ASSESSING THE STUDENTS PERCEIVED LEARNING USEFULNESS OF KNOWLEDGE MANAGEMENT IT TOOLS IN HIGHER EDUCATION: A CASE STUDY OF TWO INTERNATIONAL PROGRAMS AT BANGKOK UNIVERSITY

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<u>Assessing the Students Perceived Learning Usefulness of Knowledge Management IT</u>

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ABSTRACT

Education should, in principle, provide the fuel for knowledge-powered economy. At the same time, educators need themselves to become effective at harnessing knowledge in their own service. The rising demands on educators can only be met by smarter use of knowledge in organizations. Schools need to build their own distinctive body of intellectual capital adapted to their distinctive aims. In addition to this, there are also powerful implications for IT that is now an essential medium in knowledge management. IT can be used to structure contents, to support routine tasks, to support the development of competencies, to monitor the results of learning process, and to increase the degrees of freedom in time, space and pace of learning. For effective use of IT tools in the learning process, they must constitute an integrated part of the learning environment. If an IT approach is selected, should be done in the knowledge of the features of the IT tool itself and the likely value added to the learning experience by its use. Just having some IT tool available in a university does not really contribute much towards knowledge management. The purpose of the present paper is to analyze the impact of IT tools provided by the Bangkok University

towards the learning process as perceived by the students. The research used analyze

this factor is entirely based on data collected from the students of two international

graduate programs at the Kluaynamthai Campus of the Bangkok university. The

results show that while a deeper assessment on the topic is much required, the

students in general consider the perceived effect of the tools on learning process just

about average.

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Once I had a T-shirt and it says *"Life is a Journey… Not a Guided Tour".* Today I realized once again by studying MBA-IP at Bangkok University that it was a journey of my life and I have met many people in this journey. There are many people I want to thank for directing me through my journey of this research report at Bangkok University.

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At Last I would like to dedicate my work to my sons Zuhayer & Zaiyan, whose love gives me tremendous strength to do something good in this life so someday they can be proud of their Father.

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CHAPTER 1

RESEARCH PROPOSAL

This chapter presents the background for research followed by the statement of problem. Justification is given for the intention behind and the reason for research. The objectives of the research and the corresponding questions which the research seeks to answer along with the assumptions & scope of the research will then be presented. Finally the benefits and the limitations of the research are stated.

1.1   Background

The present age is described almost everywhere as the 'Age of Information' of which knowledge is a key resource. Creating, managing and sharing knowledge is an imperative for every present day organization. In fact in the present day world only those organizations (be it schools, small business or multinational enterprises) which will make the best use of their intellectual, will have a chance to succeed (i.e. knowledge-based assets for creating sustained and additional value for their stakeholders). Universities have always managed information and knowledge whether they call the process knowledge management or not. However there have been very few cases where knowledge management solutions have been completely implemented in universities as is usually seen in case of professional organizations.

Present day schools have a need for inculcating professionalism where the work of teachers is becoming more and more "*research-based, outcomes-oriented, data-driven and team-focused with stress on lifelong learning*" (Caldwell, 2006, p. 59). This means that for any school intellectual assets or intellectual capital is as important as its financial and physical assets, probably more. However since intellectual assets are basically intangible by nature an important issue is the means to account for these assets and also the plans and strategies to enhance these assets. One of these strategies

is knowledge management. In the field of education, knowledge management refers to "*creation, dissemination and utilization of knowledge for the purpose of improving learning and teaching and to guide decision making in every domain of professional practice*" (Caldwell, 2006, p. 59). Knowledge management can be used by educational institutions to gain a more comprehensive, integrative, and reflexive understanding of the impact of information on their organizations. However, introducing the concept of knowledge management into the educational arena has been a slow and often underutilized process. Probably the main reason for this is because educational organizations have been traditionalist in nature with a rigid hierarchical structure which makes cross-functional initiatives difficult to implement. But with the increasing levels of competition as well as the increasing expectations of the industry from the graduated students, higher-education institutions face a number of new challenges that have forced them to rethink how they are accountable to external demands as well has how to improve internal accountability (Petrides and Nguyen, 2006, p. 21-22).

