CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 Introduction

This chapter provides an overview of the study. It begins with the examination of the research background, and follows with the problem statement. Details are then provided of the research purpose and objectives; key research questions asked and the expected outcome. The chapter then provides a brief explanation of the research methodology and research unit of analysis. Then, it discusses on the work system theory (WST) which is used in this study. It concludes with an outline of the structure adopted for the remaining sections of the study and a chapter summary.

1.2 Background

As we enter the 21st Century, there is a great deal of discussion in the education sector about the type of competency our youth will need to survive and flourish in this century. With globalization and rapid technological advances, the job market has become more mobile and competitive than ever. According to the Malaysian Ministry of Higher Education (2012), almost all the universities today focus on how to increase the students' competencies. Competency is the capability to choose and use an integrated combination of knowledge, skills and attitudes with the intention to realize a task in a certain context; while personal characteristics such as motivation, self-confidence, and willpower are part of that context (Hager & Gonezi, 1993).The change in the nature of work increases the need for 21st century competencies preparation. However, preparing the students to meet the challenges of the future needs depends on the Higher Educational Institutions (HEIs) curriculum design.

One of the main objectives of Malaysian Ministry of Higher Education (MoHE) is to generate competent graduates to satisfy the national and international manpower

needs with 75 percent of the graduates employed in their relevant fields within six months within their graduation (The Ministry of Higher Education of Malaysia, 2009). During the Tenth Malaysian Plan 2011-2015 speech, Malaysian Prime Minister highlighted that, only 23 per cent of the workforce is skilled workers in year 2010. He stressed that, there is a need to improve the composition of skilled workers to at least 37 per cent by year 2015, to become a developed nation. In order to deal with the cutting edge competition, the HEIs have to adopt new challenges in search for excellence. So, HEIs should provide the needed knowledge; skills and expertise for students to succeed at work as per requirement of the industry.

According to Stobie (2007), the concept of curriculum refers to a diversity of elements which can be separately identified as contributing to the learning process. Curriculum is important because it discusses rationale, aims and objectives, assessment, content, learning activities, teacher role, materials and resources, grouping, location, and time . Changing one component will affect the others to some extent (Akker, 2003). As HEIs have expanded and become more complex, the management of the curriculum has come to be seen as rather important among policy makers. In developing countries, many HEIs experience a growing gap between their curricula and the demands from society, business and industry for a more flexible workforce with competencies. Glenn (2005) affirmed that a skills gap exist when there is a difference between the skills taught in HEIs and the skills requested by the potential employers.

The goal of this study is to use Knowledge Management concept to capture and store the data in the database. It then can be utilized to analyze course component taught against the job database. This system can then support and recommend changes to the course curriculum when there is difference in knowledge and skill components between courses taught and job requirement. KM is nothing new. What is new is our awareness that knowledge has to be managed as a resource. KM is about capturing, storing,

applying and reuse the information. It can be a powerful source of information database. Information about job and its details specification can be stored and analyzed in a KM system to get the required knowledge and skills needed for a particular job. These information can be a useful reference source for HEIs to develop or support its curriculum process. KM is an approach used universally in knowledge intensive environment. It could maintain the competitive advantage for an organization. KM is not only about managing the knowledge but also overseeing the processes that act upon the knowledge. These processes include developing knowledge; preserving knowledge; using knowledge and sharing knowledge (Faxiang & Frada, 2006). KM is intended to help organizations to create, share, and use knowledge effectively (Davenport & Prusak, 1998). Kidwell et al. (2001) found that HEIs have large options to relate KM practices to support their entire education task. Harvey (1999) indicated in his studies that the British Government wanted to establish better links between the graduates and the real world, which meant that relevant government agencies and HEIs should develop some sort of employability performance indicators to assess how the graduates perform and match against the benchmarks required by employers and industry. A new research agenda is therefore needed to improve our understanding of why the KM approach is important in HEIs to support its curriculum. The competitive benefits of KM efforts have been established and recognized in industry, government and in the academic industry (Ribiere, 2001).

