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Digital storytelling to engage postgraduates in reflective practice in an emerging economy

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Many emerging economies are just beginning to consume digital content meaningfully. In the field of education in particular, such technology could help to narrow the gap between teacher training and the expectations of a post-colonial, post-apartheid education system in an emerging economy. However, it is important that the use of technology in education be guided by sound pedagogical principles. Digital storytelling is not a new concept and is now part of the academic mainstream. It is increasingly recognised for its contribution to reflective practice, essential for professional development. This qualitative research aimed to introduce postgraduates to the value of reflective practice through digital storytelling. The study is located in a social constructivist paradigm. Data was collected through digital stories, individual written reflections, and focus group reflections. Data analysis involved coding, categorising and the identification of emerging themes. The findings established that pedagogical knowledge alone cannot prepare teachers to offer meaningful learning opportunities for all learners. Digital storytelling, however, can be incorporated in teacher training programmes in order to foster a culture of reflective practice for professional development.

Keywords: digital storytelling; emerging economies; learner diversity; learning support; reflective practice; teacher professional development

Introduction

Many emerging economies today use technology mainly as means of communication. It is therefore not surprising that emerging economies are beginning to consume information and communication technology (ICT) in more meaningful ways, including for teaching and learning, particularly in higher education. It is important, however, that the use of technology in education be guided by sound pedagogical principles (Kilfoil, 2015). With the rapid pace at which ICT is developing and increasing in emerging economies, it has become imperative that higher education institutions (HEIs) re-examine ways to promote professional development of students and narrow the gap between training and 21st-century educational demands. This is particularly significant in a post-colonial, post-industrial knowledge society, and emerging economy such as that of South Africa. According to Lovat and Mackenzie (2003:11), the quality of teachers "plays a greater role in student achievement than other factors associated with teaching, including classroom environmental factors such as resources, curriculum guidelines, and assessment practices, or the broader school environment such as school culture and organization [*sic*]."

The Faculty of Education at one higher education institution in South Africa has embarked on a journey to encourage and increase the meaningful use of e-learning and teaching in both undergraduate and postgraduate programmes. While some faculty members have embraced this challenge and started to include ICT, some are still quite sceptical and have not yet fully used and integrated it into their pedagogy. According to Dexter, Anderson and Becker (1999, in Sadik, 2008), the effectiveness of integrating technology into education is largely dependent on its ability to engage students in learning. While the term engagement has several definitions and explanations, it essentially "entails some kind of mindfulness, intrinsic motivation, cognitive effort, and attention" (Sadik, 2008:488). It is argued, therefore, that engaging postgraduate students in such technology could contribute significantly to their professional development as teachers. One way digital technology can contribute to professional development is to use it to promote critical reflective practice.

The use of digital storytelling in this study was based on a desire to encourage postgraduate education students to engage in reflective practice, once they had returned to the learning support classes they taught, while organising the visual material and creating a digital story. Schön (1983) distinguishes between "reflection-in-action" and "reflection-on-action". According to research (Atherton, 2011; Mezirow & Associates, 1990; Schön, 1983), the ability to reflect in and reflect on practice has become an important feature of professional training programmes in several disciplines. It is thus imperative that teacher training programmes encourage students to be reflective on, and responsive to the knowledge society.

Digital storytelling has the potential to engage postgraduate students through participation in the active creative process it involves (Jakes & Brennan, 2005) and to stimulate reflective practice. At the same time, digital storytelling could engage them in authentic learning and increase their understanding of curricular content (Sadik, 2008). Research (Jenkins & Lonsdale, 2007:443) indicates that the "use of digital storytelling in higher education is still in its infancy but does offer new ways for students to present their work and to reflect upon it." As a significant emerging field of study in higher education (McLellan, 2007), it can be a powerful learning experience, one which involves much of what society expects students to be able to perform in the 21st century (Jakes & Brennan, 2005).

