

**UNIVERSITI TEKNOLOGI MARA**

**ANALYSIS ON THE IMPLEMENTATION OF  
SOURCE CODE COLLABORATION IN  
ACADEMIC ENVIRONMENT**

**ALFATUZEE BIN HJ BOLOT**

Independent Study submitted in partial fulfillment of the requirements  
for the degree of  
Master of Science Information Technology

Faculty of Information Technology And  
Quantitative Sciences

**NOVEMBER 2005**

## ACKNOWLEDGEMENTS

Alhamdulillah, all praises only for ALLAH, the Almighty by giving me strength and guidance in completing this project report, "Analysis on The Implementation of Source Code Collaboration in Academic Environment". I would like to express my deepest appreciation to Encik Azlan bin Ismail, as my supervisor who is very supporting and directly guided to complete this study report writing.

Not forgotten, I also would like to express my sincere gratitude to all lecturers and colleagues from the Master of Science in Information Technology program, who have shared their thoughts and ideas, cooperation and help throughout my study.

## TABLE OF CONTENTS

<b>TITLE PAGE</b>	<b>i</b>
<b>ACKNOWLEDGEMENTS</b>	<b>ii</b>
<b>DEDICATION</b>	<b>in</b>
<b>TABLE OF CONTENTS</b>	<b>iv</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>LIST OF TABLES</b>	<b>ix</b>
<b>LIST OF ABBREVIATIONS</b>	<b>x</b>
<b>ABSTRACT</b>	<b>xi</b>
<b>CHAPTER</b>	
<b>1.0 INTRODUCTION</b>	<b>1</b>
1.1 Research Background	1
1.2 Research Problem Statement	2
1.3 Research Objectives	3
1.4 Research Scope	4
1.5 Research Significant	4
1.6 Conclusion	5
<b>2.0 LITERATURE REVIEW</b>	<b>6</b>
2.1 Definition of Pertinent Terminology	6
2.1.1 Source Code Programming Language	6
2.1.2 Collaboration	7
2.1.3 Collaborative Learning	7

2.1.4	Collaborative Technologies	8
2.1.5	Knowledge Sharing	8
2.2	Collaboration and Collaborative Learning	9
2.2.1	The Theory of Online Collaborative Learning	10
2.2.2	Collaborative Learning via the Web	11
2.2.3	Cooperative Vs Collaborative Learning	12
2.2.4	Collaborative Learning Development	14
2.3	Collaborative Construction Perspective	15
2.3.1	Collaborative Construction in Source Code Collaboration	17
2.4	Community-Based Innovation	18
2.5	Motivations for Participation, Creating Code and Sharing Information	20
2.5.1	Motives for Participation	20
2.5.2	Motives for Creating and Analyzing Code	22
2.5.3	Motives for Sharing Code or Other Information	24
2.5.4	Enjoyment and Personal Satisfaction Drive Many Long-Term Developers	26
2.6	Internet Collaborative Tools	27
2.7	Knowledge Sharing via Knowledge Base	31
2.7.1	Benefits of Knowledge Sharing	31
2.7.2	The Collaborative Culture of Sharing	32
2.8	Security and Copyright Issue	33
2.8.1	Copyright	33
2.8.2	Infringement	34
2.8.3	Fair Use	34
2.8.4	Web Security	35
2.9	Conclusion	36
	<b>RESEARCH METHODS</b>	<b>37</b>
3.1	Data Collections	37

## ABSTRACT

Collaboration can be simply defined as cooperation between two or more party in doing a specific work. For many years, concept of collaborative learning in educational highlights on how learning by group rather than learn individually. In learning computer programming language, collaboration can be used as a concept to enhance the development of source code or software. The collaboration among students and lectures in source code development will give a lot of benefits for all computing educational institution.

The objectives of this study is to identify the requirements of Source Code Collaboration (SCC) system and to propose a design guideline and research model for future development to implement Source Code Collaboration in academic environment. There are several methods used for conducting this study including by doing general findings and observation, case studies analysis and comparative study from the existence of real-world examples. Therefore, the investigations in this work and the expected result of design guideline and research model from this study intended to define the optimum requirements of SCC and to increase the awareness of collaborative learning among lectures and students to enlarge community activities in a healthy way.