

CHAPTER 1

INTRODUCTION

1.1 Background

In this age of knowledge, much concern has been expressed about the competencies and personal qualities of information professionals who are working in various organisations. The rapid changes in the information industry have called for a fresh look at the competencies of present and future information professionals. Many studies have investigated the competencies of information professionals, such as those carried out by Friedrich (1985), Griffiths and King (1986), the Special Library Association as reported by Marshall *et al.* (1996), Garrod (1998), Phisalpong (1998), and Xu and Chen (2000). However, these studies were based mainly on library and information settings.

The characteristics that make a person a successful information professional are difficult to determine but studies in the 1990's suggested that a need for enthusiasm, initiative, team skills and an entrepreneurial approach to work were necessary (Goulding *et al.* 1999a; 1999b). In their studies, Tees (1986), Butlar and Du Mont (1989), Morgan (1997), Rehman *et al.* (1997, 1998a, 1998b), Malinconico (1999), Bennett (1999), Smythe (1999), and MacLeod (1999) found that communication skills were important for information professionals. In addition, Zhou (1996), Foote (1997), Morgan (1997), Rehman *et al.* (1997, 1998a, 1998b), and Phisalpong (1998) discovered that information technology (IT) skills were important skills required of information professionals by employers.

The Knowledge economy, or K-economy, is transforming the role of information professionals. The K-economy is about knowledge and the ability to use it to create new value and wealth ("Get Set for the K-economy," 2001). Although the Internet and

multimedia technologies have swept away the classical view of libraries as physical structures in housing the wisdom of all ages, information professionals are still at the forefront of the digital revolution. They are the wealth creators in the knowledge age, not the supporting information technologist or the offices where they work (Chase, 1998).

The rapid development of information and communication technology (ICT) has changed the basis of doing business. Organisations that want to succeed in the K-economy need to change their values and establish a new focus for creating and using intellectual assets. They need to know how to manage or devise ways to organise the information effectively. These include systematic and thorough planning, creating, acquiring, organising, coordinating, controlling, processing, storing, retrieving, disseminating and sharing of information and knowledge. All these tasks need skills and know-how.

To be successful in the K-economy environment, individuals need to acquire new combinations of skills. They need to learn knowledge management skills to promote an integrated approach to identify, manage and share all of an organisation's knowledge assets. To function effectively in the workplace, they require information literacy skills (Marshall *et al.*, 1996; Reid, 1998a). Intellectual assets and information literacy require new approaches to the management of information and knowledge, and the environment in which they are created and used. Such a scenario calls for a new combination of skills to relate to every aspect of the complex information age of today (TPFL, 1999).

Reid (1998a, 1998b) described the roles and challenges of information professionals in supporting the Malaysian mega project called the Multimedia Super Corridor (MSC) and how the information-related and the knowledge-based industries

within the MSC would play a pivotal role in the success of the implementation of the MSC.

The MSC is the geographical area of 15 kilometres wide and 50 kilometres long, that starts from the Kuala Lumpur City Centre to the Kuala Lumpur International Airport. It is known officially as the Multimedia Super Corridor (Multimedia Development Corporation, 2002a).

1.2 The Multimedia Super Corridor (MSC)

The concept of the MSC was officially announced by the Malaysian government at the launching of Putrajaya (the new township for the Government's administrative offices) in August 1995 and was officiated in May 17 1997 through the setting of an intelligent city called Cyberjaya that houses the MSC multimedia industries ("Corridor to the Future," 1997). The MSC is being developed by the Multimedia Development Corporation (MDC), which acts as the champion, facilitator and partner of companies choosing to operate in the MSC. It is a one-stop agency to oversee the development of the MSC.

MSC status companies are those companies with the status conferred by the MDC. These companies have met the criteria set out under their guidelines for such status. The three criteria are: (a) they are a provider or heavy user of multimedia products and services, (b) they employ a minimum of 15% of knowledge workers in their workforce, and (c) they are expected to provide explanations and practical plans on how they will transfer technology or contribute to the development of the MSC (Multimedia Development Corporation, 1999a).

