INTRODUCING DEVELOPING TEACHER-STUDENTS IN A DEVELOPING CONTEXT TO E-PORTFOLIOS

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Abstract

The requirement for continuous professional development for in-service teachers is no longer a choice but an imperative in South Africa. The School of Continuing Teacher Education (SCTE) at the North-West University (NWU), Potchefstroom Campus can no longer ignore the advances e-learning for the training of its approximately 28 000 off-campus students. Elsewhere in South Africa, e-learning is profitably used for teacher education and many argue that it could improve the quality of life as well as education in rural and remote areas. With the promulgation of the White Paper on e-Education in South Africa (2004), e-education has become an integral part of teacher education. SCTE should now develop an e-learning strategy that will serve all our students in terms of continuous professional development, as well as to enhance students’ teaching and learning practices. The introduction of an e-portfolio is a first small step in the direction of integrating learning technologies to students used to a knowledge transfer approach. This initial case study presents the context, as well as some barriers to the implementation.

The South African Context

South Africa is a nation of 47.4 million people of diverse origins, cultures, languages and beliefs. Around 79% are black (African), 9% white, 9% coloured and 2.5% Indian (Asian). The total land area of about 1.2 million square kilometres is divided into nine provinces and just over half of the population lives in cities. South Africa is a multilingual country recognising eleven languages as official. Most of them are indigenous to South Africa: isiZulu is the mother tongue of 23.8% of South Africa's population, followed by isiXhosa at 17.6%, Afrikaans at 13.3%, Sepedi at 9.4%, with English and Setswana each at 8.2%. This means that around 40% of the population speaks either isiZulu or isiXhosa. Various other African, European and Asian languages also abound (South Africa.info, 2006). Although national spending on educational is about 23% of the BNP, poverty still challenges. Although many schools have sub-standard facilities, many fewer “schools-under-trees” provide the primary education. Approximately 40% of schools are classified as poor or very poor. Of the 26 292 South African schools, approximately 60% have electricity and 67% have telephone lines (Department of Education, 2006). Consolidating these statistics, approximately 20% of schools meet the three basic prerequisites: telecommunications connectivity of grid electricity, exchange telephone lines and two or more computers (Holcroft, 2004).

Background of the Study

The School of Continuing Teacher Education (SCTE) at the North-West University (NWU), Potchefstroom Campus, South Africa, in co-operation with the Open Learning Group (OLG) as logistic collaborator, provides opportunities for practising teachers to upgrade their teaching qualifications through off-campus training. Teachers who live in remote and rural areas often find it difficult to attend scheduled classes at traditional campuses. They are therefore trained through an open-learning approach of course delivery.

During 1994 the South African Department of Education challenged Higher Education Institutes in South Africa to upgrade the 85 000 unqualified and under qualified in-service teachers. The NWU responded with SCTE and an open-learning approach. The SCTE profile shows a well-established institution that annually enrols about 28 000 teacher-students throughout South Africa and Namibia. SCTE consists of comprises thirty full-time faculty, thirty administrative and support staff members, as well as 300 part-time faculty (facilitators of the National Professional Diploma in Education
SCTE is committed to continuous evaluation of quality delivery strategies and requested an international audit in 2007. The evaluation panel from the Open University of the United Kingdom pointed out that they “envisaged assessment practices that were directly centred on the influence of the programme on student learning in the classroom … and … a move to an increase in portfolio assessment would improve the attrition rate as teachers are able to complete relevant school tasks when ready; improve quality of pupil learning as the programme content impacts directly on pupil learning; and can be cost effective for all parties, students and programme managers, as the need for examination provision is reduced without compromising standards” (Banks & Knight, 2007).

To meet this requirement, SCTE combined the continuous assessment of two courses from the ACE (Professional and Curriculum Development), EDTM 514 (Lesson Planning, Preparation and Presentation) and EDTM 515 (Assessment and Learner Achievement) as a paper-based portfolio assessment. This portfolio includes school-based activities validated by the school principal, school-based observations by colleagues (peers), self-assessments by the teacher-students, as well as coursework-based assignments assessed by faculty. At the end of the courses the teacher-students ship their voluminous paper-based portfolios over large distances to the SCTE at the NWU, Potchefstroom Campus for final assessment. About 800 teacher-students enrol per course and due to the number of bulky folders, assessing teacher-students portfolio is tedious and slow, impairing the effectiveness of the assessment process.

