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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.
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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.
# TABLE OF CONTENTS

ABSTRACT .......................................................................................................................... ii
ACKNOWLEDGEMENTS ................................................................................................. iv
TABLE OF CONTENTS ..................................................................................................... v
LIST OF FIGURES ........................................................................................................... x
LIST OF TABLES ................................................................................................................ xi

1. Chapter 1 Introduction ................................................................................................. 1
   1.1 Introduction .............................................................................................................. 1
   1.2 Background to the study ....................................................................................... 3
   1.3 Research questions .............................................................................................. 4
   1.4 Significance and limitations of the study ........................................................... 4
   1.5 Research strategy and context ............................................................................ 5
   1.6 Structure of the thesis ......................................................................................... 6

2 Chapter 2 Literature Review ......................................................................................... 8
   2.1 Introduction ............................................................................................................ 8
   2.2 Theoretical background ....................................................................................... 9
   2.2.1 Social constructivist approach to learning ............................................... 10
   2.2.2 The role of language in learning ............................................................... 16
   2.2.2.1 Speech and learning ............................................................................... 17
   2.2.2.2 Written language and learning ............................................................ 18
   2.2.2.3 Oral and written language in on-line communication ....................... 20
   2.3 Social constructivist learning environments and technology ....................... 23
   2.4 Technology in the classroom ............................................................................. 24
   2.4.1 Applications of technology to collaborative learning ......................... 30
   2.4.2 Computer supported collaborative writing .............................................. 36
   2.5 Summary .............................................................................................................. 45

3 Chapter 3 Methodology ................................................................................................. 48
   3.1 Introduction .......................................................................................................... 48
   3.2 Research design ................................................................................................... 48
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.1 Case study approach</td>
<td>49</td>
</tr>
<tr>
<td>3.3 The participants</td>
<td>50</td>
</tr>
<tr>
<td>3.4 The philosophy of social constructivism</td>
<td>50</td>
</tr>
<tr>
<td>3.5 Computer-mediated Social Constructivist Environment (CMSCE)</td>
<td>51</td>
</tr>
<tr>
<td>3.6 The classroom arrangement</td>
<td>53</td>
</tr>
<tr>
<td>3.7 Lesson design</td>
<td>53</td>
</tr>
<tr>
<td>3.8 Data gathering methods</td>
<td>54</td>
</tr>
<tr>
<td>3.9 Data analysis</td>
<td>58</td>
</tr>
<tr>
<td>3.9.1 Analysis of social constructivist learning</td>
<td>59</td>
</tr>
<tr>
<td>3.9.2 The students perception of learning</td>
<td>63</td>
</tr>
<tr>
<td>3.10 Limitations of study</td>
<td>64</td>
</tr>
<tr>
<td>3.11 Ethical considerations</td>
<td>65</td>
</tr>
<tr>
<td>3.12 Summary</td>
<td>66</td>
</tr>
<tr>
<td>4 Chapter 4 Case Study Analysis</td>
<td>67</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>67</td>
</tr>
<tr>
<td>4.2 Sara</td>
<td>68</td>
</tr>
<tr>
<td>4.2.1 Student's sequence of learning</td>
<td>68</td>
</tr>
<tr>
<td>4.2.2 Sara's task related communication</td>
<td>72</td>
</tr>
<tr>
<td>4.2.3 Evidence of socially constructed episodes and development of in-depth knowledge</td>
<td>73</td>
</tr>
<tr>
<td>4.2.4 Student's reflection on the learning process</td>
<td>77</td>
</tr>
<tr>
<td>4.3 Jenny</td>
<td>78</td>
</tr>
<tr>
<td>4.3.1 Student's sequence of learning</td>
<td>78</td>
</tr>
<tr>
<td>4.3.2 Jenny's task related communication</td>
<td>80</td>
</tr>
<tr>
<td>4.3.3 Evidence of socially constructed episodes and development of in-depth knowledge</td>
<td>81</td>
</tr>
<tr>
<td>4.3.4 Student's reflection on the learning process</td>
<td>83</td>
</tr>
<tr>
<td>4.4 Diane</td>
<td>85</td>
</tr>
<tr>
<td>4.4.1 Student's sequence of learning</td>
<td>85</td>
</tr>
<tr>
<td>4.4.2 Diane's task related communication</td>
<td>88</td>
</tr>
<tr>
<td>4.4.3 Evidence of socially constructed episodes and development of in-depth knowledge</td>
<td>89</td>
</tr>
</tbody>
</table>
4.4.4 Student's reflection on the learning process .................................................. 91
4.5 Amy ................................................................. 92
  4.5.1 Student's sequence of learning ............................................................ 92
  4.5.2 Amy's task related communication ...................................................... 95
  4.5.3 Evidence of socially constructed episodes and development of in-depth
       knowledge .................................................................................................. 96
  4.5.4 Student's reflection on the learning process ............................................ 99
4.6 Lisa ................................................................. 99
  4.6.1 Student's sequence of learning ............................................................ 99
  4.6.2 Lisa's task related communication ...................................................... 101
  4.6.3 Evidence of socially constructed episodes and development of in-depth
       knowledge .................................................................................................. 102
  4.6.4 Student's reflection on the learning process ............................................ 104
4.7 Mandy ............................................................. 106
  4.7.1 Student's sequence of learning ............................................................ 106
  4.7.2 Mandy's task related communication .................................................... 109
  4.7.3 Evidence of socially constructed episodes and development of in-depth
       knowledge .................................................................................................. 110
  4.7.4 Student's reflection on the learning process ............................................ 112
4.8 Ann ................................................................. 113
  4.8.1 Student's sequence of learning ............................................................ 113
  4.8.2 Ann's task related communication ....................................................... 114
  4.8.3 Evidence of socially constructed episodes and development of in-depth
       knowledge .................................................................................................. 116
  4.8.4 Student's reflection on the learning process ............................................ 118
4.9 Hillary ............................................................ 119
  4.9.1 Student's sequence of learning ............................................................ 119
  4.9.2 Hillary's task related communication .................................................... 122
  4.9.3 Evidence of socially constructed episodes and development of in-depth
       knowledge .................................................................................................. 123
  4.9.4 Student's reflection on the learning process ............................................ 124
4.10 Mary ............................................................. 125
  4.10.1 Student's sequence of learning ............................................................ 125
APPENDIX D OBSERVATION OF LEARNING JOURNAL................................. 199
APPENDIX E SEQUENCE OF LEARNING ................................................ 212
APPENDIX F FOCUS GROUP QUESTIONS .............................................. 224
APPENDIX G TRANSCRIPT OF FOCUS GROUP INTERVIEW ................. 226
APPENDIX H ANALYSIS OF EPISODES OF LEARNING ........................ 255
APPENDIX I PARENT INFORMATION SHEET ....................................... 258
APPENDIX J STUDENT INFORMATION SHEET ..................................... 260
APPENDIX K PRINCIPAL CONSENT FORM ......................................... 262
APPENDIX L PARENT CONSENT FORM .............................................. 263
APPENDIX M STUDENT CONSENT FORM .......................................... 265
LIST OF FIGURES

