

## **Do podcasts and screencasts enable or hinder independent learning?**

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### **Abstract**

Bespoke podcasts and screencasts were introduced to initial teacher training students to offer flexible support for specific assignments and aspects of classroom practice. However, tutors were concerned that these resources offered prescriptive guidance rather than encouraging more critical engagement. Feedback on the resources, collected from students using a variety of data collection methods, is analysed and discussed with reference to the findings from relevant research to clarify whether student responses to the resources reflect tutor concerns. Some students valued the bespoke nature of the tutor-designed online resources; for some, engagement with the online resources led to further critical engagement with their learning. The need to collect more diverse student responses is discussed, with a practical suggestion for improving the reliability of the study's findings. The study is relevant to course designers interested in exploring strategies, in particular the use of technology, to deepen student engagement.

### **Keywords**

Self-management; podcasts; screencasts; assignment support; online resources; critical engagement.

### **Introduction**

Student teachers on a UK Professional Graduate Certificate in Education (PGCE), distance learning programme are required to engage with the PGCE programme as both adult learners seeking academic accreditation and potential classroom practitioners in pursuit of the necessary teaching qualification. At different stages during the five term programme most students will express or be aware of having different learning needs both academic and professional in nature. Those who voice or share these needs express varying expectations of advice, support or guidance. As tutors, we adopt a socially constructivist approach when discussing academic or professional areas of learning. We seek to encourage students' independent learning through reflection, critique and reflexivity. Therein lies a dilemma. In a time-pressed, demanding programme with qualifications only attainable by demonstrating competency against prescribed standards (TDA, 2007) how do we seek to balance student and tutor expectations of independent learning?

Feedback from the student teachers indicated that some felt overwhelmed by the amount of reading and text-based study that was required. All the education studies materials for the programme are provided online. Although they are predominantly text-based, the materials include references to TeachersTV, diagrams and web links. Student feedback suggests this variety is appreciated. As tutors we saw an opportunity to expand on the use of non-text-based materials and to provide more bespoke resources that met the needs of the students more specifically. These resources had two explicit purposes:

- to clarify assessment requirements; and
- to support the development of professional skills, for example lesson planning.

This thinking led to some experimentation with audio recordings of tutor dialogues. The initial recording focused on addressing questions that students frequently asked about a forthcoming assignment. We became aware that as tutors we had an unspoken, tacit sense of what we were looking for in an assignment, which tended to be implicit in assignment guidance and the criteria. In our attempts to pay heed to Sadler's (1998) conclusions about tutors and teachers' tendency to have implicit expectations we sought to make the criteria more explicit and less tacit through our oral recordings. Our intention was to provide a resource that students could listen to and reach their own conclusions. On reflection, we realised that our initial recording tended to be prescriptive or advisory: we were, essentially, telling students how to succeed in their assignments and possibly adopting Loughran's 'directed approach' (2006:83).

With this in mind we have tried to develop a more discursive approach, demanding a more autonomous, analytical student response, while still addressing key points. We have subsequently recorded other tutor dialogues on assignments and aspects of teaching and learning that may be seen as more challenging, such as arguments for and against cross curricular learning. When we launched the tutor dialogues on the virtual learning environment (VLE) we invited student feedback on the dialogues' applicability and usefulness. Student feedback continues to be very positive. They particularly like being able to listen to a recording while doing other things and not having to find further reading time.

The potential 'bespoke' of the recordings also appeals to the students as they feel their particular queries are being addressed. In response to requests for further guidance on lesson planning we worked with an IT technician to record and develop a screencast, a narrated video with a tutorial objective. In this recording, tutors discuss improving an actual lesson plan while the edits are made on screen to the original plan, resulting in an improved final version.

## **Definitions**

### **Screencast**

Screen recording software that turns screen output into a video to teach an application or to promote a product by demonstrating features. Users can also make videos of screen sequences to log results for troubleshooting. Screencast programs may allow narration during capture, and advanced versions allow editing and annotation after the capture.

### **Podcast**

An audio broadcast that has been converted to MP3 or other audio file format for playback in a digital music player.

### **Webcast**

- (1) To send live audio or video to the user from a website. It is the Internet counterpart to traditional radio and TV broadcasting.
- (2) To send selected web-based information (text, graphics, audio, video, etc.) to Internet users based on individual requirements.

