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Comparative Analysis of E-learning: Australian Context

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Abstract

The implementation of learning technologies in some subjects in some secondary schools across Australia is still in its early stage. Not surprisingly, the reason is that most, if not all, of the subjects currently being taught do not require the aid of learning technologies. Typical lessons, however, delivered in the class – such as in social sciences, arts and languages – are performed by a teacher with the aid of learning technologies. Often, these technologies are suitable for lessons that do not require extensive project development and presentations, such as subjects in Industrial Work (e.g., wood and metal work). In this paper, the author looks at a different approach in achieving learning outcomes focusing on these subjects then introduces learning tools that encourage students to work in teams to assist them in developing and completing their projects. Two learning technologies are developed and tailored, and evaluated for particular classes. The results indicate that these technologies have assisted in achieving elaboration, collaboration, and the intellectual and social development of groups of students working on skill- and time-extensive subjects. The comparative analysis performed in this work is considered the first in recent years.

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1. Introduction

Adopting learning technologies in various schools remains to be a challenge: not necessarily in the context of availability of resources, but rather in the very nature of the subjects that are being taught. These subjects

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are practice-based, requiring skills and work in workshops and labs that leave no room for ICT. In this paper, the results of the study are presented after investigating and implementing two learning technologies in workshops. This is to determine their feasibility in achieving good learning outcomes. The selection of two distinct resources – WebQuests and video streams - in teaching and learning may appear opportunistic, given the fact that both have been particularly useful in teaching wood crafting in one of the woodwork workshops at a New South Wales (NSW) public school. Nevertheless, it is a particularly valuable opportunity, given that we specifically designed and created WebQuests, which is published on the Internet, and introduced video streams in the class to capture the development, through to completion, of the students' projects. The WebQuests is available to students in schools across Australia and across the globe, including the Philippines, Singapore, the United Kingdom, and the United States of America.

Instead of being merely general purpose tools, the video streams for year 12 students are for specific educational purposes. This resource does not focus on operational functions (how to create and capture videos) but focuses rather on students' learning capabilities, and on how to evaluate their work using this particular resource in class while they are developing their major projects for the Higher School Certificate (HSC). Both learning technologies (WebQuests and video streams) have since proven to be good resources for our high school students, as an adjunct support to our daily interaction with them in class. These resources are designed and developed to help achieve the syllabus outcome set down by the NSW Department of Education for the teaching of Arts, Sciences and Technology curricula throughout the state.

The contribution of this work provides an interesting avenue for other teachers to consider and eventually adopt learning technologies in various workshops and laboratories in high schools across the state of NSW.

2. Description of Tools

2.1 WEBQUESTS as a Resource

Advances in the use of ICT in the classroom have rapidly progressed in recent years. The areas of greatest expansion are those that use the Internet through hypermedia and hypertexts.

WebQuests is one such area. It has been designed to provide a "scaffolding" for Internet-based research projects that require thinking, according to McInerney & McInerney (2002). This resource, moreover, encourages a higher level of cognitive processing - i.e., analysis, synthesis and evaluation - which has been embraced by most schools in Western countries, including Australia. It was introduced by Bernie Dodge (McInerney & McInerney, 2002), and a range of WebQuests has since been designed as educational/learning resources. The WebQuests developed targets students from year 7 to year 9, and a link to this resource (scaffolding) can be found on the website Db2P (2012).

Research in cognitive psychology, according to March (2004), indicates that in order for novices to perform and improve at more expert levels, they need to analyse the work of experts and learn from the same process. This is an approach called scaffolding (Bereiter & Scardamalia, 1984).

Scaffolding is at the centre of the WebQuests model. It is the main drive that highlights WebQuests' role in assisting students to develop and use not only their cognitive skills, but also their social skills, through interacting and working with other students in groups, beyond any physical geographical location. For instance, WebQuests' role, enables the students to work with students located elsewhere, such as South Australia.

Scaffolding also produces positive results by providing temporary frameworks to support student performance beyond their capabilities (Cho & Jonassen, 2002, p.6). It is used to encourage the internalisation of intellectual skills through ongoing practice, and, according to March (2004), to implement approaches such as constructivist strategies, differentiated learning, situated learning, thematic instruction, and authentic assessment.

The objective of WebQuests is to encourage connectivity and the communication of ideas between

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