To achieve the objectives of Vision 2020 and to transform Malaysia into a knowledge-based society, a path has been defined through seven areas of applications

currently developed in the MSC by the MSC status companies. These original seven Flagship Applications were: (a) electronic government, (b) multi-purpose smart card, (c) smart schools, (d) telemedicine, (e) R&D clusters, (f) world-wide manufacturing web, and (g) borderless marketing (Multimedia Development Corporation, 1999b), while an eighth application was added later.

The MSC is conceptually different from similar ventures in Canberra or Brasilia because of its inclusion of cyberlaws, electronic government, manufacturing design web, and the smart card ("Taking on a Super Task," 1996).

The latest development of the MSC is the entertainment village (E-village). The E-village was envisaged as a premier hub for content development with plans for a theme park and film production (Habsah, 2000).

The MSC tries to emulate the Silicon Valley concept with an IT agenda and bridges the development gap in a short time period. The MSC is a test-bed for a new way of life for the future while the Silicon Valley is purely an industrial development concept. Through the MSC, the government is trying to establish an ecological system that blends with the development of modern technology.

The MSC aims to offer a low cost, central and influential base in Asia, from which to penetrate Asian markets using leading-edge multimedia technologies and applications (Multimedia Development Corporation, 1998).

The MSC is part of Malaysia's IT agenda and is expected to accelerate Malaysia's growth as a fully developed nation by the year 2020 characterised by a society that contributes to the scientific and technological civilisation (Mahathir, 1991).

The MSC is intended to: (a) facilitate the country's transition from an industrial-based economy to an Information Age multimedia economy; (b) be competitive in the global economy; and (c) bring together leading information technology and physical

infrastructure with a comprehensive investment friendly package of incentives and support through which multimedia companies can develop new technologies and applications. Ultimately MSC status companies are expected to cover areas such as the design and develop multimedia hardware and software by using available state-of-the-art communication networks; remote manufacturing, semi-conductor development, distance learning, telemedicine, integrated computing and communications solutions. (Mahathir, 1998; "Government to Get MSC Report in Three Months," 1996).

1.2.1 The MSC Status Companies

The MSC status companies are those companies with the specially conferred status by the MDC, based on the criteria set out under the Multimedia Development Corporation's guidelines. The criteria are as follows: (a) the company must be a developer or makes extensive use of multimedia products and services, (b) they must employ a substantial number of knowledge workers, and (c) they must specify how they will transfer technology or contribute to the development of the MSC and the Malaysian companies (Multimedia Development Corporation, 1999c).

In August 2001, 554 companies had been granted MSC status, from which 363 were local-based while 46 of the multinationals were world-class companies (Hong and Azni, 2001). These companies were involved in software development, internet-based business, systems integration, consultancy, content development, education, hardware design, telecommunications, and network and data security ("Five Years of Progress and Still Growing," 2002).

The MSC status companies are expected to develop multimedia services and products. These include:

1. Creation of multimedia or information technology-based content for educational CD-ROMS, gaming software, online news and information, and digital entertainment.
2. Packaging of value-added multimedia content distributed on online/offline devices such as CD-ROMs.
3. Provision of multimedia distribution for multimedia content to customer premises and provision of UNIX-based or NT-based servers for Internet hosting or media servers, ATM backbone networks or access pipelines comprising narrow-band, semi-broadband or broadband networks.
4. Provision of multimedia distribution gateways, such as technical solutions and customer services enabled by telecommunications and IT, to link users to otherwise unconnected or incompatible networks.
5. Provision of infrastructure such as structured cabling and LANs, and link it to the public communication infrastructure.
6. Provision of the multimedia user devices and systems such as hardware devices like computers, set-top boxes, intelligent information kiosks and personal digital assistants (Multimedia Development Corporation, 1999a).

User companies can also qualify for MSC status if they are heavy users of multimedia products or services. To qualify as a heavy user of multimedia products or services, companies should seek to increase their productivity in the areas of design, procurement, production control, administration, logistics, marketing and distribution.