Quality in Teacher Education

From the above it is clear that higher education institutions need to shift their theoretical understandings and practices in teacher education. Australia has embraced the notion of "New Learning." According to Arnold and Ryan (2003:9), "New Learning shifts the focus from teaching processes and products to the contexts in which learning occurs, the individual characteristics of learners and the quality of their engagement with knowledge." South Africa, too, recently adopted the "Minimum standards for teacher education" (Republic of South Africa, 2011), replacing the "Norms and Standards for Educators", which previously guided teacher training. In the effort to address the inequalities still evident in the education system, this policy document "requires all teacher education programmes to address the critical challenges facing education in South Africa today – especially the poor content and conceptual knowledge found amongst teachers, as well as the legacies of apartheid, by incorporating situational and contextual elements that assist teachers in developing competencies that enable them to deal with diversity and transformation" (Republic of South Africa, 2011:6–7). The incorporation of situational and contextual elements concurs with the Australian notion of "New Learning."

This policy places a high priority on the competence of teachers in both the theoretical and practical aspects of their work. The challenge, however, lies in teachers being cognisant of and reflective about situational and contextual elements as they apply their pedagogical and content knowledge in classrooms where diversity is the norm. In this article, I will focus on two types of learning identified as essential for teacher training programmes in the "Minimum standards for teacher education." These are pedagogical learning, and practical learning.

Postgraduate students in a B.Ed. (Honours) programme that includes educational support come with a repertoire of pedagogical knowledge from the various areas of specialisation in their undergraduate studies. The assumption is that such students have pedagogical knowledge that include "knowledge of learners, learning, curriculum and general instructional and assessment strategies", as well as content knowledge relating to their areas of specialisation. This specialised content knowledge includes "knowing how to present the concepts, methods and rules" of their subject area "in order to create appropriate learning opportunities" and to "evaluate learners' progress" (Republic of South Africa, 2011:8). This offers a basis from which further training can proceed. At an honours level, it is expected that, among other factors, teacher training should equip students with the ability to engage with the theory at an advanced level and to reflect on their own practices as they engage with a very diverse learner population in inclusive, post-apartheid classrooms. The practical knowledge they need to develop at this level includes being able to use "theory as a basis for learning" and reflecting on their own teaching in practice (Republic of South Africa, 2011:8).

According to Blake and Monahan (2006), teachers find themselves caught between bureaucratic accountability to the education system, and the need to provide meaningful learning experiences, despite the array of barriers faced by a diverse learner population. They concluded that the practice of reflection, however, can enable them to "make informed judgements and adjust their pedagogy accordingly" (Blake & Monahan, 2006:22). Blake and Monahan (2006) further contends that, as a reflective practitioner, the teacher has a "great impact on the social context of the classroom and creates a greater role for reflection in both teacher and student learning."

Reflective Practice and Digital Storytelling

Reflective practice can be defined as a cycle of engagement that teachers use to look back and evaluate their actions, to understand both their own actions and the responses they activate in themselves and in their learners (Florez, 2001). According to Imel (1992), it also involves thinking about and critically analysing one's actions with the goal of improving one's professional practice. Taking into account "New Learning" and the requirements of the "minimum standards for teacher education," being a reflective practitioner inevitably challenges the individual to face the hidden assumptions of either him- or herself and those of the surrounding social context. It requires the reflector to "deconstruct long-held habits of behaviour by looking beyond the behaviour itself to their own self-image and examining why they do what they do" (Silverman & Casazza, 2000:239).

Digital storytelling is a multimedia activity that can help students both to construct their own knowledge and ideas and effectively to present them. According to Bull and Kajder (2004:47), "a digital story consists of a series of still images combined with a narrated soundtrack to tell a story." It can also include short video clips. According to Robin (2008), digital storytelling over the last few years has developed as a powerful teaching and learning tool. It has the advantage of engaging both teachers and their students. Studies have shown that the use of such a story effectively improves students' engagement in the learning process (Jenkins & Lonsdale, 2007; Robin, 2008; Sadik, 2008). In one such study, carried out at the University of Gloucestershire, digital storytelling was piloted in a number of different learning contexts in order to encourage student reflection (Jenkins & Lonsdale, 2007). In this study it was

found that it did indeed offer new ways for students to present and reflect on their work.