Source: The Computer Language Company Inc (2010) PC Magazine Encyclopedia, [www.pcmag.com/encyclopedia](http://www.pcmag.com/encyclopedia)

## Review of literature

### *Independent learning*

Although being an independent learner is necessarily a key requirement and a characteristic of effective distance learning students, it is often a tacit expectation (Read and Hurford, 2008). As noted by Rust, Price and O'Donovan (2003) students' inability to access tutors' tacit knowledge can cause barriers to effective learning. Our previous research (Read and Hurford, 2008) showed there is not necessarily a shared understanding between students and tutors of the concept 'independent learning'. According to Boud (1988), becoming an independent learner, regardless of the mode of study, requires the student to develop certain skills including:

- setting goals;
- identifying learning needs;
- determining criteria to apply to their work;
- engaging in self-assessment; and
- reflecting on their learning processes.

If we compare Boud's (1988) expectations with those attributed to online, distance learners the need for an autonomous and self-managing approach is reaffirmed. According to Dabbagh, successful online learners need certain characteristics including 'an internal locus of self-control' and 'self-directed learning skills' (2007:200).

However, in order to enable students' development as independent learners, described by Boud as a 'direction of change – towards self-reliance' (1988:22), tutors need to provide support and scaffolding (Boud, 1988; Rust, Price and O'Donovan, 2003; Sadler, 1998). If the aim is to enable independent learning akin to Boud's description, then arguably the nature of this scaffolding would seem to be important. Nevertheless, tutors may, as suggested by Sadler (2007), 'over-scaffold' when preparing students for assessment. This notion of teachers or tutors hindering student development as independent learners is similarly noted by Boud (1988). Therefore, it could be argued that these concerns may be particularly evident when tutors seek to support distance and online learners.

Tutors may have the best intentions when ensuring distance learners have access to relevant and detailed guidance and information about the course, assessments and complex issues related to practice-based learning. However, this may result in the provision of prescriptive and transmission-style online resources. With this in mind the purpose, development and provision of online resources for distance learning students appear to need careful consideration.

### *Provision for independent learners*

While Dabbagh's might be the preferable characteristics, they cannot be assumed, especially when students' choice of a distance learning course may be more focused on accommodating other commitments. Our experience echoes that of Rose et al. (2000) with most students citing lifestyle reasons rather than a preference for independent, distance and online learning when choosing this particular programme. This suggests a particular need to ensure online resources meet individual students' academic and practical needs. Boud's (1988) argument for student choice on how to engage with learning tasks echoes Garrison's (1997:22) argument that, where self-directed learning is the model:

*"...learners should be provided with choices of how they wish to proactively carry out the learning process."*

Within our distance learning context, in which the VLE is a central tool, these materials consist of a variety of electronically accessible materials.

Garrison (1997:22) suggests resources to facilitate self-directed learning

*"...should be available, approaches suggested, flexible pacing accommodated, and questioning and feedback provided when needed."*

These characteristics seem to address the academic and practical needs of distance learning students mentioned above. It could be argued that web-based or online resources, such as podcasts (digital audio broadcasts) and screencasts have these characteristics. The podcasts and screencasts prepared for the PGCE students are permanently accessible from the VLE, or they can be downloaded and listened to, or viewed on alternative devices, increasing their availability and portability. Students can pause, replay or choose to access selected sections of the recordings. Due to the discursive style of the recordings students are presented with a question and answer approach in an attempt to replicate tutor–student dialogue.

Arguably, these practical applications of technologically-enhanced resources demonstrate appropriate use of IT to facilitate learning with affirmation of their usefulness evident from student feedback. However, there is a need for caution – technologically-enhanced resources may be used to ‘over-scaffold’ student learning, so contradicting the aspiration to enable independent learning. Sprague and Pixley (2008:232) identify benefits of the podcast, noting that it allows

*“...students to easily review material for a test or to learn material they missed... [Such access makes] learning relevant outside of the classroom.”*

Similarly Robinson and Ritzko (2009:42) describe podcasts as:

*“...another tool for acquiring and reviewing information in addition to readings and lectures.”*

But in both these cases the suggested benefits of the podcast rest in the transmission and acquisition of material: Sprague and Pixley’s notion of making learning ‘relevant’ beyond the classroom seems a euphemism for ‘making material accessible.’ Light and Cox (2001:157) note this potential tendency to associate technology with distance learning and, crucially, ‘transmission ...models of teaching’.

