

**APPLYING VALUE STREAM MAPPING IN MEASURING
SOFTWARE TEAM PERFORMANCE THROUGH TASK
MONITORING**

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Abstrak

Memantau prestasi kumpulan adalah penting dalam kerja berkumpulan untuk memastikan kerjasama yang diberikan di antara ahli kumpulan adalah adil. Walau bagaimanapun, mengukur kecekapan kerja berpasukan dalam bidang pendidikan adalah sukar kerana teknik pengukuran yang sedia ada tidak mampu membuat ukuran dengan tepat. Objektif kajian ini adalah untuk mengkaji bagaimana pendidik memantau dan mengukur prestasi kerja berpasukan dari segi kecekapan kumpulan dengan menggunakan teknik Value Stream Mapping (VSM). Teknik ini telah digunakan secara meluas terutamanya dalam industri kerana ia dapat mengukur kecekapan proses pembuatan dan menyediakan visual graf dengan tepat. Kajian ini terdiri daripada empat fasa. Fasa pertama memberi tumpuan kepada kajian isu-isu semasa dan teknik yang telah dikaji dalam kajian lepas. Fasa seterusnya memberi tumpuan kepada mereka bentuk Team Performance Task Monitoring (TPTM) dengan menggunakan teknik Value Stream Mapping (VSM). Fasa ini mengkaji dan menganalisis keperluan dan algoritma yang diperlukan untuk kajian fasa ini. Ia diikuti oleh satu kajian perintis yang menilai kesesuaian teknik yang dicadangkan dalam fasa ketiga. Akhir sekali, hasil kajian dan cadangan disediakan dalam fasa terakhir. Ia menyimpulkan bahawa teknik VSM adalah dapat membantu melihat kecekapan anggota pasukan dalam bidang pendidikan. Oleh itu, ia boleh membantu pelajar untuk meningkatkan prestasi mereka dalam tugas yang akan datang. Ia juga dapat membantu pendidik untuk mengkaji semula tahap kesukaran dalam memberikan tugas dan menyediakan pelan untuk memperbaiki kaedah pengajaran.

Keywords: Group Efficiency, Value Stream Mapping (VSM), Team Performance, Lean

Abstract

Monitoring team performance is crucial in group work to ensure equal contribution among team members. However, measuring the efficiency of the team members in educational field is difficult because the existing measurement techniques are difficult to be applied. Thus, a practical mechanism to monitor the group members' efficiency is highly needed. This study is intended to fill this gap by proposing a technique to measure the group efficiency using Value Stream Mapping (VSM). This technique was mainly used in industry because it is able to measure the efficiency of manufacturing process and visualize it. This study consists of four main phases, which are conceptual study, design Team Performance Task Monitoring (TPTM) Technique using Value Stream Mapping (VSM), evaluation of TPTM, and writing a report. A pilot study was carried out to assess the suitability of the applied technique. Finally, findings and recommendations for future research were discussed. It concluded that VSM technique is able to view the efficiency of team members in educational tasks. Thus, it can help students to improve their performance in their learning process. It also helps educators to review the level of difficulty in assigning assignment and prepare intervention plan to improve teaching methods.

Keywords: Group Efficiency, Value Stream Mapping (VSM), Team Performance, Lean

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Table of Contents

Permission to Use	ii
Abstrak.....	iii
Abstract.....	iv
Acknowledgement	v
Table of Contents.....	vi
List of Tables	vii
List of Figures	viii
List of Appendices.....	viii

CHAPTER ONE: INTRODUCTION	1
1.0 Overview of the Chapter	1
1.2 Background of Study	1
1.3 Research Motivation	3
1.4 Problem Statement	3
1.5 Research Questions	5
1.6 Research Objectives	6
1.7 Research Framework	7
1.8 Operational Definitions	11
1.9 Research Scope	11
1.10 Significant of the Research	12
1.11 Limitation of the Research	12
1.12 Thesis Structure	12
1.13 Summary of Chapter	14
CHAPTER TWO: LITERATURE REVIEW	15
2.1 Overview of the Chapter	15
2.2 Reviews on Team Performance Task Monitoring (TPTM)	15
2.3 Lean	17
2.3.1 Lean Thinking	18
2.3.2 Lean Tools	18

2.4	Application of Value Stream Mapping (VSM)	21
2.5	Team Software Process (TSP)	27
2.6	Summary of the Chapter	29
CHAPTER THREE: RESEARCH METHODOLOGY		31
3.1	Overview of the Chapter	31
3.2	Conceptual Study	32
3.3	Design of Team Performance Task Monitoring (TPTM) Technique by using Value Stream Mapping (VSM) guided by Team Software Process	33
3.4	Team Performance Task Monitoring (TPTM) Requirement	33
3.4.1	Requirement Analysis	34
3.4.2	Identify and Prioritize Task Distribution	34
3.4.3	Algorithm	34
3.4.3.1	Transform Tasks into Process Flow Chart (PFC)	34
3.4.3.2	Analyze Report using VSM	35
3.5	Evaluation of TPTM	37
3.5.1	Case Study	37
3.5.2	Usability Test	37
3.6	Summary of the Chapter	38
CHAPTER FOUR: DESIGN OF TEAM PERFORMANCE TASK MONITORING		39
4.1	Overview of the Chapter	39
4.2	Team Performance Task Monitoring (TPTM) Requirement Analysis	39
4.2.1	Functional Requirements	40
4.2.1.1	Prototype requirement Description	40
4.2.1.2	Use Case Diagram	42
4.2.1.3	Sequence Diagram	43
4.2.1.4	Activity Diagram	44
4.2.2	Software Tools and Programming Language	44
4.3	Value Stream Mapping (VSM) Efficiency's Algorithm	45
4.3.1	Pseudo Codes for Assign Team	45
4.3.2	Pseudo Codes for Lecturer Assign Team	47
4.3.3	Pseudo Codes for Student Download and Upload task	48