Traditionally there has been little discussion of knowledge management as a strategy for improving organizational practice, program implementation and teaching and learning within education. Much of educational knowledge management research focuses on information management systems, libraries and informational technology and pilot projects within higher education. According to Karen Edge, at the moment there is a dearth of discussion within education of the "*potential of scaling-up these opportunities to create more systemic strategies for codifying and cataloging knowledge and improving teaching and learning outcomes in schools and school districts*" (McGrath & Remenyi, 2003, p. 295). The school systems and schools face the challenge of creating and sustaining a powerful capacity for knowledge management if the vision of transformation is to be realized.

1.2   Statement of Problem

As sharing and creating knowledge remains the most important function of higher education that has become even more crucial in the present times, the management of all kinds of knowledge is imperative for its success. While colleges and universities exist to create and share knowledge, few have institutionalized processes that leverage knowledge to spur innovation, improve instructional and support services, or maximize operational efficiency and effectiveness. Many institutions have implemented knowledge management but the process has usually met limited success. This study is hence focused on assessing the perceived usefulness Knowledge Management IT tools in higher education institutions.

This paper seeks to analyze the perceived usefulness of Knowledge Management IT tools in Higher Education as observed by graduate students at the Kluaynamthai Campus of Bangkok University, Thailand.

1.3   Intention and Reason for Study

Successful implementation of Knowledge Management involves the very difficult problem of trying to change the institutional culture by identifying and breaking down the barriers to knowledge sharing, particularly the sharing of tacit knowledge (Sallis & Jones, 2002, p. 52). Needless to say the first step in the process would be the identification of barriers where institution has an official Knowledge Management strategy or not. The top management of Bangkok University (BU) has always encouraged KM practices within the whole organization and has implemented the scheme within the institution and has implemented various knowledge management tools within the institution for ease of knowledge sharing. This paper analyses the effectiveness and usefulness of the KM tools employed by BU according to the

expectations of graduate students and makes suggestions on how to improve the effectiveness of these tools.

1.4　Research Objectives

The objectives of the present study are as follows:

➢ To gather the opinions of graduate students of Bangkok University regarding their expectations in the area of Knowledge Management from the institution.

➢ To gather the opinions of graduate students of Bangkok University regarding the level of knowledge creation within the institution and their individual contributions to the process of knowledge management.

1.5　Research Question and Sub-Questions Development

Major Research Question:

How are the four Knowledge Management IT tools (The URSA System, BUKC, LMS and BU online library) offered by Bangkok University measure up to the learning expectation of its graduate students?

Sub-Questions Development:

➢ What is the graduate students' usage pattern[1] of Bangkok University Knowledge Management IT tools?

➢ How do graduate students perceive the Bangkok University Knowledge Management IT tools and processes in terms of helping them to learn?

➢ Are the graduate students more likely to use Knowledge Management IT tools provided within the University as compared to other sources of knowledge (e.g. direct interaction with other stakeholders though personal contacts, other websites or knowledge resources or when looking for course work information etc.)?

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[1] Usage pattern is defined as frequency of usage as well as the usage purpose.

1.6   Assumptions

The present research primarily concentrates on the Graduate level English-speaking stakeholders within the institution. This means that only two departments of the college are being analyzed for the present research: MBA International Program and Master of Communication Arts International Program. The sample-population based research for these two departments will be used to judge the level of success of Knowledge Management implementation within the entire University assuming that the opinions of the students of the other departments do not vary too much from those belonging to these two departments. It is also assumed that the sample-size of different participants of the survey gives a fairly accurate representation of the departments under study. Finally, the study is carried out with the assumption that the opinions of the participants are based on their overall usage experience of the KM tools over a period of time rather than based on one or two usages in the immediate past.

1.7   Scope of the Research

As mentioned above, this study limits itself to the opinions of the English-speaking graduate students of the University, which means that the participants are from two departments: MBA International Program and Master of Communication Arts International Program, of the Kluaynamthai campus of Bangkok University. The study focuses on the perceived usefulness and limitations of the Knowledge Management Tools available within the University: The URSA System, BUKC, LMS and BU online library.