This study is designed to provide the answer to the research questions presented in section 1.5. The purpose of using the KM approach in HEIs is to support the employability of ICT graduates and the improvement of curriculum review process. KM role is focused by looking at the issues, challenges and opportunities involve in making sure that the right knowledge is distributed to the right people at the right time. In this

study, KM consist of creation, manage, storage, distribution and application process. The details are discussed in Chapter 2.

1.3 Problem Statement

Malaysia is gaining worldwide recognition as a preferred destination for tertiary and higher education (MoHE, 2011). Currently Malaysia is ranked 11th worldwide by UNESCO for its demand to students, the number of international students at various public and private HEIs has increased significantly from below 2000 in 1995 to 75,000 in 2009 (MOHE, 2011). The HEIs in Malaysia presently support a wide variety of undergraduate and post graduate degree programs which are continually monitored by the Malaysian Qualifications Agency (MQA). The main role of the MQA is to apply the Malaysian Qualifications Framework (MQF) as a root for quality assurance of HEIs. This ensures that higher education institutions and their programs are assured of maintaining the required standards of learning, as well as their delivery mechanisms.

However, as HEIs have expanded and become more complex, the planning process within these institutions, and therefore the management of the curriculum, has come to be seen as rather important among policy makers. This decision was prompted by changing industry needs, Ministry of Higher Education (MOHE) requirements, MQA's condition and the desire to remain competitive. The Senate appointed a group to coordinate the assessment of the present curriculum structure and to think of a variety of alternatives. Before a new programme can be offered in Malaysian HEIs, a market survey and the current state of resources availability would be conducted. The emerging job market for graduates of a new programme must be examined in order to profile the skills and competencies needed and ensure that these skills are included in the new academic curriculum. Employers' perceptions are also used for the configuration of

market needs and curriculum design. Commentaries of experts outside the University or captains of industry are obtained to ensure the relevancy of new programmes.

Annually, Malaysia produces approximately 60,000 graduates from all its HEIs. In 2006, the highest graduate unemployment rates were among those in computer science (19.5 percent). Such high percentages are disconcerting and require a closer examination to address the underlying causes. According to Morshidi, et, al. (2012), Malaysian HEIs are under attack from employers and the government for not producing graduates with the skills required by the industries. There is a distinct gap between the expectations of the employers and academics. It was stressed that Universities cannot guarantee employment for their graduates without collaboration with the employers in the IT sector (Morshidi, et, al., 2012). If the curriculum produced by MoHE is not accurate, it will be of little impact even how well the HEIs deliver. Today, curricula would be constantly improved. The curriculum needs to go through a continuous improvement process that involves judgment of the curriculum. There are three main types of gaps, viz curriculum gaps, course gaps and program gaps. Curriculum gaps occur when an issue is determined to be essential but does not present in the current curriculum. When the current curriculum does not meet the needs of its basic, then it is important to design new courses that present essential topics currently lacking from the curriculum. Secondly, course gaps exist when there is a need to introduce new courses to provide coverage of important concepts and skills. Since technology changes rapidly, courses can become out of date.

Essential topics in the curriculum can be established by updating the obsolete topics in present courses with the important topics in a course. In the case of course gap, introducing a new course is unnecessary. It could be solved by changing the existing course. The third gap is Program Gaps which occur when the students unable to take the courses due to inflexibility in program constraints. Here the HEIs need to ask the

validation question whether their program includes the accurate requirements. Program gaps expose areas where the program itself is not accurate. So, the only way to resolve this problem is to make adjust to the program requirements themselves.

Besides that, the competency or employability debate added pressure for HEIs to develop curricula that included the teaching of essential discipline skills and general or core competencies addressing workplace needs. Carnevale, Gainer & Meltzer (1990) report that employers and the business community perceive that HEIs programs are failing to achieve specific, real-world goals in the preparation of students. Evaluation of the process of curriculum development plays a vital role in channelizing and keeping the direction of graduates on the desired way for the achievement of national objectives and keeping the system update respect to changing scenario of time. Curriculum development process also undergoes transformation due to newer developments in education and its evaluation keeps it valid, reliable and keeps it in the right direction. Recommendations through evaluation for any process have a message of eternity for it. Therefore the needs to organize the curriculum development process in such a way which should prepare the youth for pursue of the higher education as well as to make them able to adjust with their practical life meaningfully and productively are necessary. Because the goals of education can be attained only through valid reliable curriculum and proper evaluation of the process for updating and fulfilling required social needs. Knowledge Management is not only about managing the knowledge but also overseeing the processes that act upon the knowledge. So, it is important to implement knowledge management concept in HEIs. It could capture and store the data in the database. It then could be utilized to analyze courses component taught in HEIs against the job database. Knowledge Management system could recommend changes to the course curriculum when there is difference in knowledge and skill components between courses taught and job requirements. Knowing the importance of Knowledge

