UK University
- To review the current literature base on how podcasts can be used to enhance student learning
- To analyse the findings of a qualitative study completed by postgraduate business students and outline implications for theory and practice.

This paper extends the earlier work of Copley (2007) by looking at learner produced podcasts as an assessment method in the UK rather than as a mechanism for lecturers to share material in audio format. Addressing this gap provides an opportunity for this paper to make a contribution to both pedagogic knowledge and practice as McLoughlin and Lee (2007, p. 7) comment:

There appear to be few documented examples of podcasting being used to support student-generated content in university teaching and learning.

Though the previous work of Lee, McLoughlin and Chan (2008) did investigate perceptions of students, it is argued that this current paper has three key areas of distinctiveness:

- (1) This research is set in the UK context (their work is located in Australia)
- (2) This study was undertaken with non-IT specialists
- (3) Within the study described in this article the production of a podcast was a mandatory element of the module's summative assessment (Lee et al., 2008's work was undertaken on a voluntary basis).

The overall research question that guides this paper is 'Are learner-generated podcasts a useful approach to assessment?' The methodological approach of content-analysing students' reflective assignments also provides a distinguishing feature for this study as previous works limited their content analysis to that of policy documents (for example, Eynon, 2008).

Literature The benefits of technology Policy makers and University leaders believe the use of technology is an integral part of teaching and learning in the HE sector (Eynon, 2008) though arguably this could be extended further to include secondary and further education. Technology can also be used to encourage and stimulate students' independent learning (Eynon, 2008) and support the move away from purely didactic learning. Whilst the report by IDG Global Solutions is commercial (rather than an academic paper), they provide a powerful quote to support the use of technology:

The traditional chalk and talk lecture style of teaching fails to engage those who daily use interactive and digital ... (p.

2)

In their review of earlier works, Sharpe and Benfield (2005, p. 2) observed: 'where e-learning adopts new or unusual pedagogies, things get more complicated. Here learners report an intensely emotional experience and a major concern with time

328 *L. Powell and F. Robson*

and time management'. There are practical implications of this perspective as it suggests a clear need for tutors to be able to support their students to deal with these associated areas.

Where technology is used as part of a student collaboration activity a further benefit may be their ability to improve their skills in being critical learners and providing feedback to their peers (Su & Beaumont, 2010).

An introduction to podcasts and podcasting The current research base focuses strongly around students listening to podcasts that have been created for them (Copley, 2007; Lee et al., 2008); however, McLoughlin and Lee (2007) suggest that this would be more accurately framed as 'lecture-casting' whereby tutors use technology to deliver lectures or other instructional content. There is evidence of wider-use of podcasts (rather than just recording lectures) with the review by McLoughlin and Lee (2007) identifying other examples such as providing pre-casts and/or post-casts as ways of delivering different types of information. For a detailed overview of some of the technical aspects of recording podcasts please refer to Copley (2007), however, the researchers were excited by the possibility of using podcasting as a pedagogic activity beyond content distribution.

This study makes a useful contribution to understanding the impact and perceptions of using technology, thereby addressing the earlier comments by McLoughlin and Lee (2007, p. 11):

How learners perceive the possibilities of the tools and their ideal use(s) in the context of their learning may be markedly different to the ideas and intentions of the educators and educational technologists that develop them.

Benefits of podcasts The use of student podcasts would appear to provide a robust response to a call from McLoughlin and Lee (2008, p. 11):

There is a need to expand our vision of pedagogy so that learners become active rather than passive consumers of content, and learning processes are participatory and social, supportive of personal life goals and needs.

With the iPod generation, students can listen to podcasts (or even vodcasts) anytime and anywhere and as ownership of technology such as iPods are likely to continue to grow (Lee & Chan, 2005) investment in this area would not appear to be overly risky. Where students do not have specialist devices such as an iPod, they can listen to podcasts on a standard PC or portable computer, thereby increasing their inclusiveness for the student body. Through the process of researching and writing scripts and recording, their podcasts students will be able to enhance their IT skills which Lee et al. (2008, p. 502) describe as 'digital literacy skills'.