To qualify for MSC status, 15% of a company's workforce must comprise of knowledge workers ("Achieving MSC Status," 1997). Knowledge workers are those who have professional qualifications or experience in information technology and multimedia, performing knowledge-rich jobs and participate effectively in the

knowledge-based economy. Besides transferring leading edge technology, companies involved must also help build the expertise of a Malaysian high-end IT management team, promote the general knowledge and skills of Malaysian employees as well as create substantial value or business opportunities for Malaysian companies. MSC companies will also provide at least 10 days of structured technical/operational training to the Malaysian employees so that they will eventually be capable of taking over the key technical or operational leadership positions. There should also be international staff exchange programmes between Malaysian and foreign staff to gain experience and share knowledge and experiences.

In October 1998, the MSC established a Creative Multimedia Cluster (CMC) within its organisational structure. CMC seeks to encourage the development of the creative industry in the MSC and attract investments in all spheres of media including broadcasters, film producers, post-production companies, animation companies, radio advertising, musicians, publishers, games developers, merchandisers and specialists in media training and education. About 30% of the MSC status companies are involved in the content-creating business (Azman, 1999).

1.2.2 Shortage of Knowledge Workers

There is a great concern about the shortage of knowledge and skilled knowledge workers to fill the post in the MSC status companies. With over 540 local and foreign companies participating in the MSC, the country needs about 45,000 skilled workers to make it a success ("MSC Needs Another 45,000 skilled Workers," 2001). A knowledge worker is an information literate person who internalises information and creates value by applying knowledge (Norsaidatul *et al.* 1999). Brooking (1999) refers to a

knowledge worker as an employee who uses knowledge and wisdom in the place of work.

The success of the MSC initiative depends on a large extent of the workforce created to meet the requirements of companies operating within the multimedia hub. Institutions of higher learning need to provide high quality education and training to meet the growing demand for knowledge workers as well as to make Malaysia a regional hub for IT training. In this environment, information professionals must be prepared to get involved and participate in the multimedia industry. Thus, faculties and departments of universities producing information professionals plays a role in preparing graduates to meet the demand of the multimedia industry and the MSC status companies.

1.3 Education for Information Professionals

In Malaysia, there are four universities that produce graduates in information studies and information science. These graduates are referred to as information professionals, and they belong to a class of knowledge workers or knowledge professionals. Information professionals in this study refer to those individuals who have obtained their under-graduate or post-graduate qualifications through formal education programme in library and information studies or information science from a local or foreign institution of higher learning. Although knowledge workers come from a variety of fields (such as computer scientists, lawyers, accountants), this study focuses on knowledge workers or information professionals from the Faculty of Information Studies of Universiti Teknologi MARA (UiTM), selected programmes at the Department of Information Science of University of Malaya (UM), Department of

Library and Information Science of International Islamic University (IIU), and the Department of Information Science at the National University of Malaysia (UKM).

The Faculty of Information Studies (formerly known as the School of Library and Information Studies), Universiti Teknologi MARA, was established in 1968, as part of the School of Administration and Law (Szarina and Wong, 1986). It offered Associate of Library Association, United Kingdom (ALA) course and from July 1972 and later introduced a three-year diploma in library science course.

In July 1974, a one-year post-graduate curriculum was introduced to allow university graduates to enter a career in library and information work. In 1992, a new curriculum for a four-year under-graduate course, which was called the Advanced Diploma Programme was introduced. This was in response to the findings of the ITM/UNESCO Manpower Survey (Norma *et al.*, 1986). This resulted in specialisations in Library Science, Information Science, and Records Management. In 1996, the name of the Advanced Diploma Course was changed to Bachelor in Library Science (Honours). During the May-October 1997 session, the Faculty with the cooperation of the Malaysian Ministry of Education, offered a course in Bachelor in Education (Honours) in Information Resource Centre. In November 1997, the Faculty offered a Master of Science in Information Management (Universiti Teknologi MARA, 2000).

In 1999, the Faculty offered a three-year programme in Bachelor of Science in Information Studies (Honours) with a specialisation in either Library and Information Management, Information Systems Management, Records Management, or Information Resource Centre Management. In the same year, the Diploma in Information Management took the first batch of Doctoral students in Information Management (Universiti Teknologi MARA, 2002).

