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Wikis, Blogs and Podcasts – Using Web2 Technologies in Teacher Education

Abstract
This paper presents a reflection on the infusion of Web2 technologies into a teacher education program. It explores issues surrounding the use of a range of Web2 technologies including wikis, blogs and podcasts. Web2 technologies are currently being taken up at amazing speed. This paper draws on the experience of using these new technologies in two units of a pre-service education course. As part of their assignment requirements pre-service education students were immersed in these new technologies as they grappled with issues to do with learning how to use these technologies as well as reflecting on how and why, or why not, they might use them in primary schools including the potential for democratic collaborative communities of learners. The opportunities the Web2 technologies afford educators as well as the consequences of such educational use of social technologies will be considered.
Introduction

School education places increasingly sophisticated pedagogical demands on graduate teachers including the need to be able to make decisions about how, when, and with whom, they should select and use new technologies in their teaching. These new read/write technologies go well beyond the form of the traditional printed page and read only web sites. When used effectively these new technologies have the potential to allow students to ‘speak’ to a world far beyond their local community. In doing so they can empower students to write and publish for a world wide audience, not just to be the audience (Wells, 2005 p.354). Our pre-service teacher education students (PSTE students) need to be able to support the children they teach to effectively interact in digital environments. Empowerment can be achieved by providing opportunities for school children to read digital texts, create digital texts, search, find and use information effectively and to be critical users of digital texts. In these tasks students will be navigators, transformers, interpreters and critical users, of digital texts (Green and Campbell, 2003).

In order to develop these understandings our PSTE students were required to engage with these new technologies as part of their assignment work. They grappled with issues to do with learning how to use these technologies, as well as reflecting on how and why, or why not, they might use them in primary (elementary) schools including the potential for democratic collaborative communities of learners.

What are these Web2 social software technologies?

Web2 technologies, or social software technologies including wikis, blogs and podcasts. They are often described as second generation read/write web (Web2), because they allow users to not only read these web pages but importantly to write and therefore contribute to these sites. Richardson calls them ‘A new world wide web’ (Richardson, 2006) which allows a far greater involvement and interaction between all users. In this way wikis and blogs are social collaborative environments.

- Blogs tend to be postings or messages organised in chronological order that are viewed in a chronological and linear format. They have commonly been used as online diaries and as spaces for intellectual discussion for both personal and professional purposes. They can contain links to other blogs, online sites or files.
- Wikis allow users to create a range of pages within a site and have the facility to setup a navigation system with links to other pages with the wiki. They allow rapid development and organisation of pages. Audio files, short videos and slideshows can be included. Links can also be made to outside sites and users can allow all users to add to or edit content or they can allow all to read and have selective access for a particular cohort of colleagues or friends. Wikis seamlessly and invisibly employ sophisticated wiki specific source code which the average user would not previously have had sufficient skill to use (see Kolbitsch and Maurer for a more detailed description of the history of wikis and blogs).
- Podcasts were initially thought of as audio on demand and started out as sound files uploaded to an Internet server. Some now include images and could be called vodcasts (videocasting) but the term podcast is now commonly used to include recordings which have both sound and images. Podcasts can be uploaded to blogs and wikis as well as podcast specific servers. Podcast specific servers podcasts allow users to gain access to these resources by subscribing to RSS feeds using software such as iTunes which can check for the latest podcasts from specific websites.