According to Bull and Kajder (2004), digital storytelling as it is taught and practiced today grew out of the work of Joe Lambert and Dana Atchley at the Center for Digital Storytelling at U.C. Berkeley in 1993. The seven elements of digital storytelling below are often used as a starting point and a guide for working with digital stories.

The seven elements of digital storytelling:

1) What is the **main point** of the story and what is the perspective of the author?
2) A **key question** that keeps the viewer's attention and will be answered by the end of the story.
3) Serious **issues** that come alive in a personal and powerful way and connect the story to the audience.
4) Use of **voice** to personalise the story to help the audience understand the context.
5) **Music or other sounds** that support and embellish the storyline.
6) Using **just enough** content to tell the story without overloading the viewer.
7) The **pace and rhythm** of the story and how slowly or quickly it progresses.

Adapted from: http://digitalstorytelling.coe.uh.edu/archive/7elements.html

This article explores how a group of postgraduate students, through the creative use of a digital story, engaged reflectively both during the learning support lessons (reflection-in-action) and in presenting their story of supporting the learners and reflecting on it (reflection-on-action).

Theoretical Framework

This research draws on Socio-Cultural Theory (SCT) and some post-Vygotskian work, with specific reference to the first generation of the Activity Theory (AT) of Engeström (1987). SCT is based on the Vygotskian theory (1978) of human development and learning. It embraces the notion that social, cultural-historical and individual factors are integrated and are significant factors in human development and learning (Schunk, 2012). According to SCT all human activities takes place in cultural settings and cannot be understood apart from these settings.

All cultures make use of a variety of "tools" in order to perform specific activities. Vygotsky contended that these cultural tools play an important role in cognitive development. A key aspect of SCT therefore is the 'cultural toolbox' in which material tools (artefacts, instruments and machines) and psychological tools (language and number systems) are present in the social environment. In addition to the traditional tools, in the 21st century we can add computers and the internet (Woolfolk, 2013). New cultural tools in the form of information and communication technology (ICT) are increasingly impacting on how specific activities are performed in the 21st century. Digital stories fit into this category of 'new cultural tools'. According to SCT, cognitive change results from the use of cultural tools in social interactions. They also function as mediators in more advanced psychological processes such as reflection which is important for teacher professional development (Schunk, 2012). Vygotsky further emphasised the significant influence that socially meaningful activities have on human consciousness; he further claimed that:

> "[C]onsciousness is not an attribute of any particular state or process, but is an attribute of the way in which states and processes such as attention and memory, are organized [*sic*] and functionally related both to behaviour and to each other. It was consciousness that established the connection between the various processes; it both creates them and transforms them. In particular the nature of a goal-directed activity transforms its user. He thus introduced the idea of externally mediated activity, actions that involve the use of external means to reach a goal" (Verenikina, 2010:17).

Vygotsky presented this interaction as a basic mediated action triangle, in which "the subject" refers to the individual engaged in the activity; "the mediating tool" can be an artefact, social others, or prior knowledge that contributes to the subject's mediated actions within the activity, and "the object" is the goal of the activity (Yamagata-Lynch, 2010). This is what Engeström (1987) refers to as the first generation of activity in Activity Theory (AT). According to AT, humans are constantly altering their "environment and creating artefacts or culturally meaningful products (such as a digital story in this project). This complex interaction of individuals with their surroundings has been called activity and is regarded as the fundamental unit of analysis" (Verenikina, 2010:19). According to Verenikina (2010), tools have extended the human ability to achieve the goals of an activity. Activity theory thus treats tools as a means of meeting real needs and of achieving corresponding goals. In this study, the subjects are the students (participants), while the digital story (the created artefact) is the mediating tool, and the goal to be achieved is the establishment of reflective practice for professional development.