Learning from podcasts (which are sometimes referred to as *profcasts*) delivers a useful initial exposure to podcasts which could be a first step in familiarising students with the technology before they are required to create their own content. Using podcasts may also be a means of providing additional support to students

Innovations in Education and Teaching International 329

with specific learning needs (Copley, 2007) including those with dyslexia (IDG Global Consulting, 2006).

There is also an argument that the use of technology such as podcasting may help to meet students' expectations about use of technology in Higher Education Institutions due to technology's 'high level of social cachet and appeal amongst students' (Lee & Chan, 2007, p. 90) with the majority of students being 'technology

savvy' (McLoughlin & Lee, 2008, p. 10).

Podcasts can also be referred to as 'community building' (McLoughlin & Lee, 2007) encouraging students to engage with and understand their subject area allowing them to highlight and discuss the most appropriate points into a timed podcast.

However, Carvalho, Aguiar, and Maciel (2006) warn that podcasts may not suit the learning preferences of all learners, particularly those with a preference for visual learning. Additionally, when looking more broadly at using technology, it is important to provide clear expectations and that students receive appropriate guidance and support in using the technology (Su & Beaumont, 2010).

Transferable skills (from podcasting) Students wider academic skills can be enhanced as podcasting allows them to further develop the ability to 'express and conceptualise their understanding of subject matter' (Lee et al., 2008, p. 502), and 'It [podcasting] also creates a space where students are empowered to express themselves creatively'. Finally, this use of technology can also support students in developing the skills to reflect more strongly upon their own learning (Frydenberg, 2006).

Students' expectations A potential drawback to the use of student podcasts might be anxiety about using the technology (Lee & Chan, 2007) which again places a responsibility on tutors to provide (or arrange) appropriate development support. Care is needed from tutors (who are introducing ICT) to 'scaffold students during learning processes' (Wang, 2008, p. 412).

In one of the few studies that looked at instances where students have been podcast creators, Carvalho et al. (2006) found that feedback from students was very positive in terms of enjoyment of the process and seeing it as a useful learning tool. Unfortunately, there is little research which discusses the extent to which students specific expectations were met.

Innovative assessment Using podcasts as an assessment method would also seem to address the criteria for 'innovative assessment' proffered by Mowl (1996, p. 5) in that it aims to produce students who are:

- Highly motivated and committed
- Enterprising
- Equipped with a range of transferable skills
- Capable of self-criticism and evaluation
- Active and reactive participants in the learning process

330 *L. Powell and F. Robson*

In setting the assessment brief, the module team were mindful of the criteria for DALO (digital audio learning object) articulated by Lee et al. (2008, p. 505):

- Simple to produce
- Immediate
- Educationally focused
- Reusable
- Engaging

The teaching team were confident that the structure and level of detail included in the podcasting assignment brief responds to Boud, Cohen, and Zhou (2004) call for designing assessments which foster group learning whilst not inhibiting individual achievement.

Methodology The research took place in a post-1992 University within a successful and fast-moving business school. In line with the approach followed by Churchill (2011), a single case study of one postgraduate student cohort (in one semester) was judged to be most appropriate for this study as the generalisation of the findings was not one of the aims. Additionally, a case study approach is thought to be 'particularly well-suited to new research areas or research areas for which theory seems inadequate' (Eisenhardt, 1989, pp. 548–549). Notwithstanding this, the authors acknowledge this 'one-shot case study approach' (Ghauri & Gronhaug, 2010, p. 68) as a potential limitation of the research study.

All students who undertook the postgraduate module on IHRM were invited to participate in the research which involved providing a copy of the reflective statement that formed part of their summative assessment for the module (with the other component being the design, production and delivery of a group podcast). The student groups were self-nominated and had a maximum of four students per group. All 143 students agreed to participate in the study; analysis of gender, age or ethnicity was not carried out.

Data analysis In addition to the scripting and recording of the group podcast, students were required individually to write a reflective commentary of not more than 1,500 words. No specific questions were set, students were invited to reflect on any aspect of the module focussing on knowledge skills and/or behaviour development, the reflection was to be supported by the adoption of a suitable framework. For this study, the researchers initially identified the statements that had specifically reflected upon the use of podcasts, these statements were then subject to content analysis.

