ePortfolios to Scaffold the Development of Reflective Practice in Bachelor of Education Students

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Abstract: ePortfolios are increasingly used throughout all levels of education around the world. To date, this is primarily as an assessment tool. Many of the open source and commercially available platforms, provide the opportunity for educators within these settings to scaffold learning of students. This paper outlines an initial implementation of a teaching environment within the PebblePAD platform with 4th Year Bachelor of Education students. The aim of the implementation was to develop a system of scaffolded teaching to assist students to complete an action-learning project and develop abilities to reflect more deeply.

Introduction

Reflection is considered important for lifelong learning and the ongoing professional development of teachers (Yost, Sentner, & Forlenza-Bailey, 2000). The Western Australian Department of Education and Training (Department of Education WA DET, 2007) has reflection as one of the competencies for beginning teachers and many areas of education espouse the value of reflection and reflective practice (Bryant, 1996; Elliot, 2007; Gun, 2011).

Particularly in teacher education courses, pre-service teachers are asked to reflect at all stages of their training (Spalding & Wilson, 2002). In the experience of this researcher however, the need for reflection has been highlighted to the students and they complete reflective entries from implementation of practical placements and reviews of particular activities to pass assessments, but no emphasis is placed on the process of using these reflections for future planning. The implementation encountered has very much been an on-action (Schön, 1983) approach where an entry is recorded after an experience. For ongoing development, it could be argued that a more in-action (Schön, 1995) approach is required. The in-action process requires thinking at the time of the ‘surprise’ to implement change (Schön, 1995, p. 30).

With the increase in the use of technology in teaching for internal, external and blended learning approaches, environments may provide the platform for the development of some of these in-action reflective abilities. A model proposed for the development of eLearning environments is presented by Phillips, McNaught and Kennedy (2011). This framework allows for cycles of implementation and review of the teaching environment as a means of developing a complete learning platform for students. This model is based on the ideas of both action (McNiff & Whitehead, 2006) and design-based research (Hoadley, 2004) to give a practical framework for the development and review of electronic learning environments.

For this case study, an adapted version of this model is being applied within the ePortfolio platform of PebblePad. The participants involved are 4th year Bachelor of Education students who are completing their final year of study. The students are required to complete an action-learning project towards improvement in a chosen area of their teaching practice. The project involved practical implementation of the research in a teaching setting with evidence and assignment submission recorded in the electronic platform.

PebblePad was chosen as the platform as it was already used within the university and being trialled in the unit. The PebblePad environment itself was originally designed to enhance reflection (http://www.pebblepad.co.uk). This ePortfolio allows for students to use a private workspace to record all their experiences, reflections and evidence and share the sections of their work with others. The platform also provides a space for the sharing of resources and management of submitted assessment items.
This paper reviews the initial iteration of the research that was the development of the learning environment for trialling with a teaching cohort throughout 2011. The results at this stage are based on the reflections of the first author. Student perspectives are represented by the researcher’s recall of informal conversations.

**Literature Review**

Reflection as a concept has been around for a long period of time in many areas including education (Dewey, 1933). The challenge is to clearly define what reflection is, and to effectively teach the skills involved with reflective thinking and writing. This case study is looking at reflection that requires active involvement and a focus to review practice in terms of existing knowledge and evidence (Dewey, 1933). There is a need for reflection because in the future, “schools will be restructured communities of learning requiring empowered, [and] reflective decision makers” (Colton & Sparks-Langer, 1993, p. 45). With the rapidly changing global climate of today, there is a need for lifelong learners who are able to reflect on their abilities and make changes with these times (Yost et al., 2000).

In planning to facilitate the development of reflective abilities, there needs to be a clear definition of the purpose of the reflection so that clear guidelines can be provided for how to complete the process (Spalding & Wilson, 2002). Then there needs to be decisions about what type of presentation format the reflection will take whether it be action research projects (Zeichner & Liston, 1987); activity sheets (Pee, Woodman, Fry, & Davenport, 2002) or writing experiences (Yost et al., 2000). Programs cannot be reviewed and evaluated without some form of documentation to demonstrate that they are doing what they intended.

