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Pre-service teachers using The Le@rning Federation's digital resources.

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Abstract: This work in progress paper describes research that is investigating the use of learning objects, created by, and digital resources, negotiated by The Le@rning Federation and their use in a technology unit in pre-service teacher education as well as investigating how these learning objects are being used by the pre-service students while out in schools during their practicum. This involves approximately 700 students across two campuses of The University of Notre Dame Australia which are located in Sydney and Fremantle. The study uses a qualitative research methodology and involves questionnaires as the primary data collection tool. This paper provides a literature review and describes the study as well as the research questions it hopes to address.

Introduction

The Le@rning Federation is an Australian and New Zealand Federal and State governments' initiative that began in 2001 in order to assist educational facilities, and particularly schools, to be able to provide 21st century education to all students (Curriculum Corporation, 2009a). The Le@rning Federation makes and licenses two types of content, those being learning objects, or multimedia resources, and digital resources. The learning objects are generally created under license for The Learning Federation. Digital Resources are items that have been sourced from cultural and scientific institutions and checked for quality prior to being placed into The Le@rning Federation's repository (Curriculum Corporation, 2009b).

To date, The Le@rning Federation has developed approximately 9000 digital curriculum resources for use in schools (Curriculum Corporation, 2010). Prior to each learning object being released field trials have been conducted in classrooms and revisions then carried out on the learning objects (Freebody, Reimann, & Tiu, 2008b).

Much has been written in Australia about The Le@rning Federation and the digital content that has been developed (Baker, 2010; Clarke, 2004; Clarke & Gronn, 2004; Reimann, Freebody, Hornibrook, & Howard, 2009). Access to The Le@rning Federation learning objects has improved since 2006 and subsequently there has been increased use of these learning objects (Curriculum Corporation, 2009c). Online curriculum content is becoming increasingly popular and is being used across a variety of educational sectors. In schools, many teachers like to use The Le@rning Federation learning objects as they find them engaging and stimulating for the students they teach (Clarke, 2004).

School use of The Learning Federation's digital content has been reported in various ways and in numerous studies. These include studies on this implementation process and the integration of learning objects into classrooms (See Clarke, 2004; Clarke & Gronn, 2004; Freebody, 2005, 2006; Freebody, Reimann, & Tiu, 2008a; Haughey & Muirhead, 2005). However, one research study suggests that The Le@rning Federation resources are under used and that teachers are not familiar with them (Reimann, et al., 2009). To date there has been very little research reported on pre-service teacher's actual use of learning objects and digital resources while on practicum, although pre-service teachers are signing up for The Le@rning Federation each year (Curriculum Corporation, 2009c). By using learning objects with pre-service teachers it is hoped that they will be increasingly used in schools.

Literature Review

Learning objects have been used in schools since the beginning of this century and are assisting in advancing education in the 21st Century. The IEEE Learning Technology Standards Committee (2005, para 1) takes a very broad view of a learning object and uses the definition of “any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning.” The Le@rning Federation (2004, p. 2) states that learning objects:

- may be one or more files or ‘chunks’ of material, designed to contribute to the learning of the user, consisting of, for example, graphics, text, audio, animation, calculator, interactive notebook,
- are re-usable: a single learning object may be used in multiple contexts for multiple purposes, for example across curriculum areas, year levels, locales and cultures,
- can also be used as components of a topic or unit of work alongside other digital and non-digital resources and tools,
- are accessible from World Wide Web resource repositories and are referenced, located and accessed by their metadata descriptors,
- can be identified, stored, sequenced and tracked using a content or learning management system.

The commitment by the Australian Government in 2002 to the Learning Federation’s initiative was made on the premise that “while investment by all schooling systems in equipment and connectivity has paved the way for change, it is the availability of quality online content that will begin to improve learning” (The Learning Federation, 2002, p.1).

The promise of easily accessible digital content, where teachers can rapidly develop and tailor content for their learners, is enticing. This is particularly prevalent in situations where learners may have different objectives and learning styles. Since the inception of The Le@rning Federation’s learning objects, research has been conducted on their use in schools (Reimann, et al., 2009), with students to measure items such as engagement as well as with teacher use, and in higher education, particularly pre-service education (Kay & Knaack, 2009).

Although schools and universities have access to digital content through The Le@rning Federation it is not being implemented and used to its fullest extent. The Curriculum Corporation (2009c) suggests that common and consistent access is needed in order to assist in solving this problem. This national body is currently happy with the uptake of digital content at a tertiary level and is hoping that the uptake and usage of digital content will continue to improve.

Teachers who use The Le@rning Federation materials report that students’ are engaged and they value them for student learning including students’ motivation to learn (Freebody, et al., 2008b). Teachers also use digital resources as they feel that they can increase their productivity while saving time as well as improving their teaching practice by better meeting the needs of their students (Recker, Dorward, & Nelson, 2004).

