



## Collaborative self-study supporting new technology: The Mahara e-portfolio project

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E-portfolios have long been used to support learning and development and to showcase achievement. This paper discusses a new and innovative use of e-portfolios which relates to the ways in which they can support collaborative research. The collaborative self-study which accompanied the implementation of an e-portfolio within a teacher education programme is described and then followed by discussion of three of its features. These were the value of the collaboration for supporting the deep understanding of a new technology, ethical issues for such a research study and the use of the e-portfolio environment as a data collection instrument.

Keywords: e-portfolios, research, collaborative self-study, teacher education, Mahara.

### Introduction

The constant stream of new learning technologies means that today, teachers, as well as students, are frequently having to take the role of online scholars. The idea of teachers as researchers of their practice provides opportunities for us to use research to underpin the development of new technologies. This raises the issue of the best methodologies that online scholars might use to support their implementation of new technologies, pedagogies and practice. This paper discusses a research methodology that was used to support the implementation of an e-portfolio which used the Mahara platform. The teacher researchers decided to adopt a collaborative self-study mode, which was facilitated through the features of the e-portfolio itself. The context for the study and the key features of this approach are described in this paper and the writers reflect on some of the key issues that arose, being the collaborative nature of the study, ethical issues arising and the use of the e-portfolio itself as a data gathering instrument.

### Background

The use of portfolios has long been a feature of teacher education as a way of documenting professional development and learning and meeting registration requirements. More recently, the development of e-portfolios has added a number of pragmatic advantages which include ease of use (e.g. collecting, searching and viewing), portability, the inclusion of digital artefacts, and ease of access, especially for geographically dispersed audiences (Challis, 2005). For students, e-portfolios can be used to provide evidence of their learning and development, showcase professional competencies, and to prepare them for life-long learning processes (Abrami & Barrett, 2005). The ability to reflect on practice, to make connections with theory and to link relevant artefacts to goals or outcomes, emphasises the constructivist nature of e-portfolios (Stefani, Mason & Pegler, 2007). The challenge for teachers is to embed them within courses in meaningful and authentic ways that includes reflection “to more deeply process their learning experiences while engaging in a behaviour valued by the teacher training community” (Evans & Powell, 2007, p. 201) and to use formative feedback and assessment processes to support learning and development.

The introduction of new technologies such as e-portfolios therefore raises academic development issues for teachers. Wetzel and Strudler (2005) identified the need for sufficient training and support, the need for small planned steps, strong commitment from teachers and technology people and clarity of purpose. However, they do not identify the role that collaborative research might play in introducing e-portfolios. Within the ICT literature, there are many accounts, especially insider accounts, of the introduction of new technologies which have been carried out through a research project. Donnelly (2006) reports a case study

of the introduction of blended problem-based learning for teacher education, and Cotterill, Aiton, Bradley, Hammond, McDonald, Struthers and Whiten (2006) provide an account of an action research approach for embedding an e-portfolio into a medical curriculum.

The traditions of action research in teaching settings have established the benefits of collaborative and participatory research processes where everyone's contribution is valued, where people work towards understanding of, and improvement of, their own practices and the research outcomes are useable and shareable by everyone (Cohen, Mannion, & Morrison, 2000). Self-study is one form of such research, and as a research methodology provides the opportunity to increase understanding of "oneself; teaching; learning; and the development of knowledge about these" (Loughran, 2004, p.9). Specific methods may vary from study to study, but the common element is the critical examination of the person's involvement in both the study and the phenomenon being studied (Mitchell, Webber, & O'Reilly-Scanlon, 2005). In the current study, it was clear to participating staff that all would need support if momentum were to be sustained, and the group decided that a collaborative self-study would be the best methodology for accessing and providing support, cataloguing progress and problems, and evaluating the success of the initiative. The collaborative component within self-study was seen as important as participants wanted to realise "the value of individually oriented self-study", the collaboration, "and their interrelationships" (Bodone, Guojo'nsdo'ttir, & Dalmau, 2004, p. 743).

