UNIVERSITI TEKNOLOGI MARA

PAMIND: A PENGAJIAN AM WEB BASED LEARNING FOR STPM STUDENT USING CONSTRUCTIVIST LEARNING THEORY

AHMAD KHIR RASHDAN BIN MOHAMAD SHAMSUDIN

BACHELOR OF INFORMATION SYSTEMS (HONS.)
BUSINESS COMPUTING

JULY 2026

TABLE OF CONTENTS

CONTENT	PAGE
SUPERVISOR APPROVAL	**i**
STUDENT DECLARATION	**ii**
ACKNOWLEDGEMENT	**iii**
ABSTRACT	**iv**
TABLE OF CONTENTS	**v**
LIST OF FIGURES	**ix**
LIST OF TABLES	**xi**
LIST OF ABBREVIATIONS	**xiv**
CHAPTER ONE: INTRODUCTION	
1.1 Background of Study	1
1.2 Current Business Process	3
1.3 Problem Statement	5
1.4 Objectives	6
1.5 Scope	6
1.6 Significance	8
1.7 Project Framework	9
1.8 Gantt Chart	11
1.9 Conclusion	11
CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	14
2.2 E-Learning	14
2.3 Learning Management System	15
2.4 Web Based Learning	16
2.4.1 Characteristics of Web Based Learning	16
2.4.2 Key Components and Functional Requirements of Web-Based Learning	18
	18
2.4.3 Importance of Web-Based Learning in Malaysian Education	18

2.4.4 Advantages of Web-Based learning for Student Education 20
2.4.5 Features of Web-Based Learning 21
2.5 Education 22
2.5.1 Malaysian Higher School Certificate (STPM) 23
2.5.2 Subject *Pengajian Am* in STPM Syllabus 24
2.5.3 Challenges in Learning *Pengajian Am* 25
2.6 Constructivist Learning Theory 25
2.6.1 Key Concept of Constructivist Learning Theory 26
2.6.2 Benefits and Application of Constructivist Learning Theory 27
2.6.3 Previous Studies Utilizing Constructivist Learning Theory 28
2.7 ADDIE Model 28
2.7.1 Analysis Phase 29
2.7.2 Design Phase 29
2.7.3 Development Phase 29
2.7.4 Implementation Phase 30
2.7.5 Evaluation Phase 30
2.8 Similar Existing Systems 30
2.8.1 PengajianAm.com 31
2.8.2 Course: Malay for Beginner 33
2.8.3 BBC Bitesize 35
2.8.4 Comparison of Similar Existing System 40
2.8.5 Comparison of Similar Existing System Based on Web-Based 41
2.9 Implication of Literature Review 42
2.10 Conclusion 43

CHAPTER THREE: METHODOLOGY

3.1 Introduction 45
3.2 Project Methodology 45
3.3 Analysis Phase 48
3.3.1 Content requirements 49
3.4 Design Phase 52
3.4.1 Use Case Diagram 52
3.4.2 Context Diagram 54
3.4.3 Data Flow Diagram 56

ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to Allah, the Most Merciful and the Most Compassionate, for His guidance and blessings throughout this endeavour. It is through His grace that I was granted the fortitude, perseverance, and clarity of mind necessary to overcome the challenges encountered while completing this project.

I would like to express my sincere appreciation to my supervisor, Dr. Ung Ling Ling, for her invaluable guidance, continuous support, and constructive feedback throughout the two semesters of supervision. Her extensive expertise, critical insights, and unwavering encouragement have significantly contributed to the successful completion of this project and have inspired me to consistently strive for excellence. I would also like to extend my heartfelt thanks to Miss Hasnul Azirah, my lecturer for CSP600 and CSP650, for her guidance and knowledge imparted over the two semesters, which have greatly contributed to the success of this undertaking.

My sincere appreciation also goes to my family, whose unwavering support and encouragement have remained a constant source of strength despite the physical distance between us. Their patience, understanding, and steadfast belief in my abilities have been instrumental to my perseverance throughout this journey. This achievement would not have been possible without their continuous love and support, and as such, this accomplishment is as much theirs as it is mine.

Finally, I wish to acknowledge my own perseverance and determination in completing this project. Despite the various challenges and setbacks encountered along the way, I remained committed to seeing this endeavour through to completion, and I am grateful for the personal growth this journey has afforded me.

ABSTRACT

STPM *Pengajian Am* is a core Malaysian pre-university subject covering constitutional law, government systems, and national policies, which students have historically struggled to master due to its heavy reliance on passive rote memorisation of abstract factual content. This study develops PAMind, an interactive web-based learning portal for STPM *Pengajian Am* students, grounded in Constructivist Learning Theory to shift the educational approach from passive text-heavy study to active, student-centred knowledge construction. Three objectives guided this project: to identify the requirements for the PAMind platform, to design and develop the constructivist web-based portal, and to evaluate its functionality and usability. The ADDIE instructional design model was adopted as the development methodology, guiding the project from requirement analysis through design, development, implementation, and evaluation. The portal was developed using HTML, CSS, JavaScript, PHP, and MySQL, incorporating four interactive learning games (*Penyusun Kata, Padanan Memori, Dewan Rakyat: Bantah!* and Who Wants to Be a Millionaire), a discussion forum, structured study notes, chapter quizzes, and a self-regulated student dashboard. Usability evaluation was conducted with 32 STPM student respondents using the standardised 10-item System Usability Scale (SUS) questionnaire. Results confirmed that PAMind successfully addresses the limitations of traditional STPM study methods and offers a scalable, engaging, and pedagogically sound e-learning solution for *Pengajian Am* preparation. Expert validation was conducted by three subject matter experts across seven evaluation dimensions, achieving an overall compliance rate of 94.87% (74 out of 78 items), with 100% compliance confirmed in constructivist implementation, multimedia elements, self-regulated learning, and gamification design. All seven functional test cases recorded a PASS status, confirming the system's technical stability. These results confirm that PAMind successfully addresses the limitations of traditional STPM study methods and offers a scalable, engaging, and pedagogically sound e-learning solution for *Pengajian Am* preparation.