Being a reflective teacher calls for higher order thinking skills, with decision-making seen as part of being reflective, taking into account knowledge of the students, the social and cultural context, psychological processes, learning and motivation, and knowledge about oneself as a teacher (Schunk, 2012). Keeping this in mind, this project aimed to introduce students to the value of reflective practice through digital storytelling. While reflective teaching is not a component of a constructivist perspective on learning, its premise is based on the assumptions of constructivism (Armstrong & Savage, 2002). Reflective practice is furthermore closely associated with self-regulation,

which in itself could be regarded as a consciously directed thought process. SCT and AT can prove to be valuable in understanding how Digital Story-telling as a new cultural tool of the 21st century can contribute to reflective practice of teachers with the aim of offering meaningful learning opportunities for all learners in an emerging economy such as South Africa.

Research Design and Methodology

This qualitative study is located within a social constructivist paradigm (Creswell, 2008:20). The epistemological assumptions which guided data collection and analysis were therefore interpretive in nature. The ontology of constructivism holds that reality is socially constructed; knowledge is thus also produced through social interaction (Mertens, 2005:14). According to Flick, Von Kardorff and Steinke (2004:90), social constructivism is defined as "knowledge constructed in processes of social interchange." Social constructivism is often combined with interpretivism.

Context and Participants

The population for this study were forty seven (47) postgraduate university students registered in a B.Ed. Honours programme. The module Learning Support is compulsory for students in both the Honours in Educational Support and the Educational Psychology programmes. As one of the requirements of the Learning Support module, they had to conduct and submit a practical assignment.

For this, they had to identify learners who encountered learning difficulties at a number of schools, selected by the students themselves, in collaboration with the learning support teacher or grade/phase head at the school. The assignment further required them to assess the learners' reading, mathematical or perceptual skills, plan a learning support strategy, and implement this strategy. The written assignment required that the discussion include links with theory. All the students were given an assessment rubric to guide them in compiling the assignment, which had to be handed in as a hard copy. In addition to the basic requirements, those students who took part in the study were asked to produce a digital story.

The participants were selected through convenience sampling, as they were already enrolled in the Learning Support module. They were told of the research project and its purpose and were invited to take part on a voluntary basis. As part of the research, they were asked to create a digital story. This was to be linked to the lecture on reflective practice that was discussed in class.

To train all the students in the class in developing a podcast using Windows Moviemaker, the researcher solicited the support of the coordinator for the Centre for Learning Technologies assigned to the Faculty of Education. He gave a demonstration and discussion in which questions were answered; he also made himself available to answer and support any questions via e-mail or by face-to-face appointment throughout the project.

The students were asked to take pictures with their cell phones during the weekly support sessions they had with the learners. In the digital story, they could include text and music, and if they felt confident to do so, also a short video clip. To ensure ethical conduct, they had to ensure that the learners were not identifiable in the pictures or video clips. The following instructions were offered as a guide to help them with the process of reflection

1) Explain the process of support.
2) Engage in reflective practice during the process of support.
3) Show evidence of adapting or changing methodology and/or techniques as a result of reflective practice.

The completed digital story had to be uploaded onto SUNLearn (MOODLE platform of the university) as an mp4 video at the end of the semester. The students were given step-by-step instructions on how to upload their stories (screenshot below in Fig.1).