## **Project description and methodology**

During 2006, the Tertiary Education Commission (referred to in the rest of this paper as TEC) in New Zealand, through its e-Learning Collaboration Development Fund, began the development of an e-portfolio project (Eduforge, 2006). Initially this comprised the creation of an open source platform for the New Zealand Tertiary sector, which was named Mahara. The project also included implementation of this new platform within a variety of tertiary settings. Participating organisations were required to carry out a substantive implementation within a degree programme, which was to be informed by the e-portfolio literature. Each implementation had to include more than 20 students, of diverse character. The use of the e-portfolio by students was to be both mandatory and optional and such use was also to be assessed summatively and formatively. Seven tertiary institutions were funded to implement Mahara under this project and one of them was AUT University. Participation in the project also required the completion of a case study evaluation based on teacher perspectives. The aim of the research was therefore to investigate and evaluate teacher perspectives of the implementation of the Mahara e-portfolio system.

At AUT University, the School of Education decided to introduce the e-portfolio to final year teacher education students across all (seven) papers. Details of the pedagogic design can be found on the Eduforge site (2006). Teachers individually determined their own approach to using the e-portfolio within a common goal of best achieving the learning outcomes for the course. However, none of the team (seven teachers and a flexible learning adviser) had any experience of e-portfolios and there was a wide range of confidence with technology and research methods, so we decided to also work collaboratively on both the implementation and the case study evaluation. This approach reflected the School's practice of collaboration in curriculum review and evaluation and also the philosophies of the team members who viewed knowledge as a socially constructed activity.

The TEC project provided a case study template and a questionnaire outline, but apart from that, it did not specify any particular research approach. We decided to embark on a collaborative self-study because we considered that its essentially democratic nature would encourage wider participation, ensure increased commitment to the project, produce more rigorous analysis and evaluation and better support everyone's professional development. By using this method, we became, in effect, both researchers and participants. We also obtained a three year ethics approval for the project.

Data were collected from a variety of documentary sources which included minutes of meetings, course documents and also from group and individual reflections. We also decided to use the e-portfolio platform itself as a research instrument, to more fully situate the research and the researchers within the actual e-portfolio context. This supported us developmentally, by enabling us to use the research process to more deeply understand the e-portfolio environment and to create an effective and efficient method of data collection for a team project over three years. We created a password protected e-portfolio for the project and all research team members were given access via the creation of views. One of the tools within the e-portfolio was a blog and we used this as our main method of data collection. The nature of the blog suited the reflective approach that we wished to take in considering the research questions. Each research question relating to the evaluation was established as a blog and all team members were able, at

any time, to write their thoughts, once or many times, in the blog. The blog also contained a feedback facility which enabled other team members to comment on the posts and, hence, co-construct our views and understandings of the technology and its pedagogic potential, or otherwise. At the end of the first semester of using the e-portfolio, group analysis and reflections were carried out in order to take advantage of the features of face-to-face discussion and to complement the more reflective blogging.

## **Reflections and discussion**

Three significant aspects of the self-study are discussed next. They are the value of a collaborative approach, ethics issues, and the use of the blog to gather data.

### **Value of a collaborative approach**

Our collaborative approach was a highly successful aspect of the implementation and the research project supported this. Accessing the literature enabled team members to use research and scholarship to understand the learning potential of e-portfolios and to consider how best to incorporate this new technology into their courses. The team was able to provide, collaboratively and individually, a rationale for students which was informed by the literature. Each teacher had a different perspective on e-portfolios and through their articulation of these, students were able to discuss differing positions and perspectives on this technology in relation to their professional development and lifelong learning. Part of the introduction to students of the e-portfolio included the research project and we were therefore able to model the concept of teachers as researchers, a practice of increasing significance in teacher education today. Because our experience of e-portfolios was not that much greater than that of our students, we were able, through the collaboration, to work alongside our students as a learning community of educators. This tended to ameliorate the usual power relations between us and students found this motivating.