Aim of this Investigation

This initial investigation intends to explore e-portfolios as an alternative to the voluminous paper-based portfolios in order to provide evidence of teacher-student's continuous professional development. The researchers aim to pilot an initial design of an e-portfolio where the teacher-student provides evidence of sustainable professional career development to various stakeholders. The research aims to address the following questions:

- What are the challenges and barriers of introducing e-portfolios as assessment of continuous professional development at the SCTE?
- How can SCTE successfully address these challenges and barriers?

e-Portfolio Learning as Assessment Strategy

From the many definitions of e-portfolios for continuous professional development the researcher selected a model that provides for:

- digital resources (personal artefacts and facilitators comments)
- demonstration of growth and development
- flexible expression (customized folders and sections that meet the skill requirements of particular tasks and areas of development)
- access of input by multiple role-players (peer teacher-students, line managers, course facilitators).

Literature identifies many different types of portfolios: assessment, professional and personal development, learning, and group portfolios. In South Africa, the use of portfolios is driven by the intended outcomes of the learning. Assessment of the portfolio mirrors the ultimate assessment of the
portfolio. Demonstrated learning can range from a simple blog describing the teaching and learning events to evidence of implementations of educational applications, e.g. video clips, sound files and images. Compiling a developmental portfolio effectively documents continuous professional development in an orderly, accessible and manageable way. Regardless of the format, a continuous professional development portfolio should encourage and support teacher-students to develop and hone their skills to create a customized life-long learning tool that may be used for assessment, management, as well as for marketing professional development.

Portfolios assessment offers an alternate for teaching and assessment in the context of the South African education system (Du Toit, 2001; Du Plessis & Koen, 2005). e-Portfolios also link to the system-wide and institutional willingness and readiness to use ICT for teaching, learning, and administrative purposes. The South African e-Education Policy (Department of Education, 2004:33) states that “... every learner in the general and further education and training bands to be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013.” This implies that augmenting conventional teaching and learning with digital technology enables students and teachers to share and collaborate with their peers locally as well as globally.

**Paper-based Portfolios vs. e-Portfolios**

Authors indicate similarities and variations between paper-based and e-portfolios (Du Plessis & Koen, 2005; Tshibalo, 2007; Lumina, 2005; Tisani, 2006) (Table 1).

**Table 1: A Comparison of e-Portfolios and Paper-based Portfolios**

<table>
<thead>
<tr>
<th>e-Portfolios</th>
<th>Paper-based Portfolios</th>
</tr>
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<tbody>
<tr>
<td>Compiles neatly and simply. Easy to add information</td>
<td>Messy to construct. Difficult to add information in an accessible way</td>
</tr>
<tr>
<td>Stores a large volume of information</td>
<td>Cumbersome and bulky to store, taking up a large amount of storage space. Difficult to retrieve information</td>
</tr>
<tr>
<td>Integrates courses easily. Multiple courses per portfolio with simultaneous access to different assessors</td>
<td>Focuses on one course and is difficult to assess. Difficult to indicate growth and development</td>
</tr>
<tr>
<td>Verifies content and authorship</td>
<td>Vulnerable to misrepresentation and plagiarism</td>
</tr>
<tr>
<td>Augments access to graphical information, i.e. video and sound files</td>
<td>Limited to mostly textual information</td>
</tr>
<tr>
<td>Diminishes cost implications. Initial cost to institution to set up a portfolio system, but it soon becomes cost effective. Maintaining, copying and submitting the e-portfolio via the Internet is fast, reliable and cost effective</td>
<td>Increases cost on the teacher-student to maintain, copy and submit the portfolio to role players</td>
</tr>
<tr>
<td>Increases access and portability</td>
<td>Diminishes accessibility and portability</td>
</tr>
<tr>
<td>Increases mobility. Easy access where teacher-students can connect to the Internet via computers or mobile phones</td>
<td>Decreases mobility due to a non user-friendly format</td>
</tr>
<tr>
<td>Enhances addition and management of multiple layers of information</td>
<td>Reduces management of continuous additions to portfolio</td>
</tr>
<tr>
<td>Increase access to different sections of the portfolio with hyperlinks</td>
<td>Hyper-links between different sections of the portfolio</td>
</tr>
<tr>
<td>Improves ability to update evidence of development and growth</td>
<td>Lessens portfolio management over time</td>
</tr>
<tr>
<td>Extends contribution to social constructivist learning due to possible sharing of teaching and learning experiences</td>
<td>Lowers promotion of shared learning experiences</td>
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The researchers propose introducing an e-portfolio as an integrated part of the ACE programme as a motivator for teacher-student’s professional development. e-Portfolios may also be instrumental in creating virtual learning communities where students support each other while they also receive support and feedback from various role players. These social interactions can enhance teacher-student attitudes towards learning with technology, and continuous professional development.

