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Computer-mediated learning in a social constructivist environment

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Computer-mediated Learning in a Social Constructivist Environment

A thesis in (partial) fulfilment of the requirements for the award of the degree

Doctor of Education

from

UNIVERSITY OF WOLLONGONG

by

Tony Stojkovski (BPE, BEd, MEd)

Faculty of Education

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ABSTRACT

For many years, information and communication technology has been introduced into the classroom with a focus on providing better instruction for the learner and assisting teachers in delivering the educational content. Some have argued, however, that pedagogical strategies based on the principles of social constructivism are likely to be more effective than those concerned with information transmission (Salomon, 1993; Palincsar, 2005). Such strategies emphasise the construction of knowledge through social interaction supported by computer technology, termed ‘computer mediated communication’. Many studies have examined learning outcomes that result of computer-mediated communication (Du Plessis, et al., 1995; Veerman, et al., 2000; Pear & Crone-Todd, 2001; Scardamalia, et al., 1994; Bronack, et al., 2006), but few have examined environments that involve both on-line and face-to-face oral communication. This study addresses that gap by investigating learning outcomes achieved through the use of a software program that aims to support social construction of knowledge. The program is called the computer-mediated social constructivist environment (CMSCE).

In order to examine the effectiveness of the use of CMSCE, a qualitative research method was used to answer three sub-questions:

(a) What are the characteristics and the balance of the mixed mode (oral and written) communication that is stimulated by this environment?

(b) How does the active engagement in the computer-mediated interaction with the teacher and peers affect students’ learning (both the process and the outcomes)? Does it lead to developing an enriched and deep understanding of the content?

(c) What are the students’ perceptions of such learning? What are the ways that the designed program can be refined and adjusted to accommodate the experiences of the teacher and the learner in the project?

The study collected student work submitted through the CMSCE, recordings of in-class discussions, student feedback about the learning process and the researcher’s field notes to provide complementary and confirmatory information. The analysis examined characteristics of the communication stimulated by the environment and the ways in which the CMSCE program supported interactions within the class in order to enhance
learning and enable an enriched understanding of the content. The study also examined students’ perceptions of the learning environment.

The study found that the CMSCE program provided an opportunity for each individual to learn at different learning rates. It also allowed the teacher to cater the learning tasks to an individual’s learning ability and interest.

It was evident that students developed an in-depth knowledge of their content in a way that may have been difficult in a traditional classroom. A key advantage was the flexibility of the learning environment. Using the CMSCE program to submit a series of drafts of their work, enabled students and the teacher to engage in numerous discussions they perhaps would otherwise not be able to do. These discussions helped students collaborate during the lessons and outside of the classroom.

Even though generalisations from this study are limited, they might allow practitioners to utilise similar teaching methods in other teaching environments. The study had a strong external validity because it was conducted in its natural setting (Mertens, 1998). However, applying the CMSCE program in a different school with different teachers and students may have not produce the same results as this research. The students, the school and classroom environment and the teacher’s epistemological perspective are likely to influence the outcomes. Of particular importance is a teacher’s pedagogical approach to teaching and the willingness to create and support social constructivist environment in the classroom.
ACKNOWLEDGEMENTS

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Also, I would like to thank Lisa Brown for reading and editing my thesis.

Finally, this study would not have been possible without the assistance of my wife, Jessica, who has been my motivation since the beginning. She has managed my stress, read my work and given me great advice throughout the writing of this thesis.
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