Information professionals from the University of Malaya refer to graduates from two programmes, that is Masters of Library and Information Science (MLIS) and Bachelor of Information Technology (Information Science). The Master in Library and Information Science (MLIS), University of Malaya programme was initially established under the Institute of Postgraduate Studies and Research at the University of Malaya in November 1987. However, the programme ceased after one year due to manpower constraints. The programme was revived in 1993, and now is part of the Faculty of Computer Science and Information Technology. The Faculty also offers a Ph.D. programme (University of Malaya, 2002). The MLIS programme curriculum has been revised to balance between library and information science (LIS) contents and knowledge in planning and managing information systems. More IT-related subjects were offered as elective subjects although the basic LIS subjects were still being maintained. The rising demand for knowledge workers with sound technical knowledge and information skills resulted in new option being offered within the Bachelor of Information Technology (BIT) degree programme. The BIT (Information Science) programme educates information technologists the fundamental theories in the planning, designing and disseminating, accessing, and organising of information systems and content-based. The curriculum emphasised on strong technical foundations, planning and designing information systems, identifying organisational and user needs, and awareness on information contents and resources (Abrizah *et al.*, 2001).

The International Islamic University of Malaysia's Master in Library Science programme received its first batch of students in July 1992 with the main objective of integrating the disciplines of human sciences and Islamic heritage. The Department of Library and Information Science is under the Kulliyah of Islamic Revealed Knowledge

and Human Science. The main objectives of the programme are to provide a degree for post-graduate level in the field of library and information science, to extend the consultation service to libraries and information agencies, and to promote research in the context of Malaysian demands with emphasis on the uniqueness of Islamic literature and the library and information situation in the Islamic world (International Islamic University, 1996/1997). The Department also offers a Ph.D. programme (International Islamic University, 1999).

The National University of Malaysia offers a course in Bachelor of Information Technology (Honours) (Information Science), Master's and Ph.D. degree at the Department of Information Science. This department is part of the Faculty of Information Technology, which aims to produce professionals with knowledge and skills in the field of information technology and information science at the undergraduate level. Looking at the curriculum, emphasis is given more on information technology and information science to prepare them for careers in information services (Universiti Kebangsaan Malaysia, 1999/2000).

1.4 Statement of the Problem

An acute shortage of knowledge workers related to the MSC projects, especially pertaining to the certain types of expertise and skills level, has been a major concern to the government. Statistics from the Multimedia Development Corporation (MDC) showed that despite an estimated supply of 47,000 knowledge workers in technology and research from local and foreign institutions in the next 5 years, there would be a shortage of 32,000 workers (Multimedia Development Corporation, 1999a).

The rapid shifts toward capital-intensive and knowledge-based industries as well as the increased utilisation of ICT and services lead to the emergence of new skills requirements. There will be demands for higher level skills as the country's economy

moves toward higher capital-intensive and knowledge-based production processes (Economic Productivity Unit, 2001).

A national study on the information technology diffusion and manpower needs undertaken by the Economic Planning Unit revealed the status of the information technology workforce across industrial sectors and the public services in the country. The study identified shortages in critical occupational sectors, like software development and programming (Public Services Department, 2002).

The shortage of skilled knowledge workers presented a major hindrance to countries of the region seeking to participate in a global economy. The shortage of skilled information technology workers was global. China had estimated a shortfall of 570,000 information technology workers for 2000-2001. In the United States, the total demand for the year 2001 was 900,000 workers. In Europe, the total shortage was estimated at 1,740,228 workers (United Nations Economic and Social Commission for Asia and the Pacific, 2001).

In the earlier stages of the MSC, Norsaidatul *et al.* (1999), noted the shortage of skilled knowledge workers and estimated the need of more than 25,000 skilled knowledge workers to support the MSC initiative. Both multinational and local companies locating their business operation in the MSC demanded highly-skilled local knowledge workers.

The Malaysian government realised that the country did not have enough knowledge workers to supply to the MSC (Multimedia Development Corporation, 1999a). The demand for knowledge workers is ever expanding and the number will definitely be bigger when one looks beyond the MSC project, as other non-IT sectors are also looking for similar types of workers.