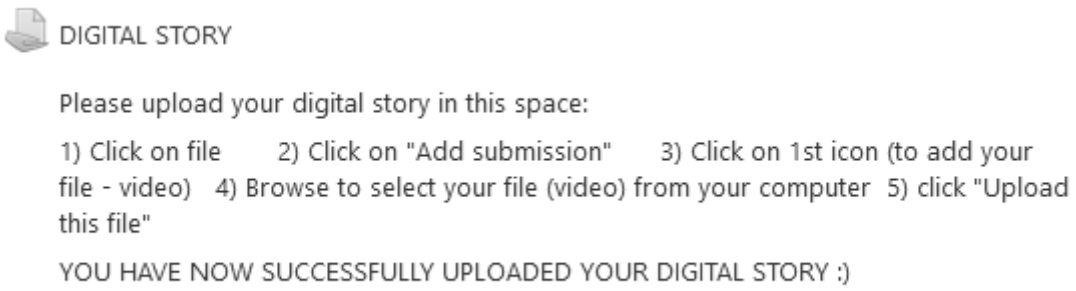

Figure 1 Uploading instructions

Table 1 Participant description

Language	English	Afrikaans	isiXhosa			TOTAL
	12	7	1			20
Age	22–25	26–35	36–45	46–50		
	13	5	1	1		20
Teaching experience	Only practice teaching	0–1 yr	1–5 yrs	5–10 yrs	More than 10yrs	
	3	9	7	1	0	20

Twenty students out of a class of 47 eventually submitted their digital stories. They were a diverse group in terms of age, teaching experience and language as depicted in the table below. All participants were female. Please see Table 1 above.

Data Collection

Data were collected through the digital story, captured as a podcast, explaining the process of support, recording all the steps involved as required in the assignment. The participants then had to write a report in which they reflected on the challenges they had encountered and how they had solved them. Following this, a semi-structured focus group reflection was conducted, led by the researcher. The focus group was randomly selected to reflect on the process of developing a digital story and to assess its value as a tool for reflection, as well as the impact it had on them as developing professionals. The questions posed to the focus group were:

1) Did making the video help you to reflect on the methodologies and strategies? If YES, what stood out for you? If NO, why do you think that it did not help with reflecting on your practice?
2) To what extent do you think that you have gained a deeper understanding of the module content through reflective practice in the digital story?
3) What did this exercise teach you about your own learning?

These questions were informed by the content of the reflective reports. This was audio recorded with permission of the participants.

Data Analysis

In line with qualitative research, both content and thematic analysis of the data was carried out. During qualitative analysis, the researcher makes sense of and describes the data generated during the research process. It involves a search for general statements about relationships and underlying themes (Marshall & Rossman, 2006). Analysis of the written reports and focus group transcripts was based on an inductive approach, intended to identify themes, sub-themes and patterns emerging in the data. Interpretive analysis was done using the content and thematic analysis (Creswell, 2008).

The researcher had to critically and analytically watch all the digital stories to be able to analyse its contents. The stories were analysed on the basis of the three instructions for the assignment, against the background of the seven elements of digital storytelling. For this the researcher developed a rubric (Table 2), in which the authors of the stories were identified only by the use of codes (a, b, c, etc. …). The variables were listed at the top, and each was marked only with "√" to indicate if it was present/evident in the digital story. The last column was added when it was realised that some of the participants had loaded the file in formats other than mp4.

Table 2 Rubric for evaluation of digital stories

Digital Story	Explanation of support	Evidence of engagement in reflective practice	Evidence of changed methodology or technique	Elements of digital storytelling included							Comments
				1	2	3	4	5	6	7	
a											e.g. not mp4 – could not open.
b											
c											

Ethical Considerations

Permission to conduct the research was obtained from the Senior Director: Institutional Research and Planning of the university, while the University Ethics Committee gave ethical clearance for the project. Those students who had volunteered to take part were told what would be expected of them, before completing and signing an informed consent form. They were assured that the findings would remain confidential and that they would have the right to withdraw from the study at any time if they so wished without being penalised. The digital stories did not count for marks. Permission was sought to conduct the assignment at the relevant schools. One school refused permission for the digital story, so the student improvised by using other pictures in her digital story. In addition, the participants had to ensure that the learners in the pictures could not be identified.

Findings and Discussion

The results of the three sets of data (digital stories, reflective report, and focus group interview) are given separately below, and integrated during the discussion.