The purpose of the analysis was to withdraw critical content from the statements which would provide valid material for the findings and subsequent analysis and the six-step approach suggested by McGivern (2009) was adopted.

- Organising the data,
- Getting to know the data,
- Getting to grips with the data,

Innovations in Education and Teaching International 331

- What is going on,
- Making links and looking for relationships,
- Pull together the findings.

Thus, in the first instance a mechanical analysis was conducted, in other words handling and sorting of the data, getting a feel for it, before moving on to intellectual analysis, by looking for patterns, themes or relationships consistent with those highlighted in previous studies. The analysis was independently carried out by both researchers who then came together to construct a consensus table.

Ethical considerations When using student assignments as a source of data collection, it was important for the authors to take guidance from the School's Research Ethics Committee at an early stage to ensure adherence with the University's code of conduct. It was agreed that participation would be entirely voluntary and that the research stage would only be undertaken once the authors' formal marking had been completed and moderated

by the external examiner. All students who had completed the module on IHRM received an email from the teaching team asking them to consider participating in the project and assuring them that this work would be carried out in isolation from the marking process. Potential participants were assured that their work was not being reviewed on an individual level and that the research team were interested only in identifying common themes and trends.

Findings Initial content analysis showed that 53 of the reflective statements submitted for analysis had made a clear and direct reference to podcasting and these were included within this study.

Using the approach suggested by McGivern (2009), the following recurring themes were identified:

- Prior attitudes about the use of podcasting
- Benefits of podcasting
- Transferable skills
- Pedagogy
- Future use of podcasting

Table 1. Breakdown of themes and number of supporting comments identified.

Theme	Number of supporting comments identified
podcasting	13
Prior attitudes about the use/benefits of podcasting	11
Transferable skills	16
Future use of podcasting	8
Pedagogy	15

332 *L. Powell and F. Robson*

Whilst a number of the comments straddled more than one theme, for simplicity, these were placed in the most 'appropriate' theme to avoid double-counting (Table 1).

Results and discussion Comments relating to prior attitudes about the use of podcasting were made by the students when the authors presented the assessment brief and interestingly none of them had previous experience of this phenomenon. This lack of experience or even exposure was evident in the expressions of anxiety made by some, with Student 2 commenting:

When we were initially informed that a podcast would be part of the assessment, I felt apprehensive as I did not understand what this entailed ... when undertaking the task I felt slightly daunted by the microphone and equipment; however I was put at ease by my fellow team members.

Other students, for example Students 24 and 43, respectively, explained their relief when they discovered it to be no more than 'the twenty-first century equivalent of a tape-recorder' and 'it turned out to be really simple, it was quite amusing that I had been worried about it'.

Interestingly, despite the lack of experience or exposure to podcast production a number of the students appeared to welcome this change of assessment strategy, with Student 13 commenting:

Upon learning about the assessment for this module, which included preparing a podcast, I was pleasantly surprised and looked forward to engaging in a new and refreshing method of assessment.

Benefits of podcasting Without being asked specifically to do so in the assessment brief, 11 comments focussed on the benefits of podcasting within the statements which were analysed. The authors focussed on comments related to increase in 'IT' or 'digital literacy skills' as highlighted by (Frydenberg, 2006; Lee et al., 2008, p. 502). The most commonly identified areas were as follows:

- Acquisition of technical skills
- Insight into new technology
- The use of podcasts as an information giving medium
- Increased confidence in using other modern media methods
- Learnt how to use Audacity software including the ability to edit and produce a quality final product.
- The ability to learn how to plan, script and record a podcast and then pass on knowledge to others in the workplace.