The development of the software for wikis and blogs has been an exciting development that has opened up the facility to publish online to the masses in the developed nations where broadband Internet access is now commonly available, at least in urban areas. Kolbitsch and Maurer describe them as “bottom up” environments in which ‘content and structure are not determined by professional, corporate information providers’ (Kolbitsch and Maurer, 2006 p. 189). They argue that the result is a ‘system where the knowledge of the community is “larger” than the sum of knowledge and experience of all individuals.’ (Kolbitsch and Maurer, 2006 p. 189).
Emerging Web2 technologies such as wikis, blogs and podcasts foster social constructivist (Vygotsky, 1978, Dwyer, 1996), collaborative learning environments that enable multiple learning styles and encourage the elusive concept of personalised, as well as collaborative, learning (Dwyer, 1996). Wikis can be collaborative spaces and provide practical applications such as allowing students to work in groups on a project, create a resource for others to use or to capture ideas for a policy or strategy. It can be seen from this description how the terms “social networking” and “social software” have been associated with these technologies. These technological resources can liberate and support the development of powerful and dynamic learning communities. Students can be involved in cross-sector, cross-state, national and international collaborative projects which foster a sense of place and purpose in a global community. Students of all ages learn best when immersed within a culturally and socially rich environment where learners and peers have the same goals. These technologies work well in classroom models that foster diversity, self-exploration and definition, meaningful participation in school and community (Deighton and Hocking, 1999 p.3). They can gain access to information sites such as Wikipedia, the Open Encyclopaedia and Wikibooks while employing Web2 technologies that empower educators and students to rapidly create and publish their own content. Students can use the new Web2 technologies to produce /player.html</URL></MDL></Cite></EndNote> (Pearce, 2006).

No longer do students or teachers require sophisticated web development skills or a special server to create and upload content to the Internet. Any user can now register with a blog or wiki site and use the online tools available in these sites to create web pages. Music, voice, video, and slideshows can also be included. Once pages have been created and saved in a blog or wiki, they are immediately available to the world. Friends or colleagues can be invited to contribute to a site without the need for special software tools or extra costs. Access to blogs and wikis is free to registered users as long as they are happy to accept the accompanying advertising or pay a small fee to exclude advertising.

Many university students are now familiar social networking online. Many regularly communicate online using online messaging systems and chat rooms communicating with others either in local or global contexts. Many are now likely to create their own social online spaces in locations such as MySpace, YouTube, or VoiceThread. The move is from the Internet being a medium in which information is transmitted and consumed into a platform, in which context is created, shared, remixed, repurposed and passed along (Downes, 2001). People no longer just look at sources of information but join and remix content in new and useful ways to suit their individual purposes. Technology software has evolved and is ceasing to be a content consumption tool and more like an authoring tool where individualised learning is created. This is reflected in the dynamic and ever-changing nature of the Internet. It has become a collective of constructed and reconstructed individual narratives.

The Literature
The academic literature in this area is fairly limited given the newness of these technologies. It is interesting that the medical profession has strong body of scholarly literature on this subject (Boulos et al., 2006, BMJ Editorial, 2006, Barsky and Purdon, 2006). The editor of the British Medical Journal describes the benefits of Web2 to his profession in this way:

What seems clear is that Web2 brings people together in a more dynamic, interactive space. This new generation of Internet services and devices - often referred to as social software - can be leveraged to enrich our web experience, as information is continually requested, consumed, and reinterpreted. The new environment features a highly connected digital network of practitioners (medical or otherwise), where knowledge exchange is not limited or controlled by private interests (BMJ Editorial, 2006 n.p.).

This topic also appears in more expected places such as the journals of computer science and academics who work in technology based spaces (Kolbitsch and Maurer, 2006, Journal of Universal Computer Science). Richardson (2006) published a text for educational practitioners that is written from a relatively practical but technical perspective. The Bermidje University provides an explanation of how ‘Blogs and wikis, because they are different spaces, manifest/take advantage of/engage different epistemic and rhetorical possibilities and serve different rhetorical and epistemic ends. They engage different rhetorics:
one topical, carved from the inside out [wikis]; the other chronological, staying on top of things’ [blogs] (Bermidje State University, 2005).