Tengku Mohd *et al.* (1999) predicted factors that may hinder the realisation of the MSC vision and objective. Among them was manpower, where there was lack of available knowledge workers, low prestige of information professionals, difficulties of recruiting specialists, and lack of training, education and training facilities. This lack of skilled and experienced knowledge workers with the required competencies in the field of information technology and multimedia meant that the institutions of higher learning must provide courses to fulfil the long-term demand of the industry. Despite the growing number of students' taken in by the Faculties and Departments of Information Studies and Information Science in the local universities to prepare the workforce for the knowledge-based industry including the MSC status companies, questions arise whether they were given the appropriate knowledge and skills required by the MSC status companies.

The other side of the problem is the perception of the role of information professionals by potential employers. Abell and Oxbrow (2001) found that employers perceived information professionals as possessing valuable skills but they felt that the information professionals did not have the kind of skills required to perform in the workplace. The skills identified were: (a) a lack of business knowledge, (b) a lack of understanding of interplay between information and organisational objectives, (c) poor team and leadership skills, and (d) lack of management skills.

The preparation of the workforce in all fields related to the MSC projects, including the information professions, are among the important elements to ensure the success of multimedia hub development in the MSC. The faculties producing graduates in information studies and information science from the local universities who are preparing the knowledge and skills for information professionals, have a crucial role to play in this Knowledge Age.

Since the MSC companies emphasise on multimedia development, the content of the education from knowledge workers must be geared towards the MSC industry requirements. To produce a new breed of information professionals, there is a need for the faculty to continually review its curriculum, which includes the appropriate emphasis on IT components.

For these reasons, the study on the identification of required competencies and personal qualities of information professionals was necessary. With this identification of required competencies, policy makers, curriculum planners and authorities in this field can gauge whether their curriculum has met the necessary competencies required by employers.

Surveys on the competencies of information professionals at the national level have been carried out in Malaysia and were geared towards to the requirements of the library and information field. No study on competencies and personal qualities required of information professionals working in the MSC status companies could be located.

1.5 Purpose of the Study

This study has two main purposes. The first is to explore and seek information on the key competencies, skills, knowledge, and personal qualities of information professionals required by employers of the knowledge-based or multimedia-based organisations of the MSC status companies.

The MDC has estimated a creation of 35,000 employment opportunities by year 2005 and knowledge workers range from CEOs, managers and executives to business specialists, technology specialists, consultants, multimedia graphic designers, analysts and programmers who are highly demanded by information technology organisations (“Producing Knowledge Workers for the MSC,” 2002; Norsaidatul *et al.* 1999).

The second purpose of this study is to add to the limited research on the identification of the required competencies and personal qualities of information professionals by employers from various information technology and knowledge-based industries in Malaysia. Very few academic studies have been carried out on the issues of competencies and this study will fill at least part of the substantial gap in knowledge.

1.6 Objectives

The main objective of this study was to identify and investigate employers' requirements and expectations on the key competencies and personal qualities for information professionals in order to work effectively in the information technology, multimedia-based, and knowledge-based organisations of the MSC status companies.

The specific objectives were:

1. To identify the employers' requirement on the key competencies (i.e., knowledge and skills) and personal qualities required of information professionals in order to achieve their job functions in the MSC status companies.
2. To determine whether there were significant differences among the different groups of the MSC status companies regarding the required key competencies of information professionals.
3. To examine the relationships between the required personal qualities and competencies of information professionals working in the MSC status companies.

1.7 Research Questions

To achieve the above objectives, the following research questions were used to guide this study. Questions 1 and 2 are exploratory while questions 3, 4, and 5 are tested as hypotheses. The research questions are:

1. What are the key competencies needed of information professionals potentially working in the MSC status companies in the areas of:
 - a. information technology and multimedia?
 - b. knowledge management?
 - c. other areas, such as management, interpersonal and communication, entrepreneurial and research?
2. What are the key personal qualities required of information professionals working in the MSC status companies?
3. Are there statistically significant differences among the different groups of the MSC status companies (System Integration, Creative Multimedia Cluster, and Internet-based Business), regarding the competencies required of information professionals?
4. Are there statistically significant differences between the Malaysian and foreign shareholders groups of the MSC status companies, regarding the competencies required of information professionals?
5. Are there relationships between the required personal qualities and competencies of information professionals working in the MSC status companies?