Technical Challenges Experienced

While only 20 digital stories were uploaded, 24 students completed the reflective report. The following are the findings from the reflective reports. Ten participants reported that they had made a digital story before. They were quite confident, their main problem being with containing their story within the limitations set on the size: "*My story was too big after adding a song and a short piece of film*"; "*The video was just too big, so I had to write it on a CD*"; "*Finding a song that worked was very challenging … .*" While making the digital story in itself did not pose a challenge for this group, one participant noted that "*I would go on with the lesson and realised later that I did not capture the moments. It is a challenge to teach/mediate and at the same time record the progress.*"

The group of students who had no previous experience of digital story-making faced a number of technical challenges. One voiced this as: "*I don't really know how to download software and how to install it and had trouble finding it once it was installed, and then figuring out how the programme works was frustrating*." Another said that: "*I had to ask someone who had the programme to help me download it. Also, I felt because of my limited understanding and knowledge about how to use the programme and application, I felt restricted on how much I could do with my digital story*." It seemed that most of the participants faced challenges with at least two of the following aspects: adding music, losing some pictures and music, the limit on size, the programme (Windows Moviemaker) not being on campus computers, setting a timeframe for the pictures, adding music, editing and publishing, unexpected programme shut-down, data usage, and internet access. One student suggested that a PowerPoint presentation would have worked better.

Although the students did not contact the blended learning coordinator with their struggles mentioned above, they did resort to finding help from their classmates. This support and co-construction of knowledge and skills has also been reported by Jenkins and Lonsdale (2007) with a group of first year students. In line with Vygotskian theory on learning and development (Vygotsky, 1978), in getting to know and understand this "new cultural tool", some students first had to construct knowledge at a social level before they could do the activity independently as a conscious goal directed activity (Verenikina, 2010).

The Digital Stories

Although the students were told to upload their digital stories as an mp4 video, some used other formats (wmv and wlmp). One emailed the video, while three others handed theirs in on a CD or a flash drive, which was then stored on the researcher's computer. The uploads formatted on wlmp could not be opened as a video.

The stories were evaluated in terms of two criteria: 1) the seven elements of digital storytelling; and 2) the three guiding instructions.

The technical product

While all the videos had text embedded, most made use of an appropriate piece of music to enhance their presentations. Only three participants took advantage of using the personal qualities of their own voices. In one of these, however, the student spoke very slowly, with very little intonation, to the point of losing the viewer/listener. This confirm the assertion of Bull and Kajder (2004), that the use of voice in a digital story is an essential element that contribute to the success [or failure] of the digital story. While the videos were colourful and showed the activities in which the learners were involved, they generally lacked the central dramatic question. A well-constructed digital story evokes interest and captures the viewer's attention. However, students may have failed to articulate a clear question as it was probably "buried too deep in the story" (Bull & Kajder, 2004:48) as they tried to depict what happened during the learning support sessions.

The guidelines

It was evident that, while all the students presented the activities and processes they used to engage the learners, guidelines two and three were afforded less conscious thought by the majority. With guideline two, students were required to "reflect-in-action" as well as "on-action" (Schön, 1983) during the process of providing learning support. However, only a few of the digital stories gave a clear indication that they have engaged reflectively, either in class (in-action) or afterwards in the video (after-action). Consequently there was also little evidence, in the story, of when and why they had to change their methodology or techniques as result of this reflective practice.

Reflecting on one's work contributes immensely to "helping practitioners better understand what they know and do as they develop their knowledge of practice through reconsidering what they learn in practice" (Loughran, 2002:34). The work of Schön (1983) affirms this relationship between practice and reflection as essential for professional development which is at the core of this project.

Reflective Reports and Focus Group Reflection

The data from the reflective reports and the focus group interview have been integrated. The rational for this was that the focus group discussion was informed by the reflective reports (Creswell, 2008).