Management, however, to date, a study related to KM practices, which addresses the role of KM approach in supporting the employability of ICT graduates and the improvement of curriculum review process, employing qualitative and quantitative research methods, within the HEIs environment in Malaysia has not been conducted. Thus, it would indeed be interesting to understand how KM takes shape within HEIs.

1.4 Research Objectives

The purpose of this study is to use KM approach to support the HEIs curriculum review process. This would help HEIs to design the accurate curriculum and to deliver the appropriate curriculum to their students based on industry needs. This would satisfy the requirements of the employers with the accurate competencies who seek for competent graduates. The KM approach would benefit the students, HEIs, industry, government and the country as a whole. To produce effective curriculum review process using KM approach, a researcher must have some conception of what are the aspects to focus at while supporting the curriculum review process. Therefore, the study aims to realize the following objectives:

1. To elicit higher education stakeholders' understanding of knowledge management practices, their feedback of ICT programme instruction and the curriculum review process.
2. To explore the higher education stakeholders' perception of the employability of ICT graduates.
3. To capture the requirements of a knowledge management system that can support the employability of ICT graduates and the improvement of curriculum review process.

4. To design and develop a knowledge management system that can support the employability of ICT graduates and the improvement of curriculum review process.

1.5 Research Questions

In order to meet the purpose and objectives of the study, the following research questions will be used to frame this study.

1. How do Knowledge Management practices influence the ICT programme instruction and curriculum review process?
2. What are the stakeholders' perceptions of the employability of ICT graduates?
3. How could knowledge management system support the employability of ICT graduates and the improvement of curriculum review process?
4. How well does the KM tool support HEIs to support the curriculum review process?

1.6 Expected Outcome

In order to improve the competencies among the graduates in HEIs, the researcher tried to open the black box of the curriculum issue wide and reduces the gap mainly between the students, HEIs and employer. This is carried out by introducing KM tool in HEIs. KM tool could help the HEIs in the process of supporting the curriculum review process.

The main function of KM tool is to capture the employer's requirements on the type of applicant's competency in the job market. By doing so, HEIs could access to the KM tool and get them updated on the type of competency required by the employers. The KM tool could compare the skills and knowledge taught in the current curriculum in the HEIs against what are the competencies required by the employers in the job

market. Besides that, through statistics, a chart will be shown on the uppermost skill and knowledge required in the job market. The system will be also able to trace the subject that is affected. It will be able to provide suggestion on the type of action to be taken to improve the curriculum. Besides benefiting the HEIs, the KM tool also could benefits the students. Students can be updated by their HEIs on the latest job market requirements and they can get themselves prepared accordingly on both hard skills and soft skills. Besides that, the KM tool also let the employers to post the part-time and full-time job vacancies for the current students and graduated students. This gives opportunities for the current students and graduated students to apply for a job placement that eventually build up their experience and skill.

Besides benefiting the students, the KM tool also lighten the burden of the employers to hunt for workers. The employers could view the applicants application form and resume through the KM tool. The employer could short-list the application and invite them for an interview through the KM tool. Figure 1.1 illustrates how communication link is build to connect among the students, HEIs and employer using KM tool.