Challenges and Barriers

Many challenges hamper the introduction of e-portfolios to developing teacher-students in a developing context such as at SCTE. The researchers reflect on the challenges listed in the literature review against the realities experienced in our context:

- According to Herselman and Hay (2005) a flexible but solid technological infrastructure must support e-learning. Currently SCTE does not have a dedicated server available for uploading of e-portfolios from teacher-students. Also, the institutional policy determines that only current students have access to web servers and applications. Once teacher-students become alumni, they may no longer access their e-portfolios. Continuous professional development portfolios thereby become obsolete. The researchers suggest that the services of a private Internet service provider can maintain this service.

- Teacher-students who enrol for courses at SCTE largely come from remote areas where with limited or non-existent access to the Internet. Due to the unequal development of communities with little or no digital infrastructure (Paul, 2002). The researchers question if the system is ready for such a dramatic change, or if a dual systems of both paper-based and e-portfolios should be maintained indefinitely. However, this decision increases the demands on the already stretched workload of faculty at SCTE to maintain a dual system of portfolio assessment as it is clear that not the same assessment rubrics should be used for both types of portfolio assessment (Fraser, 2001; Tshibalo, 2007).

- Unremitting poverty remains an intractable challenge for education in South Africa in remote and rural areas. Although the teacher-students may earn a steady and respectable salary, many families often live off this single salary. Furthermore, a computer and connectivity to the Internet remain impossible. Fewer than 40% of schools across South Africa have can access electricity, computers and the Internet (South Africa.info, 2006). This also reduces the number of students that can access their portfolios from the school where they teach. The effectiveness of e-learning, and therefore the implementation of an e-portfolio, is seriously hampered as “... the internet exacerbates the separate but unequal condition of peoples and nations around the world” (Kelly, 2002:212). However, Manuel Castells maintains that “… it is not technology that produces inequity, but it's so powerful that it amplifies the effects of inequity” (Castells, 1999). Kelly (2002:211) notes that Finland while is a world leader in education and connectivity, South Africa, as a developing country, cannot maintain the same level of connectivity and therefore persists in many educational shortcomings.

- A hybrid approach of distance education that combines the use of ICTs with traditional instructor-led learning creates a supportive environment that assists teachers-students to achieve learning outcomes. It also provides them with a background of understanding the integration of ICT into teaching and learning (Meier, 2007). The relevance of a hybrid approach to teaching and learning in the South African context also becomes apparent where teacher-students expect the availability of faculty to introduce learning content. A single e-learning model will create frustration among students used to traditional instructor-led education (Tshibalo, 2007; Henning, Van der Westhuizen & Diseko, 2005).
e-Portfolios are based on interaction from multiple role players, which assumes communication, collaboration and engagement. The underpinning learning theory of constructivism generally applies; teacher-students should not be passive recipients of knowledge transfer, but should actively construct their meaning to professional learning experiences (Kolovski & Galletly, 2003). These skills are not yet fully developed in our teacher-students as they have not been trained in an integrated way. Developing students are inclined to address course content as separate commodities and not part of an integrated learning experience. SCTE must develop this area as many faculty also approach course content as separate chunks of information.