Transferable skills The highest numbers of themed comments were related to transferrable skill development with students directly relating this to participation in the podcasting assessment. The students cited:

- New insight into problem solving
- Creativity
- Negotiation
- Time Management
- Listening
- Relationship building
- Working in culturally diverse groups (teams)
- Writing succinctly
- Positive experience of team-working

The content of the reflective statements also suggests that a number of the students have already applied this knowledge and expertise in the workplace, for example Student 43 commented:

I was impressed at the ease of the podcast and I have since used this as a transferrable skill in my work as a communications manager. I have recently recorded speeches by my Chief Executive which are now on the intranet for staff unable to attend the CEO addresses. This has worked extremely well, especially in engaging staff who work at home or work alternative hours.

Additionally, some students suggested that there may be opportunities in the near future with Student 8 commenting:

I am exploring the use of podcasts as part of our induction programme; our induction booklet is available on the internet so

I am working with our IT department to scope the possibility of having podcasts from the executive within or linked to the booklet. I am also seeking permission to do a webcast or video diary.

Future use of podcasting Whilst the authors had hoped to evidence transferability in relation to current positions, it was interesting to note that students were also able to identify ways in which the knowledge and skills of podcasting could be utilised either in further study or future careers, with Student 35 stating:

The knowledge from making the podcast can be utilised for me currently and in the future. The experience from podcasting can be used by me for presentations. I am able to know how to design the structure and how to make links to other parts;

this enables my presentation to be more attractive for an audience.

This comment, along with others certainly, suggests that the skills developed particularly during the scripting process were transferrable across a range of situations as confirmed by Student 45: *Innovations in Education and Teaching International* 333

334 L. Powell and F. Robson

The practicalities of writing and recording a podcast have boosted my skills in writing succinctly, of recording to a time limit ... it made me learn to be more clear, precise, influential ... I believe that these are key skills not just for constructing a podcast but are directly transferrable to the workplace.

Of more interest to the authors were the comments related to the development of team-working skills, set against a backdrop of literature which focuses on the challenges and negativity towards working in multicultural or bicultural teams during higher education (De Vita, 2001, 2002; Cathcart, Dixon-Dawson, & Hall, 2006), it was encouraging to read positive comments, with Student 32 commenting

The group element (the production of the podcast) was one of the most important experiences I had during my student years. In participating I had the opportunity to cooperate with a group of people, from four different nationalities and cultures. To be honest, at first, I did not like the idea of working with individuals from different social and cultural backgrounds than mine. I thought that this "cultural difference" would have been an 'obstacle' to the successful completion of our task as it might have been difficult for us to communicate successfully ... but I was wrong ... I realised that working in a group of people from different cultures is a very important 'source' of experience.

The authors accept that on this module there is an emphasis on 'national culture' embedded throughout the taught content with an exploration of similarities, differences including a review of research into this area, however, delivery of pedagogic content does not automatically result in a move from tolerance of others through to acceptance but as Student 35 succinctly states

The most positive experience which I gained during the group-work element was that team-work is the key to success. I learnt that the exchange of ideas and views with others helped to stimulate my imagination and simultaneously made me become more open to considering problems from a different perspective.

Other comments in this regard were more basic 'I have learned how to work in a team effectively' (Student 38) and 'I have developed the skill of relationship building and group working' (Student 36) whether regarded as a highly positive experience or merely regarded as a facilitator to skill development for employability the authors were pleased to find such rich comments which appear to link the nature of the assessment with development of transferrable skills.

Pedagogy Given the 'non-directional' nature of the reflective statement, the authors were delighted to find so

many comments which could be themed under 'pedagogy'. Given the lack of literature exploring the benefits of podcasting as an assessment strategy and indeed the scepticism expressed by some colleagues when it was first mooted as an approach to be trialled, the key areas identified by the students were as follows:

- Increase knowledge
- Improve research skills
- Blended approach to learning

Innovations in Education and Teaching International 335

- Alternative assessment method
- Developed literacy skills
- Developed problem solving skills
- Promotes self-learning

Whilst a number of the students spoke about the tutors offering a 'brand new experience' (Student 15), the authors were aware that of the need to show academic rigour in the use of this approach, with Student 44 stating

I have learnt a lot about writing and constructing a script and have thoroughly enjoyed it as an alternative method to writing essays or reports. I have still had to research in order to pull together the information required for the script and podcast.