1.8   Benefits of the Research

Bangkok University is held in high esteem within the Thailand Higher Study arena. Because of this the University faces several challenges such as maintaining high standards of teaching/assessment/content management & delivery; competition from

other institutions within Thailand; an exponential increase of students because of its reputation and; a strong need to adapt its curriculum every other year for keeping up with the Universities abroad. Needless to say, Knowledge Management forms an important component of the success strategy, which is why there is a need to analyze the success of KM tools used against the expectations of users. Being a premier University, BU is expected to set certain standards for other institutions, and hence the local factors which act as barriers to the success of KM are extremely crucial.

1.9   Limitations of the Research

As mentioned earlier, the study concentrates itself on to the English-speaking stakeholders of the University i.e. two departments: MBA International Program and Master of Communication Art International Program, of the Kluaynamthai campus of Bangkok University. Both of these are international programs, which mean that the results of the study will not give the accurate opinions and expectations of the local participants, which means that the results should not be generalized and should be used by precautions by other local Universities.

CHAPTER 2

LITERATURE REVIEW

This chapter presents the review of the literature of Knowledge Management and its implementation and implication in Higher education. The chapter then introduces the different mechanisms for assessing Knowledge Management IT Tools in terms of the value they add, the benefit they give and their usefulness in general.

2.1   Introduction

"Every evening when employees go back home the company loses roughly 70% of its knowledge! What would happen if employees decided not to come back the day after" (Ribiere, 2008, p. 45)

This is how Dr. Vincent Ribiere startlingly begins one of his columns. While experts may debate about the exact percentage, its variations and also point out that the degree of devastation is most likely exaggerated, the statement is nevertheless a true representation of the importance that knowledge holds in present day organizations. It also points out the extremely important and pertinent fact that most of the day-to-day information that is held by employees in the organization is at a high degree of risk of getting lost or simply forgotten. The present chapter explains what precisely is meant by knowledge, how is it supposed to be managed i.e. various related models and strategies, and last but certainly not the least how can an organization analyze the efficiency of its knowledge management practices.

2.1.1   Knowledge and its Importance

The American Heritage Dictionary defines knowledge as "*the state of fact of knowing; or familiarity, awareness, or understanding gained through experience or study*" (Liebowitz, 1999, p. 6). Another cognitive aspect is knowledge is the set of mental models that people develop over time to describe various properties and behaviors as well as the

ability to detect direct relationships between objects and events and finally the ability to discern patterns and make sense out of a vast ocean of information. Knowledge is stored in books, software, organizational processes products, systems, and documents. However, by far the most common and replete knowledge repository is human brain. Organizational knowledge is the collective sum of human-centered assets, intellectual property assets, infrastructure assets and market assets (Liebowitz, 1999, p. 14).

While all companies create knowledge, not all of the knowledge is of high value. Knowledge may be manifested as raw information, applied information, comprehended information, or justified information. A growing number of organizations in the world can be termed as knowledge companies in that they sell knowledge of their employees rather than a tangible manufactured product or service. Among the most important knowledge classifications are the categories of explicit and tacit. Explicit knowledge is that which is rather precisely and formally articulated and usually believed to result from experience and deep understanding. Tacit knowledge is often the type that makes an expert the expert in an area. The tacit knowledge of an expert is of prime interest in the knowledge harvesting process (Snyder & Wilson, 2000, p. 527-528).

An organization is a repository of knowledge that is embedded in its routines & processes, stored in its memory in the form of paper files, computer databases, and carried in the heads of its individual members. Over the time, the repository expands through learning and experience and because obsolete knowledge tends not to be deleted. It is hard for the management to know what precise knowledge the organization processes and where exactly is it located. The larger and the more established an organization, the greater its repository of knowledge and the more difficult it is for any individual or group to know what knowledge exists in an organization, who has it, and where it is located