A review of the literature in the educational sector leads mainly to conference proceedings. Academics such as Northcote et al. (2007b) describe how they use social software in the form of podcasts with their university level students. Holt and Seagrave (2006) mention the potential for emerging technologies such as weblogs, wikis and podcasts to enhance e-learning. Cochrane’s research (2006) looks at how we might harness the potential of current and emerging social constructivist Web2 technologies to move beyond content delivery to personal publishing, ease of use, interactivity, collaboration, sharing, and customisation (Cochrane, 2006 p.328). Podcasts as the ‘next new thing’ (Dvorak, 2005) have recently been topics of interest and other academics have written about how at they are used in tertiary environments (Gregg, 2006, Chan et al., 2006, Dwyer, 1996, Pownell, 2006). Articles on school teachers’ use of Web2 technologies have been published in journals such as Practically Primary (Oakley, 2006, Edwards and Edwards, 2006, Northcote et al., 2007a).

Teaching the teachers

As a teacher educator in 2007, I worked with my colleagues to prepare our PSTE students so that they will in turn have the capacity to provide these sorts opportunities to the students they work with when they become practicing teachers. We introduced the PSTE students to these Web2 technologies by providing them with opportunities for empowerment by requiring them to read digital texts and create digital texts and to be critical users of digital texts. These are not isolated skills and understandings are developed while actively engaging with digital texts. In particular the process of creating digital texts helps the development of the ability to effectively interact with digital texts (read) and to be critical users of digital texts.

To do this we drew on the work of The New London Group who describe pedagogy as ‘a teaching and learning relationship that creates the potential for building learning conditions leading to full and equitable participation’ (The New London Group, 2000 p. 9). They see it as a “complex integration of four factors: Situated Practice, Overt Instruction, Critical Framing and Transformed Practice” (The New London Group, 2000 p. 32). This view of effective pedagogy acknowledges the value of learning experiences that include immersion as a community of learners whilst engaged in authentic versions of such practice (situated practice), supplemented by overt instruction and enhanced by teaching approaches that give rise to critical understandings (Fairclough, 1992). The new London Group warn that immersion in situated practices and overt instruction are notorious for rendering learners as uncritical users of texts (The New London Group, 2000 p. 32) so it was particularly important to build in an ongoing reflective process.

As The New London Group explain the four components of pedagogy they identify do not constitute a linear hierarchy but rather are components that are related and interact in complex ways. As a consequence we immersed our students in examples of the use of Web2 technologies as we presented the content of our units, engaged our PSTE students in situated practice throughout technology enriched tutorial time, providing over instruction where required while including ongoing discussions that facilitated the rise of critical understandings about issues surrounding the use of technology in primary school teaching.

We drew on the concepts of immersion/situated practice, overt instruction, critical framing and transformative practice which we believed would assist our students to learn about and with these new Web2 new technologies. We used a set of laptops that we have available to our faculty as well as an Interactive Whiteboard that had just been purchased. We showed them examples that school children had created and ones that we had created ourselves. We ‘invited’ the PSTE students into our own wiki spaces and blogs since these new ‘social softwares’ allow for collaboration. We prepared a class wiki space for them to use collaboratively during tutorials. This allowed the students experiment with the technology inside a wiki space that we had created specifically for them for this purpose. We showed them how we
used bookmarking sites like del.icio.us (Wells, 2007) in our work. We looked at school examples of podcasts (Apollo Parkways Primary School, 2006) before they created podcasts with sound only, and podcasts with images, during tutorials. These particular tutorials were very loud, noisy sessions where students were noticeably more physically active than during a more ‘normal’ style tutorial. The students experienced immersion/situated practice as they ‘played in the sandpit’, an approach which allowed for trial and error learning. This approach requires a totally non-threatening environment where all learning is celebrated and problems are seen as learning opportunities as students work as a community of learners.

Following an opportunity to ‘play in the sandpit’ we identified, through observation, particular aspects that some students (or occasionally the whole group) required overt instruction. In these cases we presented a mini lesson as required. This allowed us to target particular students who required specific support on a particular task rather than teaching the whole class how to do something most already knew how to do. Overt instruction was modelled and supported by ‘cheat sheets/how to’ instruction sheets and targeted mini lessons where required. Follow up reflections combined with the use of associated readings allowed critical evaluation based on the student’s experience of these spaces.