Boud (2000) argues for sustainable assessment which “encompasses the knowledge, skills and predispositions required to underpin lifelong learning activities.” Moving towards sustainable assessment requires teacher-students to commit to self-assessment of their professional learning throughout their teaching careers (Lamont, 2007). Such sustainable assessment practices require that teacher-students are competent e-learning users. Our current teacher-students do not adhere to these requirements, and they do not have confidence to use ICT as part of their teaching and learning practices (Muirhead, 2000). However, keeping in mind the requirements of the e-Education White Paper (Department of Education, 2004), these teacher-students are compelled to take a “cyber jump” into the information era to meet the requirements of ongoing professional development assessment and professional marketing of their teaching skills.

**Paper-based Pilot Project**

In March 2008 SCTE introduced the first paper-based portfolio assessment to two courses in the ACE programme. This portfolio required that teacher-students provide evidence of school-based activities such as work schedules and lesson plans that have also been validated by the school principal as well as school-based observations by colleagues (peers). Self-assessment tasks include self-assessed reflection activities. The faculty assessed the classroom-based assignment.

**Findings**

SCTE received 487 paper-based portfolios for evaluation in October 2008. In their portfolios, only 10% (49 teacher-students) indicated ready Internet access. With this barrier in mind, the researchers list the following challenges to overcome as during the introduction of e-portfolios at SCTE:

- **Stable infrastructure**: SCTE requires the services of a private Internet service provider for stable infrastructure and to assist the introduction of e-portfolios as an alternative to the paper-based portfolios.
- **Access**: From the questionnaire during the pilot it came to light that the teacher-students do not have sufficient access to the Internet to implement e-portfolios as the only assessment mechanism for continuous professional development.
- **Connectivity**: South Africa is a vast, developing country with high levels of poverty and low connectivity. The two new East Coast optic fibre cables may provide improved access.
- **Socio-economic status**: More than 40% of schools are classified as poor or very poor and one can understand that the Internet and telecommunication connectivity are not main concerns at grassroots. Although many teacher-students earn a steady and respectable salary, the acquisition of a computers or connectivity to the Internet remains a personal cost. Communities and local governments should get involved in the creating more information centres in the rural and remote areas.
- **Integrated understanding of ICT**: Teacher-students and faculty should be trained in integrating content across courses. The students should change from passive recipients to active participants of knowledge transfer. Integration of ICT should be amplified at all levels of teaching and learning.
- **Skills**: The technology skills of the teacher-students should be addressed through an integrated approach to technology across all courses. This approach would also meet the requirements of the e-Education White Paper (Department of Education; 2004).
- **Confidence**: By providing teacher-students access to computers, as well as appropriate training in the use of the technology in teaching and learning, teacher-students may gain confidence to more widely use technology in their teaching as well as in their learning.

**Conclusions**

This paper describes the context of the introduction of e-portfolios as a new assessment strategy at SCTE. However, this strategy requires a major shift in thinking among all players. Introducing e-portfolios is imperative as it offers simultaneous flexibility and support to isolated students in remote areas who have many demands on their time as well as to assessors that struggle with large volumes of portfolios to assess. The model of adopting e-portfolios at SCTE should consider the situation of the teacher-students, the intended learning outcomes, course content, learning activities as well as support to both students and assessors. The researchers believe that although the introduction of e-portfolios in a developing context can play a pivotal role in sharing information among role players, upgrading competencies of teacher-students, and addressing social-economic realities, stumbling blocks remain: ready and stable access to the Internet, access to a variety of resources, developed academic writing skills, and improved information literacy skills. Also, from the position of SCTE, commitment to the following strategic issues should be paramount: adequate resources to support the developers, provision of adequate infrastructure to manage the large numbers of teacher-students e-portfolios, continuous technical support to faculty and the large number of teacher-students, and development of an assessment model for the assessment of integrated e-portfolios. SCTE needs an integrated approach to address the multiple issues of e-portfolios in a developing context.

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