(Mann & Gotz, 2006, p. 195). This is precisely where knowledge management enters the picture.
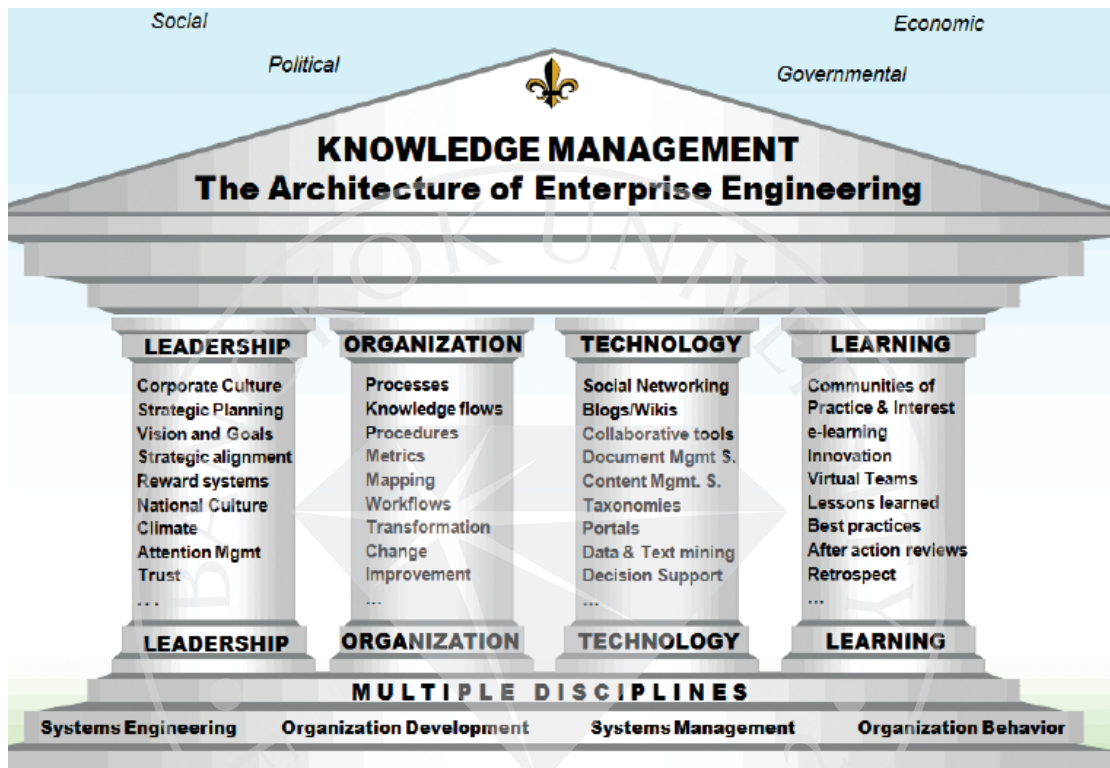
2.1.2 Knowledge Management

The discipline of Knowledge Management is little more than two decades old. Karl Wig, the management consultant and Artificial Intelligence (AI) practitioner, is one of the field's most important advocates as well as its likely founder. He coined the terms in 1986 at a Swiss conference sponsored by the United Nations – International Labor Organization and defined the term as "*the systematic, explicit, and deliberate building, renewal, and application of knowledge to maximize an enterprise's knowledge-related effectiveness and returns from its knowledge assets*" (Liebowitz, 1999, p. 6). Since early Nineties, knowledge management has become a hot topic. Modern organizations consider knowledge as an important resource and a source of competitive advantage. The society as a whole is considered to be evolving from an information society to a knowledge society. Advances in information technology and the accessibility to huge amounts of information on the internet have made everyone aware of the potential for using and creating information and knowledge.

2.1.3 Pillars of Knowledge Management

The works of various authors and researchers have given an extremely diverse view of knowledge management, many of which even disagreed with each other. Most of the works dealt with the definition of knowledge itself or discussed learning and its various facets. However, there was always a lack of resources that actually addressed the issue of managing these knowledge assets. Hence, Michael Stankosky decided to find the critical elements or what he claimed as the DNA of KM. This was because he believed that the operative work in KM was the management of these assets. According to him these were four such principal areas or groupings, each containing many elements. Hence,

the four pillars of knowledge management were born. All the KM elements are grouped

under the following: Leadership/Management, Organization, Technology and Learning

(Stankosky, 2005:4), as shown in the figure below.

Figure 3.1: Four Pillars of Knowledge Management (Stankosky, 2005)

Following is a description of the four pillars of Knowledge Management:

- *Leadership/Management*: Deals with environmental, strategic, and enterprise-
  level decision-making processes involving the values, objectives, knowledge
  requirements, knowledge sources, prioritization, and resource allocation of
  organization's knowledge assets. It stresses the need for integrative management
  principles and techniques, primarily based on systems thinking and approaches
  (Stankosky, 2005, p. 5).