The format for the reflection in this case study is an action research project that the students were to complete in an ePortfolio platform. ePortfolios have been found to foster reflection (Peters, Chevrier, LeBlanc, Fortin, & Malette, 2006) as well as provide an authentic assessment tool to identify the capabilities of students to link theory to practice (Plaza, Draugalis, Slack, Skrepnek, & Sauer, 2007). The use of ePortfolio is an important component of the methodology of this research.

**Methodology**

The methodology chosen for this research is a case study approach implementing the eLearning Lifecycle model proposed by Phillips, Kennedy, & McNaught, (2011). The framework is a crossover of action research (McNiff & Whitehead, 2006) and design-based research (Hoadley, 2004) in that it has a cyclic implementation of research but also works within a set framework towards a specific outcome.

The model as shown in Table 1, develops and trials the environment as a process of ongoing improvement. This paper recounts a summary of implementation from Cycle 0 – defining the problem to Cycle 2 – refining the design.

<table>
<thead>
<tr>
<th>Cycle</th>
<th>Analysis</th>
<th>Design</th>
<th>Develop</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>Analysis of problem</td>
<td>Implement</td>
<td>Questions to ask</td>
</tr>
<tr>
<td>1</td>
<td>Design e-learning artefact</td>
<td>Documentation</td>
<td>What is the problem and how can we solve it?</td>
</tr>
<tr>
<td>2</td>
<td>Refine design</td>
<td>Develop e-learning artefact</td>
<td>How good is the design?</td>
</tr>
<tr>
<td>3</td>
<td>Refine problem analysis</td>
<td>Design e-learning environment which embeds e-learning artefact</td>
<td>Develop e-learning environment</td>
</tr>
<tr>
<td>4</td>
<td>Refine design</td>
<td>Revise e-learning environment</td>
<td>Pilot</td>
</tr>
<tr>
<td>5</td>
<td>Refine problem analysis</td>
<td>Revise e-learning environment</td>
<td>Deploy to students (full trial)</td>
</tr>
<tr>
<td>6</td>
<td>Refine design</td>
<td>Revise e-</td>
<td>Deploy to</td>
</tr>
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</table>
The identification of the problem within Cycle 0 is the need to help students to develop reflection. The importance of reflection is made clear in much of this literature and the need for a more focused approach to the ‘teaching’ of this (Gun, 2011) may be developed using an ePortfolio platform.

There has been an increased focus on the use of ePortfolios around the world with the movement being driven by pedagogical shifts, the increase in the abilities of available technology, the push for accountability of students and the fluidity of employment (Clark & Eynon, 2009). The increased use has fuelled the debate as to whether ePortfolios are a learning or assessment tool (Barrett, 2005) but it has emerged that there are several key or ‘threshold concepts’ that need to be considered for ePortfolio programs. These include a clear purpose for the ePortfolio; activities that were designed to incorporate the platform rather than it being an add-on; technological and pedagogical support for the process; ownership for the ePortfolio holder; and that there needed to be disruptions to the current practice for meaningful change to occur (Joyes, Gray, & Hartnell-Young, 2009).

The ePortfolio platform allows for more sophisticated and diverse information to be included than a paper based portfolio (Hauville, Harper, & Thelander, 2009). It is also useful in increasing efficiency, enhancement and transformation of this information (Joyes et al., 2009). To make use of this technology, students need structured support (Lamont, 2007; Shepherd & Hannafin, 2011) and to be taught the skills for the development of reflection within the system (Morimoto, Ueno, Kikukawa, Yokoyama, & Miyadera, 2008).

Throughout Cycle 1 of this case study, the ePortfolio options of PebblePad were explored. PebblePad is designed as a Personal Learning Space (University of Wolverhampton, n.d.) for individuals to develop their reflections and as such much of the development of the environment has already occurred. The PebblePad platform was new to the students and they were reluctant to try new technology especially in terms of their current workloads and the fact they were in the final stage of their study. This brings the need to add to these existing structures within PebblePad to make it more relevant to the students’ use.