Finally the PSTE students were required to demonstrate their knowledge and understanding of the content unit by presenting it in a wiki, a blog or a podcast that they created. Many combined these technologies and some included other technologies that we had not introduced. Once they became interested many really flew with the idea. Even those who felt less than confident commented later that they had learnt so much from the experience that they felt much more confident to try them out during future teaching placements.

Lankshear and Snyder argue that the ‘critical dimension of literacy is the basis for ensuring that individuals are not merely able to participate … they are able to transform and actively produce it’ (Lankshear and Snyder, 2000 p. 31). Overt instruction lends itself well to the ‘how’ but critical framing is an important dimension that provides opportunities to address the ‘why’ and the ‘why not’. This is particularly important when creating digital texts. In this case we asked students to reflect on a range of issues from who owns the technologies, who benefits from our use of them, are there ways in which their use might be damaging for primary school students in any ways. A presentation by a local primary school teacher was particularly useful during this stage. In his online presentation John Pearce reflects on the promises and problems through his journey in the early use of blogs, wikis and podcasts with his primary (elementary) school students (Pearce, 2006).

Transformative practice happened through the development of the students’ assignments presented through the use of Web2 technologies as the students applied their learning in new or slightly different contexts. This allowed students to build on and practice previous skills and understandings, to revise and to apply what they had learned (Lankshear and Snyder, 2000 p. 35). One of the strengths of new technologies is that it allows texts to be saved and remade in different formats at a later time.

**How and why, or why not, they might they might use them in primary schools. What are some of the barriers to effective and appropriate use of Web2 technologies?**

Over the years much has been written about the barriers to increased use of any ICTs for teachers. According to the BECTA 2005 report, ‘Reported barriers included lack of staff time, insufficient equipment, ill-equipped rooms, and lack of support and guidance’ (BECTA, 2005 p. 36). These sorts of issues/barriers are still being articulated by practicing teachers in relation to the use of all forms of ICTs in schools. Lack of support and guidance is often related to teachers’ lack confidence and combines with concerns about lack of skill and loss of control of the classroom due to faults with the technology.

The new Web2 technologies overcome to a degree concerns about lack of skill. Given that most teachers now use basic word processing programs as everyday tools and commonly now use web browsers this should be less of a problem because the new Web2 technologies are accessed through web browsers and the tools for creating pages are very, very similar to those used in word processing programs, the chances
for success are becoming closer. Our PSTE students, who all use word processors and web browsers in their studies, were surprised how relatively easily they were successful in creating wikis in particular, and how their previous skills positioned them to work effectively in these digital environments.

What are the issues?

Teachers are better prepared to make informed decisions about effective and appropriate use of new technologies in their classrooms if they understand the possibilities and the possible pitfalls associated with its use. Fisher explains the dilemma in this way:

ICT has been much heralded as holding great potential value for the improvement of teaching and learning. However, a fallacy often arises when technology is discussed, being that things (and almost invariably beneficial things) are claimed to happen because of the technology. The role of human agency is unconsciously overlooked or deliberately omitted. This is referred to as ‘technological determinism’ (Mackay, 1991) … such technological determinism in education leaves invisible the work that teachers must undertake in order to use the technology to secure such improvements. A more relational view would see the technology as shaping human activity, but also being in turn itself shaped through human activity (Fisher, 2004 n.p.).

New technologies make new and different demands on teachers’ pedagogical practices. It is important for teachers to see the use of new technologies in the wider context of education and the development of young people who are able to analyse, synthesize and make informed judgements from their learning experiences. Lankshear and Snyder express concern that the infusion of technology into education can be viewed simplistically. They present the view that ‘it is still common for teachers to think of technology in terms of tools and implements … concentrating only on the tools or implements aspect of technology [that] can blind us to its important social and cultural dimensions. … This is not to say that it is wrong to identify technology with tools and applications and gadgets - only that it can be limiting’ (Lankshear and Snyder, 2000 p. 32). It is important to support PSTE students to understand the complexity of the consequences of educational decisions including decisions about the use of new technologies in teaching. New technologies provide new teaching and learning possibilities as they provide opportunities for students to engage in higher order thinking skills as they seek to transform information for their own purposes or conduct critical evaluations. Active learning requires the student to transform or customize the information to make it their own whereas inactive learning refers to activities such as electronic cutting, pasting and rearranging.

