Faculty of Arts, Education and Creative Media

Using an eportfolio to enhance graduate attributes among engineering students in Malaysia

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DECLARATION

I declare that this dissertation is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

Signed:

Date:
ABSTRACT

The broad context for this study is that all Malaysian public and private universities must incorporate graduate attributes into their curriculum from August 2006. Graduate attributes have received increasing attention over recent years as universities incorporate these attributes into the curriculum. Graduates who have adequate technical knowledge only are not sufficiently equipped to compete effectively in the workplace; they also need non-disciplinary skills, graduate attributes. Assessing student achievement of the attributes is therefore important and eportfolios have the potential to enhance graduate attributes.

This study therefore fills a research gap by investigating the impact of embedding an eportfolio into a technical communication course for engineering students. The study examines the learning process and uses the students’ voice to test the assertion that eportfolios may contribute to enhancing graduate attributes: communication skills, critical thinking and problem solving skills, and teamwork skills. The key research question to be explored is: To what extent does the use of an eportfolio enhance students’ communication skills, critical thinking and problem solving skills, and teamwork skills? This study examines the learning process in developing an eportfolio by adapting the Plan-Do-Review cycle (Pallister, 2007). An investigation is conducted which focuses on students’ perceptions of the value of the eportfolio to their learning and its potential to promote key graduate attributes among engineering undergraduates.

The research was conducted in one of the universities in Malaysia.

This study uses a mixed methods research approach where a qualitative research approach, called a ‘case study’, formed the methodological framework of this investigation. The case study incorporated a number of data gathering techniques,
including two questionnaires: preferred and actual, five focus group interviews with five
students in each group, an interview with the lecturer, classroom observation and
document analysis of student blog entries and reflection entries. These data were used to
analyze students’ learning outcomes, experiences and perception of the use of eportfolio
in enhancing the communication, teamwork, and critical thinking and problem solving
in the course. A total of 66 students participated in this research.

The students claimed that eportfolio has enhanced the following graduate attributes:
communication skills, critical thinking and problem solving skills, and teamwork skills.
They reported that they improve their interpersonal communication, reflection, and
collaboration with their peers. They learn from reflecting on their artifacts,
collaborating, and interacting with their peers.

Findings from this study reveal that most of the students’ expectations have been met
with their actual learning. They show that students become more motivated and active
when constructing their eportfolios. The Plan-Do-Review model is very useful, as the
students use it as a guide to construct and develop their eportfolios in the course: they
plan, collect, select, review, and share their artifacts in their eportfolios. The positive
learning experiences enable the students to be actively engaged in constructing their
eportfolios and learn to be reflective, collaborative, and communicative with their peers.
They also discover their strengths, improve on their weaknesses, and learn to set goals
for their learning.

This investigation indicates the potential of an eportfolio. The study offers research-
based recommendations to enhance graduate attributes with an eportfolio.
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GLOSSARY

Artifact


Blog

Blood (2002) stated that a blog is a hypertext product that enabled people to post or publish their thoughts and get feedback in the form of links and memos from people in a collaborative way. Blogs have advanced from simple online personal diaries to a technology that allows people to engage in collaborative activity, knowledge sharing, reflection and debate (Brooks, Nichols, & Priebe, 2004; Walker, 2005).

Eportfolio

Eportfolios are known as electronic portfolio, ePortfolio, e-portfolio, efolio, digital portfolio, or webfolio, and can be classified in different ways by different people (Barrett, 2001; Truer & Jenson, 2003). Barrett (2000) stated that an eportfolio uses electronic technologies to enable students to gather and arrange artifacts in many media types such as audio, video, graphic, or text, and later reflect on what they have learnt (Fernsten & Fernsten, 2005; Gallagher, 2001; Gathercoal, Love, Bryde, & McKean, 2002; Holtzman & Dagavarian, 2007) and examine the strengths and areas for improvement regarding how they learned these new skills (Ury, & McFarland, 2001).

Graduate attributes

Graduate attributes are the set of qualities and skills predetermined by a university that students should develop and acquire from the institution which later contribute to their career (Bowden, Hart, King, Trigwell, & Watts, 2000), which are also known as soft skills in Malaysia (Ministry of Higher Education, Malaysia, 2006). These skills include communication skills, teamwork skills, critical thinking and problem solving skills, ethical moral and professional skills, entrepreneurial skills, life-long learning and information management skills and leadership skills (Shakir, 2009).