To achieve this, prompts were planned for the resources section of the ‘Gateway’ within PebblePad. These prompts provided students with access to ideas from the literature on how to develop reflective abilities and to encourage active involvement in the process (Zeichner & Liston, 1987). The students were directed to these and asked to complete them as a means of improving their engagement in the process and enhance their ability to reflect on their experiences. The prompts were planned and implemented at various stages throughout the semester based on requests from the students and included outlines for their assignment submission.

At the end of the teaching period, the unit co-ordinator, tutors and the researcher reviewed the environment based on the students’ results and general feedback. From this, recommendations were made for changes to the environment. This review process was the implementation of Cycle 2 of the lifecycle model – refining the design.

**Results**

The findings from this iteration are based on the researchers reflections on the process as well as feedback from discussions with the tutors within the unit. Some of the reflections came from interaction with the students throughout the process but no interviews or recordings of students viewpoints were completed at this stage.

The activity prompts included in this implementation came from student requests and included items directly related to the required submissions. Table 2 outlines each activity and the purpose behind its inclusion into the ePortfolio teaching environment.

<table>
<thead>
<tr>
<th>Activity Prompt Implemented</th>
<th>Planned Purpose</th>
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<tr>
<td>What? So what? Now what?</td>
<td>The students were asked to answer these questions to get them thinking about their projects and using the platform for recording ideas.</td>
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<tr>
<td>Blog as a Reflective Journal</td>
<td>For his or her research, each student was encouraged to keep a reflective journal. This prompt provided instructions on how to set this up as a blog in the ePortfolio.</td>
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Table 2: Activity Prompts implemented

<table>
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<tr>
<th>Activity Prompt</th>
<th>Description</th>
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<tbody>
<tr>
<td>Webfolio example</td>
<td>The students were concerned with the overall use of the platform, so an example of a completed ePortfolio was shared with the students to provide an idea of what they were aiming for.</td>
</tr>
<tr>
<td>Action Plan template for planning the research process</td>
<td>This prompt involved the outline of the first submission and the ‘asset’ format to use within the PebblePad platform.</td>
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<tr>
<td>Uploading files</td>
<td>These instructions prompted the students to collect all their evidence together and store it within their Personal Learning Space to be able to access it later.</td>
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<tr>
<td>Asset type exploration</td>
<td>Here the students were encouraged to spend time within the platform to see what was there and think about how they could use parts for their assignments and other reflections.</td>
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<tr>
<td>Annotated Bibliography Instructions</td>
<td>This was a guide to completing an annotated bibliography within an ‘experience’ asset to use as evidence.</td>
</tr>
<tr>
<td>Rationale Outline</td>
<td>This prompt was the set of instructions for completing and submitting the second assignment.</td>
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<tr>
<td>Assets for Evidence</td>
<td>Following from the exploration, this prompt encouraged students to explore the specific ways to present their evidence.</td>
</tr>
<tr>
<td>Tagging Instructions</td>
<td>Once the student’s evidence was collected, this prompt provided guidance for organising the assets with the tag function within the platform.</td>
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</table>

As can be seen from Table 2, the focus was on the actual submissions. The students used these prompts to complete the four assigned submissions, and many of the prompts were involved in the collection and inclusion of a range of evidence types that students could collect for their projects. As the PebblePad platform was new, many of these prompts were focused on the ‘nuts and bolts’ of the environment and how to use it for the required formats and inclusions of submissions. This concentration on the practical aspects and lower-level thinking skills highlighted a major concern with this case study that needs to be addressed.

Another key problem with this iteration was with the submission of the plan for the first assignment and the confusion regarding the headings that were used in the platform. The plan assignment required the students to outline their research using the areas of Strategies; Why they chose that focus; Opportunities to implement their research; and what Evidence they would collect. The template within PebblePad for the action plan used the SWOT format of Strengths; Weaknesses; Opportunities and Threats. This format could not be changed within this version of the platform, which resulted in confusion for both the students and tutors when it came to assessment. Some students had followed the PebblePad template headings that led them to miss sections of the marking criteria. Others had followed the prompted model but the tutor was confused when it came to the marking. This had an impact on some students’ overall view of the platform.

The other templates within the PebblePad platform that were used to complete assessments were more closely linked to the task and gave strong scaffolds to the students for their rationale and progress report submissions. The final report submission within the webfolio template also appeared to be well structured and the model gave clear guidelines to the students. As with previous years where the support was not there, the range of results indicated a variation of student abilities.