This may be the case. However, as noted by Traphagan et al. (2010) there seems to be limited research into the relationship between online approaches to learning and the consequent impact on the learner. Research, where it has taken place, tends to focus on the **take-up** of online routes rather than the **quality** of learner engagement. Lebec and Luft’s (2007:5555) review of research into the effects of ‘web-based learning’, for example, suggests a tendency towards quantitative findings showing numbers of students who engage with this approach rather than qualitative data on the depth of learning it may elicit. However, they do identify findings that show positive effects of the use of web-based resources to support reflective engagement.

Mathison and Pohan (1999) note how student teachers appreciated the opportunity to review a lesson using web-based resources, in their own time, finding this approach facilitated more critical and reflective engagement. Traphagan et al. (2010:21) conclude that having access to web-based resources, including webcasts (screencasts), had a positive effect on higher education student learning. They argue this was due to the impact of the “cognitive theory of multimedia learning” where cognition is stimulated and enhanced through accessing sound and visual components simultaneously coupled with the facility to pace learning by pausing and reviewing. This study’s findings may not, however, have direct relevance to our own as it focuses on the effects of using webcasts as an **alternative** to attending lectures, while our online resources are **in addition to** face-to-face sessions.

### ***Learner-centred online resources***

The challenge is to find ways that technology, such as the podcast, can be used to develop “genuine human-presence-at-a-distance’ engagement” (Light and Cox, 2001:157). Wolcott (1996:23) argues that it is important that when the tutor and learners are “separated by time and/or physical space”, consideration should be given to “how to keep from further distancing learners in a psychological and social sense” and suggests that:

*“the learner-centred teacher encourages students’ personal growth and emphasises facilitation of learning over transmission of information” (Wolcott, 1996:25).*

Purcell-Robertson and Purcell (2000:16) acknowledge the “perception of inferior interaction” in distance education and suggest a range of strategies to address this including the establishment of “a learner-centred environment” (Robertson and Purcell, 2000:17). A key characteristic is the facilitating rather than performing role of the tutor: the tutor is the ‘guide on the side’ rather than the ‘sage on the stage’; in such learner-centred environments, “unexpected opportunities” arise allowing the tutor “to reflect on his or her instructional style and philosophy” (Repman and Logan, 1996:36).

However, Garrison and Anderson (2003:84) argue that:

*“Without personal affiliation or where expression is not open or risk free” the possibilities of student engagement are less likely. The “special challenge” in this context is to provide “social presence.”*

Although the links between social and cognitive elements are emphasised. The strategies which Garrison and Anderson (2003:85), suggest to consolidate the social element, including encouraging ‘lurker’ participation and a conversational over a more formal style particularly relate to asynchronous modes of learning. Nevertheless, the notions of affiliation and openness seem more generally applicable.

Commitment to Boud’s (1988) notion of an independent or autonomous learner requires some thinking about how a resource such as the podcast or screencast could be seen as deepening student engagement and understanding. Boud (1988:34) suggests that if:

*“...[student] autonomy is not a characteristic of a student which resides in a student the design and provision of the online resources we offer may need to reflect the ‘relational quality of student and task.’”*

Could the resources enhance traditional face-to-face learning and teaching, as Light and Cox (2001:156) suggest new technology can? As O’Donovan, Price and Rust (2001:84) note in relation to assessment, a:

*“composite approach...a framework of explanation, practice, discussion and exemplars [is required to] facilitate the development of a common understanding.”*

How might tools such as podcasts be used within this ‘composite approach’ to facilitate tutors’ and students’ journeys towards ‘common understanding’ of academic and practice-based learning without being prescriptive and transmissive?

## **Methodology**

Our approach to the Education Studies course on the distance learning PGCE is action research-oriented:

*“...[our] central aim is change and the emphasis is on problem solving in whatever way seems most appropriate”* (Thomas, 2009:112).

We are open with each student cohort at the start of the programme that we intend to respond to their feedback to develop more effective approaches and resources. The development of podcasts and the screencast over a two-year period are evidence of our attempts to be responsive. However, in order to evaluate the effectiveness of these resources we have sought more than quantifiable responses and have rigorously analysed student feedback, reviewing the findings of similar studies. This study contributes to our action research cycle as we seek to improve the efficacy and accessibility of our online resources.