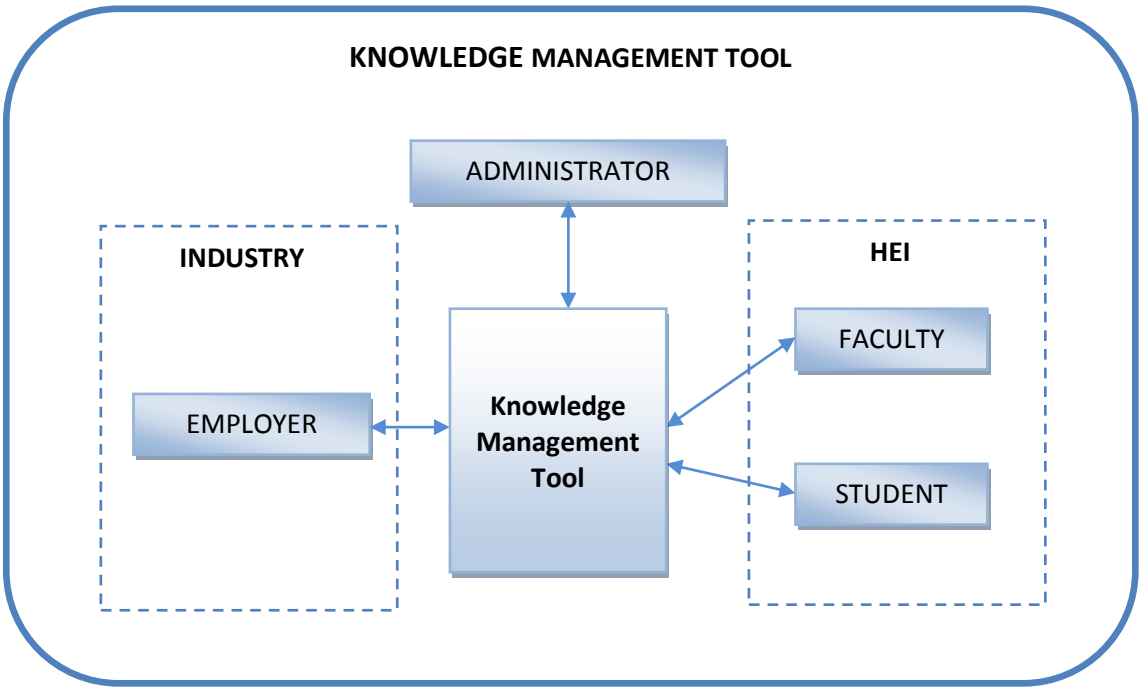


Figure 1.1: Proposed study design

1.7 Work System Theory

Work System Theory (WST) is used in this study to help develop a KM tool to support the curriculum review process. WST which is primarily used for analyzing and designing systems in organizations, but it also contains concepts, frameworks, and principles that can be used for explanation and prediction. According to Davis (1971), WST is interesting as a body of theory in the Information System field because it links a well-defined big picture view of Information Technology systems in organizations with more detailed concepts and theories for analysis, explanation, prediction, and design and action.

The WST is an approach for understanding, analyzing and improving systems in organizations (Alter, 2002). WST is helpful to describe the chosen system, identify the problems and opportunities, describe the possible changes, and outline the possible impacts as those changes disseminate to other parts of the system. WST support the analysis and design efforts and are useful in research. According to Alter & Wright (2010), WST is a body of theory about systems in organizations rather than a body of theory only about information systems. Figure 1.2 shows the WST model.

WST was chosen in this study because it is developed with the conscious goal of incorporating ideas and methods associated with a broad range of disciplines and it could be used in research from a systemic perspective. The WST provides a non-technical approach to visualize and analyze systems related problems and opportunities (Alter, 2006). In this study, a WST is defined as a system in which the participants carry out work using information, technology, and other resources to produce products and services for customers. Some of the elements that the study used from WST are the business processes, participants, information, technology, customers; and product and services.