The research process resulted in deeper analysis and evaluation of the technology and its use within the programme. The collaborative nature of the project meant that no teacher was an isolated 'lone ranger' and each teacher researcher had access to a wide range of perspectives which was especially important in the early phases as we developed our understanding of the learning potential of e-portfolios and considered their inclusion within our courses. The group face-to-face sessions supported the rapid development of ideas and intense interaction and exchanges of perspectives whereas the blogs supported a more reflective approach. We would recommend this use of different communication media to support collaborative studies to others. Highly frustrating for both students and researchers, was the inconsistent reliability of the technology and there were usability issues as well. Addressing these tended to interfere with our reflection and analysis and ultimately operated as barriers to our pedagogic understanding in this first implementation.

### **Ethics issues**

A number of issues arose which related to the innovative nature of the methodology. The university's ethics policy states that when an individual teacher is the only researcher and is the subject of research into their own teaching, then ethics approval is not needed. We considered that our collaborative self-study was similar. However, while collaborative participatory approaches to research were quite familiar, for example, action research, our methodology was somewhat of a novelty and was therefore scrutinised carefully through the university's ethics approval processes. The use of new technologies can raise issues for ethical committees as they familiarise themselves with ways in which the virtual environment might support research. However, there were no concerns around the use of a blog within the research, and perhaps this is a commentary on the pervasive nature of the Internet and, now, also, Web 2 tools in modern life.

Instead, issues arose around the collaborative nature of the project. Although there was no need to obtain consents from ourselves as participants, it was important to still show that participation was voluntary and this was done by documenting the introduction of the implementation and the consequent self selection process for the research project. We also needed to address the issue of dependent relations and possible conflicts of interest. Two of the team members had some responsibilities regarding others within the team, however, this was considerably ameliorated by the generally distributed nature of roles within the school. To avoid potential conflicts of interest, we agreed that the researcher who was in the dominant position (eg signing off leave) would hand the matter to another person outside the team to address. We also had to provide the Ethics Committee with a Collaboration Protocol. In essence, this documented that

participation was voluntary and members could leave at any time, that all members had access to the data and the right to publish under their own names for their own constituencies.

### Data gathering within the e-portfolio environment

The use of the blog to gather data proved advantageous in a number of respects. The asynchronous character and text based format well supported a reflective approach to the research questions. There was surprise at the freedom of communication that the blogs introduced, and researchers were able to go in at times convenient to them and then take their time to read, think and write a reflection. The feedback facility was, unfortunately, not used to any extent. The record of the blog data was and is very useful in that all researchers can easily access the data to support their scholarship and publications, as we are able to do for this paper, where one of the authors of this paper now works in Australia. The value of the record will continue across the project as it documents successive semesters of work.

The flexibility of the blog also created time management issues for some researchers regarding their blog entries. For some of the researchers, a lack of familiarity and confidence in communicating in a computer-mediated environment may also have been problematic. The issues raised here are very similar to those that are discussed in the literature regarding participation in online discussions (Gerbic, 2006). Unlike a learning management system, which is actively managed by the teacher, e-portfolios are controlled by the students, so unless teachers have their own e-portfolio, they will be less familiar with the technology and the demands of the environment. We have identified this as an issue to be addressed in the next implementation. Beyond the blogs, the e-portfolio can be more extensively used to support the research project. A wide variety of artefacts can be uploaded including text and media files, so that the e-portfolio will be able to document our development as well as being used as an ongoing repository for the project data and history for new members of the project.

### Conclusion

The collaborative self-study has been a key factor in achieving positive outcomes for the introduction of the Mahara e-portfolio. Without it, staff could potentially have felt isolated and retreated. The self-study was able to use the e-portfolio environment itself to support data gathering and the collaborative research process enabled the teacher researchers to experience and implement the new technology in a scholarly fashion and model good practice for pre-service teachers. The study methodology identified ethical issues which needed to be addressed and the challenges for the researchers of participating in, and fully using, the reflective and interactive potential of the blogs. The collaborative nature of the research process ensured that we as teacher-researchers persevered, especially in the face of recurring technology issues. We therefore recommend that new technology implementations not only be carried out in teams but, also, that a collaborative self-study accompanies them. We would, furthermore, recommend that future online scholars consider e-portfolios as a methodological support for their research.

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