1.8 Hypotheses

The following conjectures from research questions # 3, 4, and 5 are to be tested in the forms of statistical hypotheses:

1. There are no statistically significant differences among the three groups of the MSC

status companies (System Integration, Creative Multimedia Cluster, and Internet-based Business) regarding the competencies required of information professionals.

2. There are no statistically significant differences between the Malaysian and foreign shareholders groups of the MSC status companies regarding the competencies required of information professionals.
3. A significant relationship exists between the required personal qualities and the information technology-related competencies for information professionals working in the MSC status companies.
4. A significant relationship exists between the required personal qualities and the multimedia-related competencies for information professionals working in the MSC status companies.
5. A significant relationship exists between the required personal qualities and the knowledge management competencies for information professionals working in the MSC status companies.
6. A significant relationship exists between the required personal qualities and the management skills for information professionals working in the MSC status companies.
7. A significant relationship exists between the required personal qualities and the interpersonal and communication skills for information professionals working in the MSC status companies.
8. A significant relationship exists between the required personal qualities and the entrepreneurial skills for information professionals working in the MSC status companies.

9. A significant relationship exists between the required personal qualities and the research skills for information professionals working in the MSC status companies.

1.9 Significance of the Study

The MSC project is Malaysia's newest endeavour in the creation of a world-class multimedia industry. An extensive literature search found no research on required competencies and personal qualities for information professionals working in the MSC status companies. This study represents the first research project undertaken in this area involving the information professions and the MSC status companies. This research is considered to be important because it can provide evidence regarding the required competencies of information professionals from the viewpoint of employers of the MSC status companies as well as other local or foreign companies or organisations with similar backgrounds, job functions and operations. It is hoped that the statistical data derived from the study can provide some guidelines and suggestions, and the information gathered will be of benefit to the parties concerned.

The major significance of this study is that it will make a contribution to knowledge on the required competencies and personal qualities of information professionals. The list of competencies and personal qualities and its findings could provide an invaluable input to the Faculties of Information Studies and Information Science, Department of Library and Information Science, Department of Information Science and other IT-related faculties, in their curriculum development to meet the demand of the MSC status companies. The identification of competencies will enable the relevant authorities in the universities to provide an objective framework for the development and design of education and training programmes. The identification of competencies can also assist

in developing specialised fields within information studies. The curriculum can be assessed against validated sets of competencies (Rehman, 2000).

The study will help to identify and assess the professional preparation competencies that should be included in the curriculum of under-graduates and graduates in the Faculty and Department of Library and Information Science for students, who wish to work in the MSC status companies. Here the policy makers should know to what extent the syllabus is relevant to the work demands, to what degree it was covered in their education, and how much work experience students should receive during their practical training.

The findings of the study can also aid recruitment procedures. They also provide a strong base for manpower planning in this field. Suggestions for appropriate actions will ensure that future information professionals are equipped with the necessary knowledge, skills, and attributes to take the profession forward.

Another significance of the study is that employers in the MSC status companies will benefit from an investigation of the competencies, professional skills and personal qualities of the future information professional workforce and provide such companies valuable information on the factors to base workforce forecasts and strategies.

The results of this study can be useful to the Multimedia Development Corporation and other MSC authorities. It can also be potentially useful to similar MSC projects that are springing up in other parts of the world. For example, software technology parks in India, hi-tech parks in Hong Kong and Taiwan, science hub in China, and the intelligent city in Singapore and others are also looking into the human resource to fill their company's workforce.

In-house training departments and technical training companies may also find the findings useful. The findings suggest that personal qualities are just as important as

technical competencies, and management competencies are important in technical organisations. This will provide valuable inputs in structuring and developing their training programmes.

The profession as a whole should also benefit in the long-term, having a good supply of information graduates who are well-trained and equipped with the latest skills and knowledge in information work.