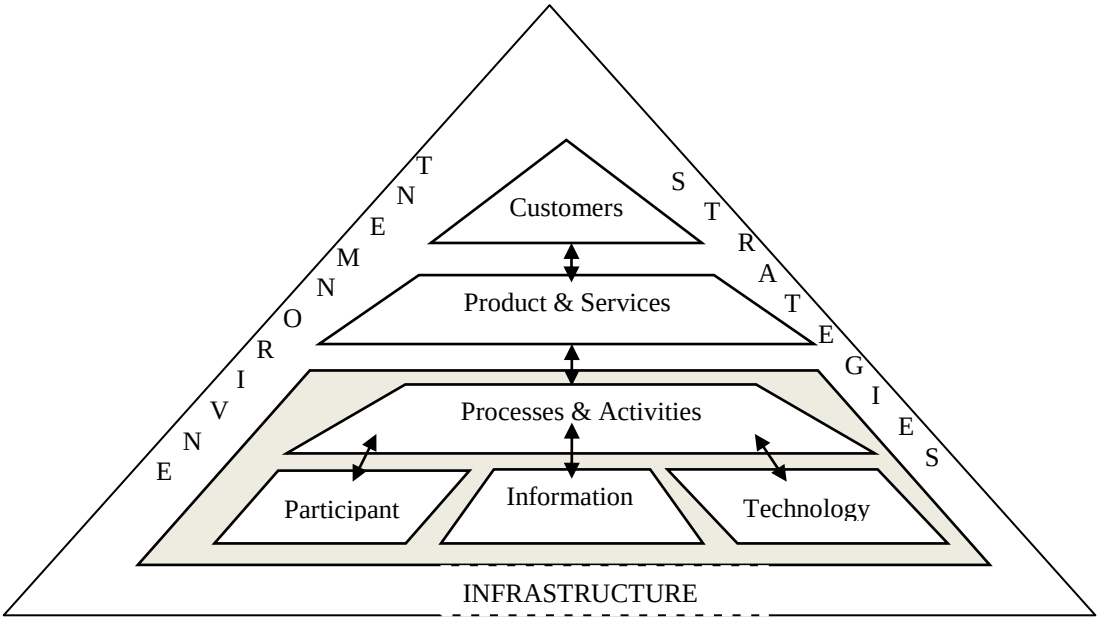


Figure 1.2: The Work System Model

1.8 Research Methodology

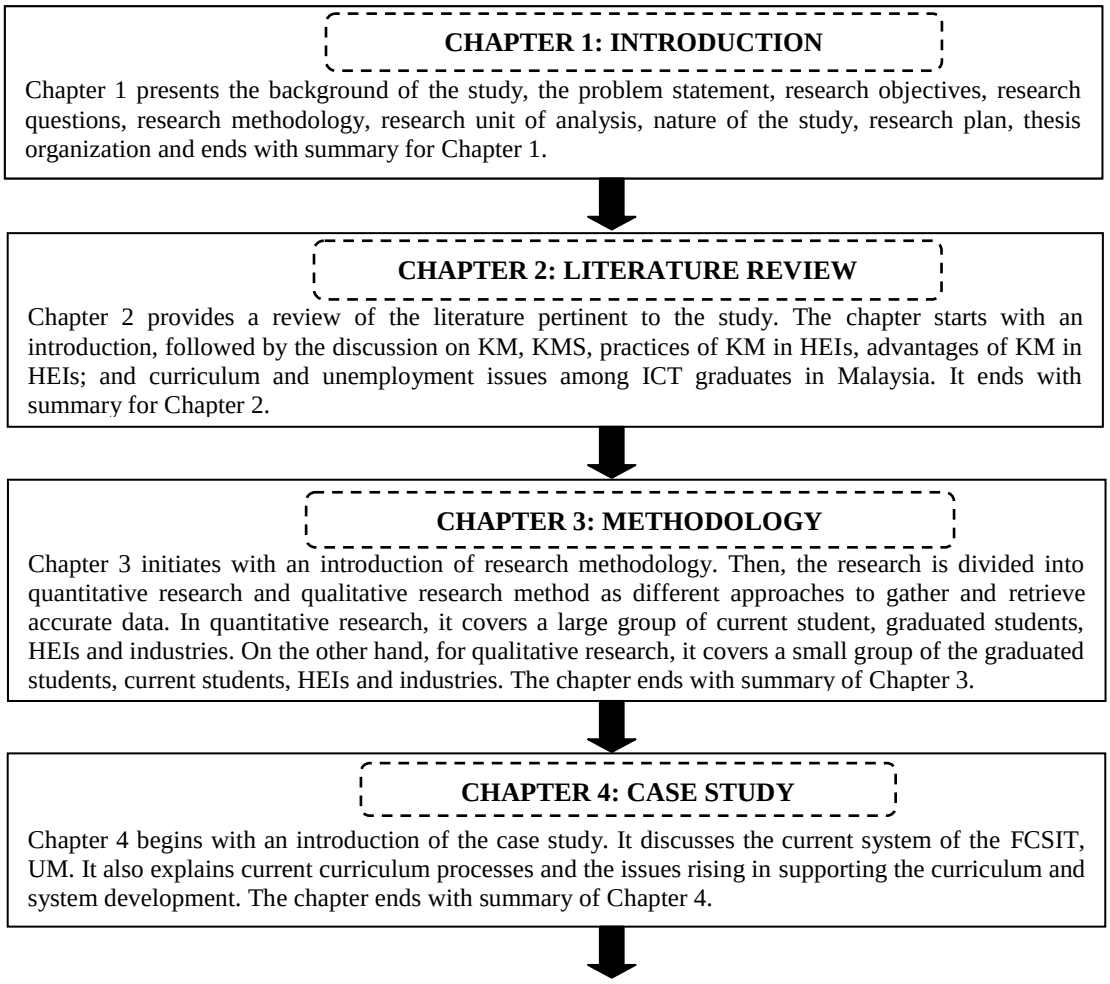
This research adopts the mixed method for the study. Mixed methods are a procedure for collecting, analyzing, and integrating both quantitative and qualitative data at some stage of the research process within a single study for the purpose of gaining a better understanding of the research problem (Tashakkori & Teddlie, 2003). Mixed methods are used because neither quantitative nor qualitative methods are adequate to describe the development and details of a study (Ivankova, Creswell & Stick, 2006). When both quantitative and qualitative are combined, it complements each other. So, it allows stronger analysis by seizing the advantage of the strengths of each (Greene, Caracelli & Graham, 1989; Miles & Huberman, 1994). A number of methodological issues were taken into account during mixed method research. It includes the priority or weight given to the quantitative and qualitative data collection and analysis in the study. Besides that, it also focuses on the sequence of the data collection and analysis, and the stages in the research process at which the quantitative and qualitative phases are connected and the results are integrated (Morgan 1998; Creswell et al., 2003). The research method is discussed in detail in Chapter 3.