The initial podcast was developed in response to students’ frequently asked questions (FAQs) on an Education Studies assignment about reflective practice. Four tutors initially discussed and identified a series of student-generated questions, choosing which ones to ask each other. While the tutors did not directly play the role of student and tutor in dialogue, the style of the discussion was based on our tutorial experiences with students. Student responses suggested this initial podcast was well received and assignments tended to indicate further clarity in student thinking about the nature and criteria of the assignment. However, the tutors were concerned by the FAQ approach as it could be seen to provide prescriptive guidance on the assignment, whereas innovative student interpretation would be valued. In further recordings, including one on a second Education Studies assignment, tutors adopted a more cautious and critically evaluative approach in an attempt to show how there could be varied ways to engage with the criteria and the nature of the assignment.

Once inducted by a technician into the use of the audio recording and editing program, tutors were able to manage their own recordings with little technical support. However, the idea of accompanying an audio recording with a dynamic visual resource, in the form of a screen cast, required a more sophisticated program and the skills and time of a technician. Feedback from a variety of sources including the PGCE students, other tutors and school colleagues hosting the students on school placements, indicated a need for further guidance on lesson planning. In response, a tutor wrote a weak lesson plan for a primary art lesson and a group of Education Studies tutors recorded their discussions on ways in which it could be developed and improved.

The discussions drew on prior learning and teaching on lesson planning in an attempt to contextualise what had already been reviewed and introduced as rationales for good practice. A revised version of the initial lesson plan was written reflecting the changes recommended through the discussion. The technician matched stages in the lesson plan's development with the tutor discussion using colour and morphing techniques to highlight changes. Students could download the initial and the revised versions of the lesson plan when viewing the screencast.

To elicit responses from a diverse range of students, tutors invited feedback on the podcasts and the screencast in a number of ways. In all these data-collecting situations, students were informed that their feedback would inform our practice and would be drawn upon anonymously for research papers and presentations. As the primary focus of the data collecting was to inform our practice and improve the student experience we felt we could 'justify [our] interest' (Opie, 2004:25). We did not feel it was appropriate to 'require' student feedback, so all student contributions were voluntary and were gratefully received. We sought to be sensitive to the possible effects on the students of our dual role of tutor (and thereby assessor) and researcher, reassuring the students of our intent by sharing how previous student feedback had informed our practice. We endeavoured to check student participation indicated 'informed consent' (Thomas, 2009: 149–150), being open and explicit about our motives and accessible for further queries.

Each podcast or screencast was accompanied by a tutor message asking students to email us their views on the resource's usefulness and their ideas for further developments. We hosted informal discussions at lunchtimes inviting student feedback on all aspects of the course but with a focus question directed at their responses to the online resources. Students were asked if they would agree to the discussions being recorded and extracts used to illustrate points in research papers and presentations. All students agreed to the recordings and their anonymous use for research purposes. In response to a programme focus on lesson planning we circulated a questionnaire to all students asking them to reply by email or by post if they preferred an anonymous option.

The student responses are recognised as being indicative and not representative of the student cohort.

## Discussion

Student feedback on the technology used suggests a number of advantages. The flexibility afforded by the permanent online accessibility of the screencast seemed to contribute to a sense of developing understanding. Student A notes:

*This is the second time which I've listened to it ... and I found it easier to relate to, now that I have had a go at producing my own plans.*

The comment also suggests the significance of contextualisation: the 'abstract' concept of lesson planning became 'real' once the student had experience in the classroom. While this is in line with Sprague and Pixley's (2008:232) suggestion that technology "allows students to easily review material", it seems to go beyond the notion of making learning accessible. The opportunity to coordinate engagement with the online resource with practical experience (such as a school-based placement) seems a significant factor. As Student B notes:

*The timing was handy because I've just settled down today to write some lesson plans for next week.*

Timing is also raised as a significant factor in relation to students' personal learning approaches. Student E notes:

*Whilst [assignment] briefing during sessions is beneficial, personally I do not digest information wholly. For me it is more beneficial to revisit the information at a time when I can digest the information to the best advantage.*

As "the distance education population as a whole [becomes] more heterogeneous or diverse" (Dabbagh and Bannan-Ritland, 2005 in Dabbagh, 2007:219) the provision needs to become more responsive. The web-based resources are bespoke in the sense that they were created in response to needs previously identified in student feedback. In addition, there is evidence that students have personalised their engagement, possibly facilitated by its online accessibility.