Figure 3.1 EXAMPLE OF STUDENT'S NOTE PAGE ............................................. 52
LIST OF TABLES

Table 3.1 DATA COLLECTION METHODS USED FOR EACH RESEARCH QUESTION........................................................................................................57

Table 3.2 ANALYTICAL FRAMEWORK USED TO IDENTIFY LEVEL OF SOCIAL CONSTRUCTIVISM..................................................................................60

Table 3.3 CRITERIA USED TO IDENTIFY TYPES OF SOCIAL CONSTRUCTIVISM EPISODES .....................................................................................61

Table 4.2 SARA’S COMMUNICATION TO THE TEACHER AND PEERS ....72

Table 4.3 JENNY’S COMMUNICATION TO THE TEACHER AND PEERS ....80

Table 4.4 DIANE’S COMMUNICATION TO THE TEACHER AND PEERS ....88

Table 4.5 AMY’S COMMUNICATION TO THE TEACHER AND PEERS ......95

Table 4.6 LISA’S COMMUNICATION TO THE TEACHER AND PEERS ....101

Table 4.7 MANDY’S COMMUNICATION TO THE TEACHER AND PEERS ..109

Table 4.8 ANN’S COMMUNICATION TO THE TEACHER AND PEERS ......115

Table 4.9 HILLARY’S COMMUNICATION TO THE TEACHER AND PEERS 122

Table 4.10 MARY’S COMMUNICATION TO THE TEACHER AND PEERS ...129

Table 5.1 SUMMARY OF STUDENT’S LEVELS OF SOCIAL CONSTRUCTIVISM ..........................................................................................................................155