1.9 Research Unit of Analysis

The research is conducted at a Faculty of Computer Science and Information Technology (FCSIT) at a research-intensive university in Kuala Lumpur. There are three major groups of people involved in this study. The first group is the FCSIT referred in this thesis as the Higher Education Institution (HEI). The second group is the employers, referred to in this thesis as the Industry. Thirdly, the current students and graduated students, referred to in this thesis as the Students.

1.10 Thesis Organization

This dissertation comprises seven (7) chapters as discussed below:



CHAPTER 5: DATA ANALYSIS AND FINDINGS

Chapter 5 provides analysis and interpretation of the survey findings on the importance of KM approach in HEIs to support curriculum review process. The chapter continues by presenting the findings of data gathered from 246 current students, 147 graduated students, 152 employers and 32 HEIs members. The findings are divided into two sections. The first section includes the descriptive statistics, which present and interpret the demographics of the sample population and additional information about the participants' background. The second section reports the result of the data analysis and answers the research questions. Throughout the sections, quantitative supported by qualitative results are incorporated. The use of a mixed methodology was fundamental for getting the breadth and depth of understanding of using KM to support curriculum review process. The chapter ends with summary of Chapter 5.

CHAPTER 6: SYSTEM DESIGN, DEVELOPMENT AND TESTING

Chapter 6 provides the requirements analysis, system design, system development and evaluation of KM tool to support HEIs to support curriculum review process to produce competent graduates. The chapter continues by presenting the findings of the system testing. The chapter ends with summary of Chapter 6.

CHAPTER 7: CONCLUSION

Chapter 7 concludes and finalizes this research based on the research and the analyzed data that were obtained from Chapter 1 to Chapter 6. This chapter also concludes the importance and impact of KM approach in HEIs to support the curriculum review process. It puts forward recommendations for future research study, highlights the significance of the findings and their contribution to the HEIs. It ends with summary of Chapter 7.