4.4	Limitation	49
4.5	Summary of the Chapter	49
CHAPTER FIVE: EVALUATION OF TEAM PERFORMANCE TASK MONITORING		50
5.1	Overview of the Chapter	50
5.2	Case Study	50
5.2.1	Experiment Procedures	51
5.2.2	Case Study 1	52
5.2.3	Case Study 2	52
5.2.4	Case Study 3	53
5.3	Result of Applying Value Stream Mapping (VSM)	53
5.3.1	Team Analysis	53
5.3.2	Class Analysis	56
5.4	Usability Result and Discussion	57
5.5	Respondent Feedback	63
5.5.1	Instructor Feedback	63
5.5.2	Student Feedback	63
5.6	Summary of the Chapter	63
CHAPTER SIX : CONCLUSIONS AND RECOMMENDATIONS		65
6.1	Overview of the Chapter	65
6.2	Summary of the Research	65
6.3	Contributions of the Research	67
6.4	Limotations of the Research	67
6.5	Recommendation for Future Research	68
REFERENCES.....		69

List of Figures

Figure 1.1:	Research Framework (Conceptual Study)	7
Figure 1.2:	Research Framework (Design)	8
Figure 1.3:	Research Framework (Evaluate)	9
Figure 2.1	Value Stream Mapping graph.	20
Figure 3.1:	Overview of Research Methodology	32
Figure 3.2:	Individual Value Stream Mapping (VSM)	36
Figure 4.1:	Team Performance Task Monitoring Use Case Diagram	43
Figure 4.2:	Pseudo Code Assigning Team	46
Figure 4.3:	Pseudo Code Lecturer Assign Task	47
Figure 4.4:	Pseudo Codes student download until upload task	48
Figure 4.5:	VSM efficiency's algorithm	48
Figure 5.1:	Individual Value Stream Mapping (VSM)	55
Figure 5.2:	Usability Test Result – Case Study 1	59
Figure 5.3:	Usability Test Result – Case Study 2	60
Figure 5.4:	Usability Test Result – Case Study 3	62

List of Tables

Table 2.1:	Lean Tools	21
Table 2.2:	Summary of VSM Application in Various Domains	24
Table 2.3:	TSP support tools	28
Table 3.1:	Group value added and summary process cycle time	36
Table 3.2:	Individual Summary	36
Table 4.1:	TPTM Requirement Description	40
Table 4.2:	Development Tools	44
Table 5.1:	Characteristics of Case Study	50
Table 5.2:	Group 71 Value Added	53
Table 5.3:	Group 71 Summary Process Cycle Time (%)	54
Table 5.4:	Individual Summary	54
Table 5.5:	Summary of Case Study 1	56
Table 5.6:	Summary of Case Study 2	56
Table 5.7:	Summary of Case Study 3	57
Table 5.8:	Computer System Usability Questionnaire Scale	58
Table 5.9 :	Characteristic Analysis – Case Study 1	59
Table 5.10 :	Characteristic Analysis – Case Study 2	61
Table 5.11 :	Characteristic Analysis – Case Study 3	62

List of Appendices

Appendix 4-A:	Sequence Diagram	74
Appendix 4-B:	Activity Diagram	78
Appendix 4-C:	UserInterface Diagram	83
Appendix 5-A:	Data Collection	88
Appendix 5-B:	Computer System Usability Questionnaire from http://hcibib.org/perlman/question.cgi	92

CHAPTER ONE

INTRODUCTION

1.1 Overview of the Chapter

This chapter introduces the background of the study, research motivation, problem statement, research questions, and research objectives. The operational definition, research framework, research scope, significance of the research, and limitations of the research are also presented. The chapter ends with the outline of the thesis structure.

1.2 Background of the Study

Monitoring students' activity and performance are very important for educators to provide effective teaching and learning methods. This is to keep students involved in learning and to improve their understanding (Doctor & Iqbal, 2012). Currently, students are struggling with teamwork by using collaborative skills (Vivian, Falkner, & Falkner, 2013). One of the methods to minimize these issues is by monitoring students' task activity closely (Juan, Daradoumis, Faulin, & Xhafa, 2008). When the students' tasks can be monitored closely, educators can determine non-participating group members and balance distribution tasks and non-performing team members. In addition, it can help educators to identify the bottleneck area and thus improve team performance. The educators also face challenges in designing a course to meet current demand in software development. The course needs to provide guidelines for students, monitoring student processes for each task and the result, especially in large classes (Rong & Shao, 2012). Based on the above challenges, researchers are

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