1.0 RESEARCH OVERVIEW

Our daily life has changed so much since the advent of the Internet and World Wide Web. It changes the way we communicate and work. It makes information available conveniently almost anytime and anywhere – a matter of a mouse click away.

On seeing the potential of Internet, profit and non-profit based organizations have moved to increase the marketing scope and refine the operations through the use of the Internet and World Wide Web. Organizations set up web sites to provide all kinds of services to attract customers ranging from information distributions, online banking, electronic commerce, electronic mail services, entertainment portals and many more. However, in order to provide these facilities, the most important task that is to determine the requirements of the potential users.

Academic institutions are no different. Innovations in technology have also changed the demands and expectations in the educational community. Today’s students expect web-based registration, online digital library privileges, smart cards, and a host of other learning services that save them time. University and school administrators faced with constraints combined with great demands on the computing infra-structure; need to deliver information and services and many more, effectively. All in all, university audiences i.e. potential students, existing students, staffs and research sponsors, want to view an effective website.

This research focus on the determining the quality and attributes of academic institutions web sites. Quality here in the context of this study is defined as academic portals that meet the purpose or requirements of its existence. In order to effectively select quality characteristics, every particular user viewpoint should be considered. In the context of an academic web site domain, there are mainly three different groups of audiences i.e. current and prospective students, academic personnel, and research sponsors (Olsina et al, 1999). Attributes are defined as features of an academic web site that are required to meet the quality which are composed of characteristic such as usability, functionality, reliability, and efficiency. This allows the administrator to understand and draw conclusions about the state-of-the-art of the quality of academic
sites, from the selected visitors’ view. Thus an academic web site that meets the both the quality and attributes requirements can be considered as an effective web site. An affective web site is web site that is usable, in simple term the core existence of the web site defies its existence (Jones et al, 1999).

1.1 PROBLEM STATEMENT

The academic institution web site is rapidly increasing in importance. While still in an evolutionary state, university web sites provide a new interface between colleges and constituent groups, provide new mechanisms to organize campuses, and offer the promise of new ways to create communities of learners. However, there is very little research on designing effective academic web sites. Thus, academic institutions tend to just leave the design factor to their web designers without realizing that the web site may be not effective. Loads of information and services relevant to university audiences are not clearly defined.

Academic institutions failed to see in detail how audiences such as students, academician, parents and investors for instance navigate and react to every aspect of their site. They must also be able to instantly analyze key information on stakeholders' information transaction, behavior, and act their findings to increase site traffic, remove traffic obstacles, and minimize number of users who abandon the site before completing an information transaction.

There is a major need of information for web sites visitors. The wealth of click-stream data available on how stakeholders search, navigate, traverse, and downloads or fail to download grows every day. In tackling this issue, the research will concentrate on studying past research relevant to academic web designing. Surveys will be carried out on academic audiences to determine their needs.

The research is expected to propose a theoretical framework model in designing academic institutions web sites. This can be achieved by determining the quality and attributes of academic institutions web sites before a prototype of the web site is generated.
1.2 RESEARCH OBJECTIVES

The objectives of the research are as follows:

1) To evaluate performances of Malaysian academic web sites.
2) To gather user needs and requirements of the web sites.
3) To propose a framework on the best approaches in designing an efficient and effective academic web site with focus the Malaysian academic web site.
4) To develop a prototype of academic web site that is designed based on the framework developed.

1.3 SCOPE

The scope of this research is limited to Malaysian academic institutional web site. Studies on past research are done in order to generate useful relevant documentation on what is needed in academic web sites and. A number of major papers are collected and will be discussed later in the review of the literature chapter. This includes papers on design, web sites requirements, evaluation models and human computer interaction theories. Following are the list of academic institutions that will be used for comparison and gathering of data to determine quality attributes of an academic web site.

<table>
<thead>
<tr>
<th>Academic Institution</th>
<th>URL</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universiti Malaya</td>
<td><a href="http://www.um.edu.my">http://www.um.edu.my</a></td>
<td>Public university</td>
</tr>
<tr>
<td>Universiti Putra Malaysia</td>
<td><a href="http://www.upm.edu.my">http://www.upm.edu.my</a></td>
<td>Public university</td>
</tr>
<tr>
<td>Universiti Kebangsaan Malaysia</td>
<td><a href="http://www.ukm.com">http://www.ukm.com</a></td>
<td>Public university</td>
</tr>
<tr>
<td>Universiti Terbuka Malaysia</td>
<td><a href="http://www.oum.edu.my">http://www.oum.edu.my</a></td>
<td>Private university</td>
</tr>
<tr>
<td>Monash University Malaysia</td>
<td><a href="http://www.monash.edu.my">http://www.monash.edu.my</a></td>
<td>Private university</td>
</tr>
<tr>
<td>KDU Kolej</td>
<td><a href="http://www.kdu.edu.my">http://www.kdu.edu.my</a></td>
<td>Private college</td>
</tr>
</tbody>
</table>
1.4 METHODOLOGY

The main methodology used in completing this research is by using surveys. Three different surveys are done with the help of about 400 respondents. This includes potential students, enrolling students, staff and academicians.