There did not seem to be any significant increase in the level of student’s reflections within their final reports and in fact some of the teething issues involving the platform and confusion around some of the headings actually detracted from the students writing skills. The usual variation of grades seemed to occur among the cohort of students and although the final webfolios were presented more effectively than they had been in previous years, the improvement was in the area of the aesthetics, the formatting and the linking of evidence that may have come from having a strong model to follow.

Discussion

The results from this iteration showed that the PebblePad platform was effective in providing an environment within which the students could reflect on their action-learning projects. The ‘Gateway Resources’ section allowed students to access the prompts as scaffolding within their action learning projects. From the researcher’s point of view, students appeared to engage with the activities in terms of the required assessable items rather than a means to develop reflection as a set of skills in their own right. The focus was on submissions and what was required for those, which meant that the interaction was still based
on the ePortfolio being used for assessment (Hauville et al., 2009) rather than as a tool for ongoing professional development.

The requested prompts outlined in Table 2 show the students focus on the actual submissions and the requirements of working in an unfamiliar environment. The use of a platform outside their comfort zone appeared to impact on the student ‘buy-in’ (Plaza et al., 2007) or engagement with the process. A contributing factor within this was the timing of the introduction of the ePortfolio platform and the additional prompts. The students were in their final year of their degree and much of their attention appeared to be on preparation for their final practicum placement. The cohort was not satisfied with the demanding task of using the ePortfolio and conducting action research at the same time. The students did not appear to make the links between the skills that they were developing through the action-learning project and the electronic platform to the reflection required for their upcoming placement.

To assist students to reflect more deeply, the researcher consulted the literature. The two primary discoveries from this investigation were the framework for teacher reflection developed by Colton & Sparks-Langer (1993) and the enculturation teaching model proposed by Tishman, Jay, & Perkins (1993). The Framework for Teacher Reflection (Colton & Sparks-Langer, 1993) provides a clear model that not only looks at the skills and abilities of reflective practitioners but also the less specific attributes that signify the reflective thinker. This model discusses (1) action in terms of an action research style of approach to developing reflection; (2) constructing knowledge and meaning in relation to choosing an area of focus and discussing this with others and; (3) the professional knowledge base that consists of the background of the reflection and the context in which it occurs. The model also identifies attributes of reflective thinkers, which lead to the identification of the proposed teaching model.

The enculturation teaching model (Tishman et al., 1993) was designed for use in developing the dispositions of thinkers. The model proposes an environment that (1) provides examples of good practice; (2) provides focused activities to develop the skills involved with the dispositions; and (3) allows for interaction among the participants. The PebblePad platform can accommodate this style of teaching environment within the ‘Gateway’ so this could be a useful guide for implementing a more focused environment. The prompts or activities would come from the sections of the Colton and Sparks-Langer (1993) framework within an electronic enculturation teaching model.

**Conclusion**

This paper has reviewed the first stage of a case study implementing the eLearning lifecycle (Phillips et al., 2011). This involved the identification of the problems arising from trying to develop reflection in pre-service teachers and the scaffolding of the skills required to reflect.

The PebblePad environment allows for reflection to develop and the prompts appeared to work on a practical level. The review from this case study suggests that there needs to be a clear framework within which these prompts are planned. The activity prompts provided were led by student feedback and on review these were firmly based in the use of the ePortfolio as an assessment tool. The pre-service teachers were looking at the immediate picture of what would get them to the end of the unit and their action research projects within the platform rather than the development of lifelong skills and attributes of reflection.

The new model of planning the prompts within the Colton & Sparks-Langer (1993) conceptual framework and extending the environment to provide an enculturation teaching model (Tishman et al., 1993) holds promise for a more substantial focus on the development of the disposition of reflective thinkers for the future.

The next phase of the research is the trial of the environment with these extra prompts in place and with a stronger focus on reflective practice as the starting point for the planned prompts and activities. The use of these frameworks may fulfill the goal of a planned environment that develops reflection in pre-service teachers and also guides the possible development of other eLearning environments based on the teaching model.
References