Other concerns PSTE student noted were around the advertising that is automatically placed on commercial wikis. (one example to view this is http://becsmulti-media-artefact.wikispaces.com/Planning+and+Managing+Literacy+Learning). In order to stop these advertisements from appearing on their wikis in particular, students noted that they would prefer to pay the small cost to keep them off their sites. They also identified not-for-profit sites such as those provided by edublogger and Wordpress – (see another student’s blog without advertising can be found at http://ecl201adelle.wordpress.com/). One student had paid the fees to stop the advertising but since he has not paid the latest fee and has not changed the permissions the site is unavailable to anyone - http://tobyswiki.wikispaces.com/).

Exploring the potential for Web2 technologies to promote democratic collaborative communities of learners

We found wikis provided the richest form particularly in terms of collaboration. Wikis provide a productive environment in which a range of people can add and edit content. As a consequence they lend themselves to become collaborative work spaces. In our tutorial we used simulations to expand the students’ experience. A mock wiki was set up and students were invited in to contribute to the site. Students could see changes as they were happening and see the consequences of certain types of behaviour. Things became friendly-competitive at times. These sorts of experiences proved fertile ground for lively discussion about what makes for effective collaborative learning communities and what sorts of
behaviours inhibit collaboration. Students did not always agree about these issues, but that was fine since reflection was the aim of the activity. This also led to discussions about whether blogs and wikis are the most appropriate forms of Web2 for particular purposes. Overall the students felt that each was suitable for different purposes but that wikis allowed for greater flexibility of use. They particularly liked the way Apollo Parkways Primary School used podcasts online (http://web.apolloparkps.vic.edu.au/) and the way wikis were used by John Pearce at Bellaire Primary School, particularly the class choose your own adventure style used for Terry the Tennis Ball - http://terrythetennisball.wikispaces.com/. They saw the latter as a purposeful activity in terms of an authentic and collaborative literacy activity with a meaningful audience and in its effective use of Web2 technology.

**A reflection of the infusion of Web2 technologies into a teacher education course**

Web2 technologies are currently being taken up at amazing speed. The opportunities the Web2 technologies afford educators as well as the consequences of such educational use of social technologies must be considered. Educators unfamiliar with such technology may have reservations about a lack of control when working in public spaces. Students may be exposed to points of view that are radically different to their own or to those of their parents, their school or their peers. Issues in regards to safety and the reality of cyber bullying must be clearly outlined to students. But as can be seen in the examples of school use of these technologies in schools it is possible to use Web2 in ways that address these issues. The reality is that these social technologies are changing the way we socialise and students are already using these technologies in work and recreation. The challenge of using these forms of technology effectively relies on the vision of the teacher.

Do these new technologies have the potential to improve students’ learning experience and improve learning outcomes? In order to determine this teachers have to review their assessment practices. Assessment plays a central role in the educational process. Educational assessment does not exist in isolation but should be aligned with instruction in order to enhance and support learning. The need for assessment in digital learning environments are in the similarly for diagnostic purposes, for formative, summative and self-assessment. Assessment functions range from a need to identify students’ prior knowledge as well as investigating and identifying incomplete understandings and future learning needs. Assessment in virtual learning environments needs to allow for demonstration of conceptual changes and growth in the students’ understanding during, as well as at the end of, the teaching and learning process. Educational assessment in digital spaces must allow students to identify what they have learned, to observe their personal learning progress and to decide how to further their future learning. As in other learning environments teachers must be able to give feedback and support to students, formulate judgements about the quality of assessment products and modify the curriculum and pedagogy as necessary.

