CHAPTER I

INTRODUCTION

1.1 Background

In today's global world, the importance of English cannot be denied and ignored since English is the greatest common language spoken universally. To learn English requires constant practice. The kind of feeling that is common among students is that it is not possible to achieve fluency or mastery over the English language[1]. This is all the more true where the advanced countries have opened their doors for recruiting technically qualified persons.

Media English is a language teaching academy and consultancy founded in 1995 whose objective is to create and deliver English language training using engaging and innovative multimedia technology. Media English was one of the first language institutions to systematically use IT as part of their teaching and one of the first to set up a dedicated learning management system for its students. Since 2007, it has primarily focused on consultancy for world famous E-learning editors and publishers. Its founder and director was formerly a computer programmer and has worked in EFL for over 30 years. A qualified Cambridge DELTA instructor, he is particularly keen in leveraging developments in gaming and VR to enhance the learning experience for students.

Media English uses the Common European Framework of Reference (CEFR) for attributing levels in the English language. The CEFR is a framework, published by the Council of Europe in 2001, which describes language learners'

ability in terms of speaking, reading, listening and writing at six reference levels[2]. CEFR English levels are used by all modern English language books and English language school in Europe. CEFR levels are recommended for use in job resumes and other English levels of reference. The Common European Framework is intended to overcome the barriers to communication among professionals working in the field of modern languages arising from the different educational systems in Europe.

With so many E-Learning applications on the internet, users have to look for applications that suit their needs, such as applications that can filter courses according to user levels. To overcome this, and to help Media English determine the level of English according to user needs based on the criteria required by the user, a recommendation system is needed. It is therefore necessary to build a recommendation system to display courses that can help and facilitate users in the course selection process. This system uses the *simple additive weighting* (SAW) method. This method was chosen because it requires the user to make a decision to determine the weight for each attribute. The total value for an alternative is obtained by adding up the entire multiplication result between the rating and the weight of each attribute[3]. The objective of this research is to apply the simple additive weighting method to the Media English application to recommend English language courses based on the levels and needs of the students for the improvement of English language teaching and learning.

1.2 Problems

Based on the background that has been stated, the problems that can be formulated are as follow:

1. How to make an application to assist in optimal decision making with several criteria using Simple Additive Weighting (SAW)?
2. How can the application of the Simple Additive Weighting (SAW) method make recommendations based on user levels?
3. How accurate will the predictions be using the Simple Additive Weighting (SAW) method?

1.3 Problems Limitation

In presenting a scientific paper, problem boundaries are needed so that the discussion is more focused. Some of the problem limitations used in this study are as follows:

1. This system will be implemented in the Media English Application using Node JS as the server side and MongoDB as the database.
2. This system uses the Simple Additive Weighting (SAW) method for system recommendations.
3. This feature can only handle user level recommendations.
4. The criterion that is used as a parameter in the study is the policy of Media English.

1.4 Research Purpose

The purpose of this thesis are as follows:

1. Make an application to assist in optimal decision making with several criteria using Simple Additive Weighting (SAW)
2. Knowing the application of the Simple Additive Weighting (SAW) method can help recommend the user's English level
3. Knowing the accuracy of the predictions generated by the Simple Additive Weighting (SAW) method.

1.5 Research Benefits

The benefits of this research are:

1. Assist users in determining the level of English which will later recommend courses as desired
2. A neatly organized data store as this Decision Support System uses a database stored in the Cloud

1.6 Research Methodology

The research method used in writing this thesis uses data collection methods, analysis methods, system design, implementation, testing methods, and report formulation:

1.6.1 Method of Collecting Data

The research method used to obtain information about the object of the problem is as follows:

1. Observation method

   The method of collecting data is by observing directly the problems to be studied to obtain information.

2. Literature method

   Collecting data by reading books, literature and various source codes from communities on the internet related to the problem as reference and comparison material.

1.6.2 Problems Analysis

The analysis is carried out as follows.

1. Business Process Analysis in Manual Systems
2. System Requirements Analysis
   a. Functional Requirements Analysis
   b. Analysis of Non-Functional Requirements

1.6.3 System Design

Here, I will make a system flowchart, Data Flow Diagram (DFD), and Conversational Flow as well as make database designs such as Entity Relationship Diagrams (ERD), and relationships between tables, and create user interface designs.

1.6.4 Implementation

The previously carried out steps will be converted into program codes and modules which will later be integrated into a complete system.

1.6.5 Testing

The system that has been created will be tested to validate whether the system has functioned properly when used. The trial methods carried out include:

1. Validation of decision support system calculations

Tests are carried out to ensure that the applications that have been made can run well. to check the functionality requirements of the program being made. Furthermore, there will be testing of the validation of the calculation of the Decision Support System by comparing the results of manual calculations on the Excel with the calculations in the system will be made.

2. Black-Box Testing

   The tests carried out are related to the functional specifications of the software. The examiner performs input and tests on the program function specifications, to assess whether the program created is able to run properly in accordance with the design that has been made.

3. Usability Testing

   The objective of usability testing is to determine how well the user will be able to use and understand the application. This includes the system functions, publications, help text, and procedures to ensure that the user comfortably interacts with the system. Usability testing should be performed as early as possible during development and should be designed into the system.

1.7 Systematics Writing

The systematic writing of this research is structured to provide an overview of the research carried out by the systematic writing of this thesis, which are as follows:

CHAPTER I INTRODUCTION

Contains the background, problem formulation, problem boundaries, research aims and objectives, research benefits, research methods, and writing systematics.

CHAPTER II RELATED WORKS

This chapter contains a description of the theories used and related to this research.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains the analysis of the methods used, to improve the quality of the Recommendation System

CHAPTER IV IMPLEMENTATION AND DISCUSSION

This chapter contains a discussion of the implementation of the methods used as well as the analysis and design that has been done previously and testing the results obtained.

CHAPTER V CONCLUSION

This closing chapter contains the conclusions obtained by the author through the previous chapters and also answers the problem formulations in chapter 1, as well as suggestions for further research.

REFERENCES

This section contains a list of references that have been used in writing.