With the increasing number of interactive whiteboards (IWBs) in schools it is important that pre-service teachers understand the pedagogy of using IWBs as well as how digital content can assist in them being used well in schools. In a study on using digital contents with IWBs Hedberg and Freebody (2007) suggest that with use of these technologies they could better prepare interactive sequences in advance for lessons as well as better direct access to digital content. Students involved in this study also learn pedagogies associated with IWBs as well as how to use digital content when teaching with an IWB. This may influence how they use IWBs and digital content when on practicum.

Methodology

This study is conducted at The University of Notre Dame Australia, at both the Sydney and Fremantle campuses. Students are enrolled in a core ICT unit. This ICT unit includes consideration of The Le@rning Federation’s learning objects, including how they can be used in schools and while on teaching practicum during the year. In Sydney, the study will encompass up to 400 pre-service teacher education students who are mostly in the second year of their degree. These students will be studying in either summer semester or first semester, 2010 and will undertake a course called ‘Information Technology for Learning and Teaching’. Students will either complete this course in a one week intensive period during January 2010 or they will complete it in 6 weeks from February and April, 2010. In Fremantle, there will be up to 300 students undertaking the ICT unit called ‘Transforming

Learning Through ICT' during summer semester in January 2010 or over 9 weeks again from February to April, 2010.

The aim of this study is to explore how students use learning objects within their pre-service teacher education courses and how they might apply this knowledge to their practicum context in schools. It is hoped that the results of this study will inform teaching at the university with regards to digital resources and how best students may implement them while on teaching rounds.

The following research questions were developed for this study:

1. How are The Learning Federation digital resources implemented into pre-service teacher education courses?
2. What types of experiences do pre-service teachers have of The Learning Federation digital resources in teacher education units at Notre Dame University Australia?
3. How are students using The Learning Federation's digital resources in tertiary and practice teaching settings?
4. How is student usage of The Learning Federation's digital resources affected by access in schools?

This study uses qualitative research methodology with student questionnaires that will be available online. This will provide anonymity for the students and allow easy access to the data by both the researchers. Students will be surveyed twice, with the initial one being during the teaching of the unit and the second one towards the end of their ten week practice teaching.

In summary, approximately 700 plus students will participate in this study. The students are aged 18 years plus and are enrolled in a core ICT unit at the University of Notre Dame Australia at either the Sydney or Fremantle campus. Student participation is anonymous and students may choose not to complete the questionnaire, which will be online. The questionnaire is not linked to any assessment for the unit.

Previous use of learning objects

At The University of Notre Dame Australia, most students get access to The Learning Federation through the use of a log in which is valid for the entire year. This means students can access this digital content any time they have access to the Internet. In 2008, only the Fremantle campus accessed The Learning Federation with 218 students signing up (Curriculum Corporation, 2009c). In 2009, from January to March, there were a total of 726 students who signed up, which includes students from both the Fremantle and Sydney campuses. At the time this represented the largest number of registered students for that year from any university in Australia (Curriculum Corporation, 2009c). Throughout the year more students then continued to sign up for access to The Learning Federation, although final data is currently unavailable. This current research is now attempting to gain more in-depth data from the students as to how they are using these digital learning resources, both in classes and while on practicum. It is important to note that in 2010, students on both campuses that are not undertaking the units involved in the study will be emailed access to The Learning Federation so that they also have access for the year. This will allow all students studying at the university to access this digital content.

The future

Currently there is anecdotal evidence to suggest that students are increasingly implementing digital content on practice teaching and in university class presentations. This study aims to verify this as well as how students are using learning objects and how they can be taught in pre-service education units so that their implementation is maximised while on practice teaching. Recker et al. (2004) suggest that more research be conducted in-situ to see how digital resources are being used. This study is attempting to do this by focusing on pre-service teachers as they may be able to promote change when in schools so that other teachers are increasingly using them.

Conclusion

This paper is a work in progress paper that outlines the current field. The research expects to expand this area once the data is collected (between January and June 2010). Initial findings will be reported in future

conference papers and journal articles. It is also expected that teaching will be influenced in a positive way once the data is analysed.

There is currently a need to teach our pre-service teachers to be innovators in the adoption of technology as suggested by Freebody, Reimann and Tiu (Freebody, et al., 2008a). By teaching current pedagogy it is hoped that students will enter teaching with the skills to be innovators.

Finally, it is important to note that the researchers are aware of the significance of having common and consistent access across the university. They plan on continuing to implement learning objects on both campuses in a consistent way. This is in line with Australia's the Curriculum Corporation report which supports continued on campus advocacy (Curriculum Corporation, 2009c).

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