- *Organization*: Deals with the operational aspects of knowledge assets, including
  functions, processes, formal and informal organizational structures, control

measures and metrics, process improvement, and business process reengineering. Underlying this pillar are system engineering principles, and techniques to ensure a flow down, tracking and optimum utilization of all the organization's knowledge assets (Stankosky, 2005, p. 5-6).

- *Learning*: Deals with the organizational behavioral aspects and social engineering. This learning pillar focuses on the principles are practices to ensure that individuals collaborate and share knowledge to the maximum. Emphasis is given to identifying and applying the attributes necessary for a learning organization (Stankosky, 2005, p 6).

- *Technology*: Deals with the various information technologies peculiar to supporting and/or enabling KM strategies and operations. One taxonomy used relates to technologies that support the collaboration and codification KM strategies and functions (Stankosky, 2005, p. 6).

2.2   Knowledge Management in Higher Education

The impact of knowledge management is not only on the organizations but also on the individuals. Lifelong learning and continuing professional development are essential for graduates and other workers to remain competent and competitive. Hence, knowledge management is not only important in business activities but also in education. Knowledge management has a multileveled impact on higher education. Educational administrators and teachers have begun to look at how they might use information systems to assist in creating effective learning environments. Knowledge management can also be used to support both educational administration and the teaching and learning environment (Milam, p. 1-2). Processes in knowledge management are not new. However, knowledge management approach provides a more systematic way in which to design and facilitate learning activities. Students working in a team environment to solve problems are exposed

to issues related to KM such as communication, knowledge creation, knowledge acquisition, knowledge sharing and collaborative work (Kidwell et al., 2000, p. 2)

Knowledge management looks different to different organizations. In higher education knowledge management may concentrate on student graduation rates as a proxy to success e.g., admission patterns, enrollment, and retention enhancement, and assistance to students with disabilities. Knowledge management systems are composed of two complimentary parts: one technical and the other social. The technical component seeks to capture, package and distribute tangible, documented products while the social side enables collaboration, connection, and reflection among system users. To adapt to the student-centered learning paradigm, the technical components of the system include the infrastructure and resources to support the knowledge management process carried out by students. The social components include the time, space and culture to support collaborative work and peer learning. There are two main categories of knowledge management processes:

> *Acquire and create knowledge*: When students search, read, organize, and understand information, they acquire and create knowledge in their minds and integrate the new knowledge with their existing knowledge.

> *Share and use knowledge*: When they face a problem, students apply and use their knowledge to solve a problem. Working in a team environment, students share their knowledge to develop new knowledge, and apply knowledge for problem solving. Sharing knowledge is a way to use knowledge. Knowledge sharing is also the basis of organizational learning.

In both education and business, it is important to create a culture and environment to maximize individual knowledge development, as well as knowledge sharing, through collaborative work. In fact, Ribiere and Sitar (2009) in their article remark that corporate

culture has been addressed as the "*biggest impediment to knowledge activities as well as most significant to effective knowledge management*". They point out that the tendency of an individual to involve in various learning activities especially those related to knowledge sharing is often inhibited by cultural barriers of different kinds (Ribiere and Sitar, 2009, p. 3). Hence, according to them a positive culture might be the difference between a successful and an unsuccessful company, especially in the present day knowledge society. The learning starts in effect from the point an individual enters higher education, because this is the area where an individual gets the chance to actually create information, and hence have ownership of what he has created. This in turn leads to the culture of effective knowledge sharing which has to be hence imbibed in an individual from this point on (Stuart, p. 50).

In the field of higher education, knowledge management implies a rethinking of the curriculum, wherein the opportunities implicit in the information revolution are woven into, not merely grafted on, teaching and enquiry in the disciplines. For instance, in case of academic libraries, the staff is actively engaged in designing new information access and knowledge management tools as well as programs that teach the use of new tools and evolving information structures. The staff is also involved in converting their own collections from print to digitized form that allow scholars and students more ready access and the ability to manipulate and combine materials to expand knowledge or create new knowledge products. The resulting new knowledge products are based on real understanding of user needs and on the way in which information is sought and utilized in the academic community.