The design of the resource's technical features was also seen by a number of students as positive. Student B notes that:

*the ability to pause or replay parts of the discussion was useful.*

while Student D notes that:

*being able to see the plan change was so helpful.*

Furthermore, Student A comments on how the combination of visual and aural features facilitated their engagement with the resource:

*it was much easier to follow than a standard podcast as it was great to see the lesson plan changing as the discussion progressed.*

This is possibly problematic. If students assume a passive role the technology merely enhances the 'transmission model' (Light and Cox, 2001:157). However, the multimodality of the screencast appears to sustain the attention of some students. As Dabbagh (2007:218) suggests, multimodal environments:

*"...provide a variety of learning tools to cater to a variety of individual learning styles."*

While the technology might be a 'learning tool' in the hands of a skilled learner, one might question whether multimodality per se leads to learning. However, the suggestion that student attention is sustained is perhaps a first step towards deeper engagement.

The relationship between the student and the resource designer also seems to have significance. Student E notes that the podcast:

*gives students... more personal detail on what is expected from the assignment.*

This possibly relates to the clarity afforded by the focus on issues which the student might have difficulty with. As the resource designers and the course tutors we have a working knowledge of the students' needs and a clear idea of what the students need to demonstrate to achieve the learning outcomes: the tutor-designer's knowledge of the student is significant. This interpretation seems in line with Student F's comment that:

*listening to [tutors] speaking clears the questions for this specific assignment.*

This positive interpretation could nevertheless be undermined by the possibility that tutors adopt a 'directed approach' (Loughran, 2006:83) tending to be prescriptive and advisory.

On the other hand, 'personal' could refer to a sense of emotional connection with the tutor. Comments such as:

*nice and soothing, like the shipping forecasts late at night (Student C).*

*useful and reassuring (Student G).*

*better as I know the tutors involved (Student H) .*

suggest that student acquaintance with the tutor plays a role. This evokes Light and Cox's notion of "'genuine 'human-presence-at-a-distance' engagement'" (Light and Cox, 2001:157) and suggests that this connectedness might be a way to avoid further distancing distance learners (Wolcott, 1996). While similar generic resources might be available, engagement seems to be enhanced for some students by this connection. In a climate in which 'less teaching, more learning' is advocated in HE, it could be argued that access to generic online resources could provide a practicable alternative. However, the personalised, bespoke nature seems to have a significance that warrants due consideration.

However, some students' comments seem to indicate that engagement with the online resources leads to more critical thinking and learning. Student C notes:

*I find I can take useful notes as I listen. I also value the 'pause button'. It is surprising when you replay a pearl of wisdom only to find the earlier note taken did not catch the gist at all accurately: yes, quite a surprise that. It shows I don't listen as carefully as I thought I could.*

This illustrates the way in which flexible access through new technology can enhance generic study skills such as note-taking and listening as Light and Cox argue (2001:156).

Student C's emerging self-awareness around his developing listening skills resonates with Student I's self-evaluatory thinking:

*It made me really think about the things I am doing right with my lesson planning and the things I need to work on.*

Student D illustrates how her thinking has become more critical around questioning notions of 'best practice': in reference to the screencast discussion on possible approaches to a taught activity she notes:

*I also liked... the idea that modelling is not always the only way.*

This more critical, reflective engagement seems to be in line with the views of Mathison and Pohan (1999).

## Conclusion

Repman and Logan (1996:36) suggest that "unexpected opportunities" might arise for a tutor "to reflect on his or her instructional style and philosophy" and the limited range of responses to requests for feedback does raise questions. By further tailoring the resource according to received comments, we may risk creating something that suits some rather than all students. Indeed, the comments may come from a significant minority who are already able self-managers, and by responding to their comments we may further distance those students who most need materials such as these.

Perhaps a solution lies in embedding feedback on innovation within the course itself: by making viewing of the screencast a requirement, face-to-face sessions could pick up on strengths and weaknesses of design. Perhaps the encouragement of independent learning is not enough: some arm-twisting is necessary.

Nevertheless, analysis of student perspectives suggests a number of advantages of employing technology to construct effective learning tools for distance learners. The materials seem to have an intrinsically engaging quality: while we might question the extent to which this engagement is active, that students are engaged at all is unquestionably positive. In addition, the characteristics of the tools and materials themselves seem to hold implicit usefulness:

- flexibility of access allowing repeated and/or timely visits; and
- the possibility for manipulation of the materials during access.