Assessment of learning with the use of Web2 must be in forms that are closely related to the learning experience. The PSTE students realised that paper and pen forms of written assessment were not sufficiently appropriate to assess the learning that happened in Web2 environments. They came to the conclusion that they needed to employ a range of assessment techniques depending on what they wanted to assess. They decided that if they wanted to assess school student’s ability to comprehend digital texts then a digital reading comprehension task was suitable. If they wanted to assess the quality of a digital text created by a group of students, be it a wiki, a blog or a podcast, then the PSTE students determined that a scoring rubric that reflected the technological as well as the literacy demands of the task, developed in partnership with the school students, was the preferred solution.

One important outcome of this experience was the PSTE students’ understanding that, by creating wikis, blogs and podcasts, they became much more discerning and critical users of digital texts. The process of creating these texts informed the students in a highly meaningful way about the possible quality, or lack of quality and authority or lack of authority, of other digital texts they might encounter online. By creating their own digital texts they became aware of how easily these sites can be created and consequently were more likely to question the quality of the content they encountered online.
Consequently the PSTE students believed that this type of learning would be available to school children if they too were given the opportunity to create and/or contribute to wikis, blogs and podcasts.

Preparing future teachers

Pre-service teacher education students need a positive attitude and a willingness to engage and experiment with technology. They need sufficient skills and confidence in the use of new technologies to be able to support primary school students to develop the skills required to interact effectively with both the more complex literacy demands across all areas of the curriculum including the new technologies that will be part of these learning experiences as well as more traditional flat print based texts. PSTE students need to be aware of and confident in the use of an ever evolving language associated with new technologies. They need to have sufficient knowledge and skill to make judgements about when, how and with whom they should use a particular technology. The more experience they have with a range of technologies and the more confident they are about their decision making the more likely they will make appropriate decisions about its use with their primary school students.

Conclusion

Our current primary school students are growing up in the digital age. Their teachers need to encourage these students to be effective readers, innovative creators and effective and critical users of digital texts. To do this graduate teachers must be able to provide learning opportunities that include immersion/situated practice, overt instruction, critical framing and transformed practice where students create digital texts and use digital texts innovatively and effectively. They must be prepared, during their pre-service courses, to integrate new technologies into the teaching and learning environment where appropriate. They need to be able to make wise and informed choices, aware that sometimes older forms of texts may be appropriate at times and newer forms of texts more suitable at other times and they need to be open to opportunities to combine both the old and the new in complex and imaginative ways.

New technologies such as wikis, blogs and games, allow for web-based personalised adaptive teaching and learning environments. The holistic experiences with technology enable cognitive absorption through focused immersion, heightened enjoyment and control of the learning environment. In authentic contexts, students can be actively engaged in the learning process and internalise fundamental concepts of subject matter while developing skills such as reasoned judgement, creativity, collaboration, critical thinking and reflection. Although a challenging task, educational institutions and educators must adapt to these changes and provide students with the skills, attitudes and knowledge necessary in this information age. Our students came to the conclusion, though the reflective component of the program when they were analysing their use of digital texts, that what they want to promote is not technology driven learning, but technology enhanced learning. I will let one of the students have the last say. His last posting on his blog says:

Well, time to sign off this assignment. It has been an emotional week knowing that my assignment was coming to a close *sob*. It has been a lot of fun to be given the chance to make an assignment like this rather than having to conjure up a 2000 word essay. I know a lot have people have struggled with the technologies needed for this assignment, but I know they now feel that they have learnt valuable skills they will be able to use in the classroom. I saw this as an opportunity to show my flair and creativity and was rapt at not having to do another drab essay.

I have really enjoyed learning about all the uses for computers in the classroom in this unit and I am keen to incorporate them into lessons I am planning for my rounds.

I have also learnt a great deal about teaching literacy in early years’ classrooms, as shown by my postings over the previous 6-8 weeks. I really enjoyed the experience!!
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