Three broad themes were identified during analysis of the focus group reflection. These emerged from the questions as they were posed to the focus group. The three broad themes and identified categories are presented in Table 3 below:

Table 3 Themes and categories

	THEMES	CATEGORIES
1)	The value of Digital storytelling as tool for reflection	- Focus on technical aspects was distracting. - Looking at the whole (visual presentation), progress was visible and areas of improvement were identified.
2)	Significance of Digital storytelling in deepening understanding	- Helped to reflect on the practical issues. - Insight into teaching methodologies, techniques and strategies. - Forced to look back. - Helped to reflect on actions and decisions during the lessons. - Not much reflection.
3)	Understanding of own learning and reflection	- There is more than one way that I learn. - Saw areas learning had deepened. - Reflection definitely helps. - Visual learning is quicker than theoretical learning. - Higher awareness of own reflecting style. - I realised that I learn better when applying theories in practice.

Digital storytelling in this study was used to encourage students to engage in reflective practice after the execution of a practical assignment. Schön (1983) refers to this kind of reflection as reflection-on-action. However, the students were also expected to be reflective-in-action while giving learning support. This second type of reflection ought to have been visible in the digital story. While the act of developing a digital story can in itself be reflective (Jenkins & Lonsdale, 2007), this project specifically required evidence of reflective practice in the form of changed or adapted teaching strategies, techniques and/or methodologies. It called for a focus not only on the "teaching processes and products", but also on the context and how this might urge the teacher to change course. This incorporation of "situational and contextual elements" (Republic of South Africa, 2011) is essential if teacher training is to enable teachers to deal with diversity and transformation in post-apartheid South Africa.

Some of the literature (Jakes & Brennan, 2005) indicates that digital storytelling has the potential to engage students through active participation and to stimulate reflective practice, the findings from this study concurs with this. From the digital stories (videos/artefacts) very little evidence emerged that producing (creating) the digital story (cultural tool) culminated in the conscious reflection on their practices (goal) by the students. This could be attributed to various factors. Some explained that they had encountered too many difficulties, mostly technical in nature as explained above. Others found that taking pictures during the lessons distracted them from their primary aim of giving learning support. The instruction to take pictures while teaching proved to be difficult, and should be reconsidered in future assignments of the same kind. Another participant felt distracted by the activity and voiced this as: "*I focused more on making the story and adding effects, rather than the activities I did with the learners*." Some felt that the digital story was only "*scratching the surface*" and did not fully represent the support they were giving. One voiced this as follows:

> "*The video project was too small (only could use a limited number of slides) and therefore I could not reflect on the entire process.*"

This experience is confirmed by Bull and Kajder (2004) that staying within the limited scope afforded by the digital story was difficult to both novices and the more experienced.

None of the digital stories highlighted any particular situational or contextual elements that needed change or adaptations to methodology. However, while the videos did not show many reflective practices (why and how methodology and strategies were adapted according to the needs and contexts), the participants did report on their reflective practices in the focus group interview. Thus, on a more positive note, there were those whose experiences concurred with the prevalent literature. Sadik (2008) contends that digital storytelling can engage students in authentic learning, which in turn can increase their understanding of curricular content. This seemed to hold true for some of the participants, as confirmed in the following comment: "*I gained insight into my teaching methodologies as I looked at the pictures and activities.*" Others claimed that:

> "*It made me look at the experience as a whole and sum up what was done*."

> "*I could see progress throughout the four weeks.*"
> "*Contextualising every slide with theory. Talking about each slide,*" *and* "*It definitely helped me to reflect on the practical issues.*"
> "*Visual presentation helped to determine where improvement is needed.*"

The following statements drawn from the participants' reflections demonstrate the role that the digital story had in the practical assignment: "*It forced me to look back and made me realise what a special experience it was. You tend to only remember the negative aspects of an experience until you're forced to think back*," and "[It] *helps to reflect on actions and decisions that were taken to make the lesson more engaging and to enhance learners' critical thinking*." Interestingly, one participant noted that although *"… it was challenging to summarise the content* […] *within the time slot of the digital story, it definitely helped me to reflect on the practical issues … .*" This was a clear indication that reflection-on-action did occur.