Finally, this study provides baseline information for researchers to engage in future studies on curriculum development as the findings obtained can contribute to the body of knowledge in the field of information studies.

1.10 Rationale

In Malaysia, with the creation of Multimedia Super Corridor (MSC), the information field has become a diverse and growing one. The knowledge-based industries have become the leading industry in today's K-economy. Therefore, information professionals need to optimise their job opportunities to venture into the IT and multimedia-based companies. They have to be equipped with the skills, knowledge and personal qualities as required by these types of organisations, many of which are held to be "knowledge-based" organisations.

Institutions of higher learning producing graduates in information studies must develop curriculum goals and objectives that are compatible with the demands of the potential employers. Therefore, the curriculum development relies on the identification of competencies that are needed for success in the diverse work environments of the information professionals.

1.11 Scope of the Study

This study is delimited to competencies and personal qualities for information professionals who graduates with the library and information science background. An extensive literature review covers the literature of competencies and personal qualities of information professionals, which includes MIS Managers, Knowledge Managers, Chief Information Officers, Librarians, System Librarians, Automation Librarians, Content Managers, Web-Page Developers, and Information Officers.

Although the issue of MSC was included in the literature review, no studies were reported on competencies and personal qualities of information professionals of the MSC status companies.

Issues on curriculum development will not be discussed in this study although competency ratings will recommend a basis for a structured core curriculum to response to the demands of employers, academic faculty, professional societies, and others interested in the improvement of this field.

The respondents involved in this study were delimited to the MSC status companies mostly located at the hub of MSC region called Cyberjaya and the Malaysian Technology Park at Bukit Jalil, Kuala Lumpur; and a few others located throughout the country. Respondents located overseas (which represent a very small number) were excluded from the survey.

1.12 Limitations of the Study

This study has some limitations and these are discussed below:

The study was subjected to its limitations associated with the questionnaire, which was the main research instrument of this investigation. The data needed for this study

was gathered via mailed questionnaire and this does raise some concerns about method bias. Some form of bias may have occurred by the use of survey questionnaire.

The data obtained was based on the information provided by the respondents from the questionnaire, which was developed by the researcher. Therefore, the validity and reliability of the questions are subject to interpretations, although attempts were made to minimise the possibilities of these different interpretations by validating, pre-testing the instruments and a pilot study.

The questionnaire was sent to the Chief Executive Officer, the Human Resource Manager or the most Senior Manager of the company. However, in some instances the questionnaire was routed to lower level staff of the companies concern.

1.13 Assumptions of the Study

This study was based on the assumptions that:

1. The graduates from the Faculty of Information Studies (UiTM), Department of Library and Information Science (IIU), and Department of Information Science (UM, UKM) are the representatives of the knowledge workers being sought by the MSC status companies and they are similar to the knowledge workers they are looking for.
2. The graduates from the Faculty of Information Studies (UiTM), Department of Library and Information Science (IIU), and Department of Information Science (UM, UKM) are targeting the MSC status companies as among the places of potential employment.
3. The MSC status companies require the knowledge, skills, competencies and personal qualities mentioned in this study, and these are actually used and applied in the workplace.

4. The information professionals working in the MSC status companies are doing the kind of work that are related to the skills and competencies mentioned in the study.

1.14 Outline of the Thesis

The earlier section of this chapter explains the background, introduces the MSC and training requirements of information professionals. This is followed by the explanation on the statements of the problems, purposes, objectives, research questions, significance of the study, rationale, scope and limitations of the study.

Chapter 2 defines information professionals and competencies and reviews studies that have been done on competencies, personality traits, employability skills, and roles for future information professionals. A section on the issues pertaining to the MSC and shortage of knowledge workers were also included. Since no studies on competencies in the MSC were found (probably because the MSC has just been implemented in 1996), no related studies on it are reported in this section.

Chapter 3 discusses the research design, the instrument used, and how the data is collected.

Chapter 4 presents the findings where data is analysed and interpreted.

Chapter 5 summarises the research study by looking back at what has been carried out to achieve the stated objectives of the study. It discusses and makes suggestions from the findings and recommends the areas of future research. Finally, it provides concluding remarks on the whole study.