At times this flexibility seems to facilitate student development of increasingly critical approaches. Arguably, all of these characteristics are intrinsic to the technology.

The personal element is perhaps the component that adds value to these intrinsic characteristics.

Comments suggest that our knowledge of the students, and our perceptions of their needs, allows for a more bespoke model. In turn, the students' familiarity with the tutors lessens the distance, providing that which Garrison and Anderson (2003) argue is key to student engagement: "social presence".

## References

- Boud, D. (1988) Moving towards autonomy. In Boud, D. (ed.) *Developing Student Autonomy in Learning*. 2nd edn. London: Kogan.
- Dabbagh, N. (2007). The online learner: characteristics and pedagogical implications. *Contemporary Issues in Technology and Teacher Education* 7(3): 217–226.
- Garrison, D.R. (1997) Self-directed learning: toward a comprehensive model. *Adult Education Quarterly* 48(1): 18–34.

- Garrison, D.R., Anderson, T. (2003) *E-learning in the 21st Century: a framework for research and practice*. London: RoutledgeFalmer.
- Lebec, M., Luft, J. (2007) A mixed methods analysis of learning in online teacher professional development: A case report. *Contemporary Issues in Technology and Teacher Education* 7 (1): 554–574.
- Light, G., Cox, R. (2001) *Learning and Teaching in Higher Education: The Reflective Professional*. London: Paul Chapman.
- Loughran, J. (2006) *Developing a pedagogy of teacher education*. London: Routledge.
- Mathison, C., & Pohan, C. (1999). An Internet-based exploration of democratic schooling within pluralistic learning environments. *Educational Technology* 39(4): 53–58.
- O'Donovan, B., Price, M., Rust, C. (2001) The student experience of criterion-referenced assessment (through the introduction of a common criteria assessment grid). *Innovations in Education and Teaching International* 38(1): 74–85.
- O'Donovan, B., Price, M., Rust, C. (2004) Know what I mean? Enhancing student understanding of assessment standards and criteria. *Teaching in Higher Education* 9(3): 325–335.
- Opie, C. (ed) (2004) *Doing educational research*. London: SAGE.
- Purcell-Robertson, R., Purcell, D (2000) Interactive distance learning. In Lau, L. (2000) *Distance Learning Technologies: Issues, Trends and Opportunities*. London: Idea Group Publishing.
- Read, A., Hurford, D. (2008) Opportunities for personalised learning: enabling or overwhelming? *Practitioner Research in Higher Education* 2(1): 43–50.
- Repman, J., Logan, S. (1996) Interaction at a distance: possible barriers and collaborative solutions. *TechTrends* 41(6): 35–38.
- Robinson, S., Ritzko, J. (2009) Podcasts in education: what, why and how? *Proceedings of the Academy of Educational Leadership* 14(1): 38–43.
- Rose, M., Frisby, A., Hamlin, M., Jones, S. (2000). Evaluation of the effectiveness of a web-based graduate epidemiology course. *Computers in Nursing*, 18(4): 162–167.
- Rust, C., Price, M., O'Donovan, B. (2003) Improving students' learning by developing their understanding of assessment criteria and processes. *Assessment & Evaluation in Higher Education* 28(2): 147–164.
- Sadler, D.R. (1998) Formative assessment: Revisiting the territory. *Assessment in Education: Principles, Policy and Practice* 5(1):77–85.
- Sadler, D.R. (2007) Perils in the meticulous specification of goals and assessment criteria *Assessment in Education: Principles, Policy and Practice* 14(3): 387–392.
- Sprague, D., Pixley, C. (2008) Podcasts in education: let their voices be heard. *Computers in the Schools* 25(3–4): 226–234.
- Training and Development Agency for schools (TDA) (2007) *Professional Standards for teachers*. London: TDA.
- Thomas, G. (2009) *How to do your research project*. London: SAGE.
- Traphagan, T., Kucsera, J.V. & Kishi, K. (2010) Impact of class lecture webcasting on attendance and learning. *Educational Technology Research & Development* 58(1): 19–37.
- Wolcott, L. (1996) Distant, but not distanced: a learner-centred approach to distance education. *TechTrends* 41(5): 23–27.