An important requirement of the practical assignment was that students should ground their methodologies, strategies and techniques in the theory(-ies) with which they were engaged in the class. However, there were those who did not purposefully plan their activities with theory in mind and only realised this as they were creating the digital story; as one participant explained: "*It made me realise that I didn't focus on the methodologies and strategies. I really enjoy working with kids*." Nonetheless, this in itself was reflective and evident of "reflection-on-action" (Schön, 1983). It could be anticipated that this student would in future be more aware of the need to ground teaching activities and strategies in research and theory.

Generally, those who did not think the exercise was reflective in nature said that they found the writing up the assignment to be more reflective. This written presentation of the practical assignment was required for assessment purposes, but was not part of the focus of this paper. This sense of disconnection between reflective value of the written assignment and the digital story is clearly shown in the following transcripts: "*I gained a deeper understanding of the learning theories* [through the written assignment] *and how they relate to supporting learners who experience barriers to learning*," and "*I did not gain as much understanding through making the digital story, but I did think about how I might improve the activities and my approach*." What this participant did not realise, however, was that making the digital story had actually helped her in reflecting on her teaching methodologies in that she report that *"… I did think about how I might improve the activities and my approach*." This corresponds with the claim of Jenkins and Lonsdale (2007) that the act of developing a digital story can in itself be reflective.

Thus, awareness about their learning, stimulated by the exercise of producing a digital story, was by its very nature reflective. The responses to this question clearly indicated that students engaged in thinking about their own learning. However, only two made the connection directly with the digital story:

> "*That learning is experiential; it is social and can be achieved through assistance of a capable adult. At some point we all need to be supported, we cannot learn in isolation in order to reach the point I am. I have been supported throughout.*"
> "*It shows the concept 'constructivism' clearly to me because I build my experience from knowing nothing about making a digital story to a 3 min 20 seconds presentation. I learned in the process. Thank you.*"

As a teacher in higher education, I realise that students seldom engage in activities which do not "count for marks." My decision not to accord marks for the digital story was a deliberate strategy, and formed part of my aim to expose the participants to the value of reflective practice for professional development. I wanted them to realise that the value of reflective practice far outweighed the value of marks for a single assignment, and that learning to become a reflective practitioner would have enduring value for their development as professionals. Less than half the class (43%) submitted a digital story for evaluation. My assumption was that more might have attempted the project had they not been hampered by the technical aspects of digital story-making. Others did not attempt the digital story, simply because it did not count for any marks.

The participants in this research initially faced a variety of technical difficulties in creating their digital stories. However, most were able to reflect on their teaching strategies, techniques and methodologies at one stage or another. It was significant that some maintained they had not reflected, unaware that they had actually done so just by producing the digital story, in itself a reflective activity.

Conclusion

It was expected that students living in an information era, driven by technology in a post-colonial, post-industrial knowledge society, would readily embrace this project. The constraints they experienced largely involved technological in-ability, characteristic of those in an emerging economy who still mainly use technology for the purpose of communication on social media. It is my contention that incorporating technology in teaching and learning in an educational and meaningful way would help to narrow this gap between training and the increasing educational demands in the emerging economy of South Africa.

While there is much more to be learned about the use of digital storytelling as a teaching and

learning tool, it is clear that, integrated in teacher training programmes, it could successfully enhance reflective practice. The literature highlights the benefits of such storytelling, engaging students in authentic learning in the diverse 21st century, post-apartheid classroom. Pedagogical knowledge alone is not enough to prepare teachers to offer meaningful learning to their pupils. Engaging reflectively, both in-practice and on-practice, taking into consideration theoretical foundations, situational and contextual elements, is essential if teachers are to develop as professionals and offer meaningful learning opportunities to all. In this digital era, it is imperative that teachers in higher education include technology as part of their pedagogical repertoire.

Note

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