This reference to the levels of research required was also commented on by Student 52: At the outset, I thought this assessment sounded a fairly easy one to complete and I don't think I gave it the credit it deserved ... I think with this type of assessment, there is just as much work and effort required. I will certainly take a learning point from this!

Encouraging voice Perhaps, the most rewarding comments were those in which the students talked about 'voice'.

Podcasting puts a voice to my assignment and helps me avoid just being on paper' and 'Listening to our own voices in a podcast when we were speaking in such a professional manner made me realise how well we can learn if we have such different and productive ways of working within a team. (Student 32; Student 45)

With the last word on this from Student 53

I enjoyed working in this way, and think recording a podcast is by far a more effective learning experience than regurgitating literature back in an essay format. Talking about the subject is a more natural way to educate myself and others as when reading about the subject I was taking information in rather than being preoccupied with finding a relevant reference.

This is not to say that all comments were positive, two students spoke about the 'restrictive nature' imposed by the use of podcasting insofar as they felt limited to one or two of the module topics. The authors, whilst not dismissive of these concerns, point out that ten topics are covered during the module, with directed reading, extension reading, seminar activities and discussion for each with the pod- cast offering an option to develop 'deep' rather than 'surface' knowledge of an area of interest, the authors see the module content as a catalyst, there to tempt, excite and enthuse the students to want to explore further.

336 *L. Powell and F. Robson*

Conclusions The evidence in this paper suggests that learner-generated podcasts (where students have worked together in groups) are a useful method of assessment. The student participants have provided a range of examples of how they have benefitted from the experience and how they may be used in the future to add further value.

At this stage, the authors have listened to more than 60 group podcasts and have been surprised by the creativity and ingenuity shown by the students. Formats adopted have included 'Business News', 'Ask the Expert', 'Round-Table' and 'Question-Time' discussions with students adopting a wide-range of expert identi- ties. Topics from across the breadth of the module content have been tackled with CSR, Expatriate Failure, Recruiting for Overseas Assignments and Cross-Cultural Training as recurring themes, some students, however, have taken topical issues, for example The Chilean Mining Disaster as a context for exploring global health and safety regulations.

Despite the overwhelming evidence from both direct student feedback, external examiners feedback and the 'themed' comments, it is clear that any success in the authors' use of this medium does not come without potential implications; McLough- lin and Lee (2008) rightly point out the challenges faced by some students when they have access to too much information and lack the skills to be able to identify the most important (and credible). Whilst many of our students spoke positively about developing skills in writing succinctly, it is suggested that tutors may need to build this into programmes so that students can develop and benefit from these skills.

There are also potential implications for tutors as there could be culture shock if they are expected to include this type of strategy within their modules (McLoughlin & Lee, 2008) with no prior experience in using technology.

Within the methodology section, the limitations of using one case study organi- sation were identified, it would therefore be useful to replicate this research on a much larger scale and reflect upon the findings from this.

Future developments may be around students learning from each others podcasts using a more formal structure to share 'collective intelligence' (as defined by McLoughlin & Lee, 2008). IDG Global Solutions (2006) indicate that a further benefit, or good motivator, may be the opportunity to share their work with a wider audience.

Diversification of research methods could provide an opportunity to build upon the work of previous authors such as Copley (2007) by using a survey. If a survey were to be completed, a review of the areas covered by Churchill (2011) could be appropriate to move beyond learning on the programme and transferable skills to look at which components contributed to the learning.

Notes on contributors Lynne Powell is a senior lecturer in HRM and Learning and Teaching Co-ordinator at Newcastle

Business School. Lynne's research interests lie in the fields of cross-cultural management, international education and

diversity in pedagogy with a particular emphasis on the acquisition and development of cultural intelligence during

education.

Fiona Robson is a senior lecturer in HRM at Newcastle Business School, Northumbria University and National Series Editor for CIPD Case Studies Extra. Fiona is interested in the use of technology in the classroom, supporting students to develop transferable skills and enhancing students' employability prospects.