The methodology used in this study is presented in table 1.0 below.

<table>
<thead>
<tr>
<th>Table 1.1 : Methodology steps undertaken in this study</th>
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</thead>
<tbody>
<tr>
<td>1. Literature review</td>
</tr>
<tr>
<td>2. Survey One</td>
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<tr>
<td>3. Survey Two</td>
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<tr>
<td>4. Development of prototype</td>
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</tbody>
</table>
### 5. Survey Three

Survey carried out by 100 respondents evaluating the performance of the FCSIT prototype web site – using 2QCV2Q Model and Spider Chart

### 6. Framework

Propose a framework to determine quality of Malaysian Academic web site.

Survey one and survey three is done using the 2QCV2Q model. The model is chosen because following reason listed below (Mich L. et al, 2003):

a. The model is scalable. Thus it allows evaluation at varying degrees of detail, based on the evaluation purpose, requirements and the user’s needs. This is the strength of the model i.e. its ability to generate statistical value.

b. The model is domain independent, it is applicable to diverse sectors, from the tourist sector to non-profit organizations, from service companies to the public administration and academic institution.

c. The model also offers ease of use. It’s easy to facilitate its comprehension and application by people with different skills.

d. The model can be use to identify the factors contributing to the success of a Web site, or the evaluation table used for the annual ranking of the best web site.

### 1.5 RESEARCH ORGANIZATION

**CHAPTER ONE: INTRODUCTION**

This section gives an overview of the research and the objectives and the research methodology.
CHAPTER TWO: LITERATURE REVIEW

The review of the literature will be divided into several major segments that concern with generating information regarding overall process of building and evaluating web sites.

The first segment of this chapter focuses on determining the major problems and requirements in engineering an academic based web site.

The second segment of the chapter concerns on studying the area of human computer interaction. Discussion will be done on the three major principles in relevant of web site design. The three principles are recognizing the diversity, the eight golden rules of interface design and preventing errors.

The third part of the chapter concentrates on determining the quality characteristics and attributes of academic web sites.

After studies on requirements are done, the literature review will concentrate on studying evaluation methods on web sites.

The review will also concentrate on evaluating information, which concentrates on test of information quality. All issue regarding the quality of information will be discussed in detail before it is published into the academic web sites.

Next, the review will cover the issue of web site usability assessment model.

The final part of the literature review is about designing successful web site in respect to commercial scenarios for the web. The segment will study the issue of academic web site as an active model of marketing communications.

CHAPTER THREE: METHODOLOGY
This chapter gives an overview on the method used in the research to evaluate Malaysian academic web sites. A large portion of the research will be conducted using survey. Generally, three different surveys were conducted.

CHAPTER FOUR: ANALYSIS OF RESULTS AND DISCUSSION

In this chapter, the analysis and evaluation of the three surveys executed are done. Surveys one and survey three are done by applying classical rhetorical principles based on ciceronian loci or argumentum, which can be used to check the completeness of an exposition using the model 2QCV2Q. Once the statistical values have been generated, a conclusion can be generated using Spider Web Model.

CHAPTER FIVE: PROPOSED FRAMEWORK

In this chapter, presentation of a theoretical framework is done based on information gathered from the review of the literature, survey and statistical values generated from the survey. In addition, the framework also includes ideas on user satisfaction with web user interface. However, the scope of the proposed framework is only suitable for Malaysian academic web sites since the information gathered are based on local university audiences’ needs.

CHAPTER SIX: SYSTEM ANALYSIS

This chapter is on system analysis, where the prototype functional and non-functional requirements of the prototype web site are identified. The system’s strength and weakness are also discussed here.

The chapter then describes the consideration for system design, database implementation (DFD) and the process design utilized in the system development.

CHAPTER SEVEN: SYSTEM DESIGN

In this chapter, information on the design of proposed system will be discussed in detail. Design aspects of the system that will be considered in this chapter are the system architecture, user interface and database designs.
CHAPTER EIGHT: SYSTEM IMPLEMENTATION AND TESTING

The development environment and development tools and testing involved is explained in detail under this chapter. Under the system development environment section, the various hardware and software used to develop the system are discussed in detail. The chapter also explains the development process of the Faculty of Computer Science and Information Technology, University of Malaya web portal. Finally, discussion focuses on various types of testing undertaken such as unit testing, system testing and integration testing.

CHAPTER NINE: CONCLUSION AND RECOMMENDATION

This final chapter presents the overall conclusion of this study from the aspect of strength, weaknesses and future enhancement.