Innovations in Education and Teaching International 337

References Boud, D., Cohen, R., & Zhou, W. (2004). Peer learning and assessment. *Innovations in Education and Teaching International*, 24, 413–426. Brett, P. (2011). Students' experiences and engagement with SMS for learning in higher education. *Innovations in Education and Teaching International*, 48, 137–147. Carvalho, A. A., Aguiar, C., & Maciel, R. (2006). *A taxonomy of podcasts and its application to higher education*. 25 July, 2011, Retrieved from repository.alt.ac.uk/638/1/ALT-C_09_proceedings_090806_web_0161.pdf Cathcart, A., Dixon-Dawson, J., & Hall, R. (2006). Reluctant hosts and disappointed guests? Examining expectations and enhancing experiences of cross-cultural group-work in post-graduate programmes. *International Journal of Management Education*, 5, 13–22. Churchill, D. (2011). Web 2.0 in education: A study of the explorative use of blogs with a postgraduate class. *Innovations in Education and Teaching International*, 48, 158–159. Copley, J. (2007). Audio and video podcasts of lectures for campus-based students: Production and evaluation of student use. *Innovations in Education and Teaching International*, 44, 387–399. De Vita, G. (2001). The use of group work in large and diverse business management classes: some critical issues. *International Journal of Management Education*, 1, 27–35. De Vita, G. (2002). Does assessed multicultural group work really pull UK students averages down? *Assessment and Evaluation in Higher Education*, 27, 153–231. Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14, 532–550. Eynon, R. (2008). The use of the world wide web in learning and teaching in higher education: Rhetoric and reality. *Innovations in Education and Teaching International*, 45, 15–23. Frydenberg, M. (2006, November). *Principles and pedagogy: The two P's of podcasting in the information technology classroom*. Paper presented at the annual conference of Information Systems Educators, Dallas, Texas. Ghauri, P. N., & Gronhaug, K. (2010). *Research methods in business studies* (4th ed.). New York, NY: Financial Times Prentice Hall. IDG Global Solutions (2006). *Podcasting phenomenon: A discussion on the development of podcasting as a professional medium for learning*. July 25, 2011, Retrieved from http://www.schulmac.ch/documents/uploads/podcasting_phenomenon03oct06.pdf Lee, M. J. W., & Chan, A. (2005). Exploring the potential of podcasting to deliver module ubiquitous learning in higher education. *Journal of Computing in Higher Education*, 19, 94–115. Lee, M. J. W., & Chan, A. (2007). Reducing the effects of isolation and promoting inclusivity for distance learners through podcasting. *Turkish Online Journal of Distance Education*, 8, 85–104. Lee, M. J. W.,

McLoughlin, C., & Chan, A. (2008). Talk the talk: Learner-generated podcasts as catalysts for knowledge creation. *British Journal of Educational Technology*, 39, 501–521.

McGivern, Y. (2009). *The practice of market research* (3rd ed.). Essex: Pearson Education.

McLoughlin, C., & Lee, M. (2007, September). *Listen and learn: A systematic review of the evidence that podcasting supports learning in higher education*. Paper presented at the Student Experience Conference, Wagga Wagga, New South Wales.

McLoughlin, C., & Lee, M. J. W. (2008). The three P's of pedagogy for the networked society: Personalization, participation and productivity. *International Journal of Teaching and Learning in Higher Education*, 20, 10–27.

Mowl, G. (1996). *Innovative student assessment [Online]*. January 10, 2009, Retrieved from: <http://www.londonmet.ac.uk/deliberations/assessment/mowl.cfm>

Sharpe, R., & Benfield, G. (2005). The student experience of e-learning in higher education: A review of the literature. *Brookes eJournal of Learning and Teaching*, 1, 1–9.

Su, F., & Beaumont, C. (2010). Evaluating the use of a wiki for collaborative learning. *Innovations in Education and Teaching International*, 47, 417–431.

Wang, Q. (2008). A generic model for guiding the integration of ICT into teaching and learning. *Innovations in Education and Teaching International*, 45, 411–419.

Copyright of Innovations in Education & Teaching International is the property of Routledge and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.