2.2.1   Challenges Related to KM in Higher Education

Institutions have to face a number of challenges regarding the true implementation of KM. These challenges include enlisting respected individuals, facing the reluctance of people to share their core knowledge and the difficulty of embedding KM practices, identifying KM communities of interest, establishing mechanisms of structuring and managing knowledge, packaging knowledge for non-experts and assigning data validation and staff coaching roles. Perhaps the greatest barrier is the lack of awareness of the benefits that come from managing knowledge in a more systematic way. This presents a significant problem to any systematic improvement to knowledge sharing and creation higher education. Yet universities are in knowledge business. In fact universities have knowledge dissemination as part of their inherent functions and even though they abound in potential knowledge repositories ranging from student related information to library collections, very few have a KM system that supports institutional goals and operation (Dyson, 2004, p. 33-35).

Most higher education institutions have a number of projects aimed at improving knowledge access ranging from electronic journals to document delivery and digitization and unlike other sectors, promotion, reward and recognition of staff is directly linked to knowledge sharing in the form of teaching, publications and research teams. However, this knowledge access and sharing environment has yet to permeate and include the management side of those institutions. Most higher education institutions have still very few projects that properly address their knowledge value. This is because, despite having knowledge as their core activities, higher education institutions are more engages in initiatives that have knowledge sharing and access objectives rather than knowledge environment and value objectives (McGrath and Remenyi, 2003, p. 541-542).

2.2.2   Need for Knowledge Management in Higher Education

Education should, in principle, provide the fuel for the knowledge-powered economy. At the same time educators need themselves to become effective at harnessing knowledge in their own service. The rising demands of educators can only be met by smarter use of knowledge in changed organizational cultures. This would entail a new way of thinking about the creation, transmission and use of educational know-how based on the principle of knowledge management. Rather than basing educational knowledge purely on university generated research, schools need to build up and manage their own distinctive body of intellectual capital, adapted to their distinctive aims (Centre for Educational Research and Innovation, 2001, p. 21).

"*The need for better knowledge management in schools arises from the centrality of know-how derived directly from classroom practice, combined with the weakness of mechanisms for disseminating this know-how within or beyond the school*" (Centre for Educational Research and Innovation, 2001, p. 21). Teachers, usually just the transmitters of knowledge, are now also expected to be facilitators for their students so that they can create their own learning agenda according to their interests and personal requirements. Teachers are also expected to be knowledge producers for which they themselves need strong networks that allows them to share results and get feedback and even recognition. Hence, the job to the university management, in addition to managing people and physical and financial assets also extends to managing knowledge. This is no longer a side issue and is rather become a central feature because of the transformation of the present society into a knowledge-based one (Centre for Educational Research and Innovation, 2001, p.22).

2.3   KM Environment and IT Tools Used in Bangkok University

Bangkok University is a well-established private university and it has been recognized as a leading private education institution in Thailand for more than 40 years. Bangkok University encompasses 13 schools and offers courses both in English and Thai. Programs are offered for both Thai and international students and are leading to Bachelor's and master's degrees in Business Administration, Accounting, Economics, Communication Arts, Sciences, Law. Lectures are offered to both part time and full time students. Furthermore, BU is becoming a distributed organization where studies and lectures are taking place in several different locations not only in Bangkok (2 campus locations) but also in different neighboring countries. In order to cope with the stringent dynamics that dominate the BU life, and in order to meet the new governmental requirements, the university decided to initiate some knowledge management initiatives. The present study is an analysis of four such tools mentioned below in terms of their effectiveness as seen by the various stakeholders of the University.

2.3.1   **The URSA system**

The computer center of BU has developed two URSA systems for both undergraduate and graduate students. The initial aim was to offer different services according to the specific requirements of both programs. The starting page displays news and information only related to each program. However in order to facilitate the maintenance and to decrease the cost, it is intended on medium-term to integrate the various systems into a single platform. One major feature that has been implemented lately in URSA for graduate students, concerns the mobile services. Students can get access to the different services via mobile phone, for example information about their grade or about sudden change in the class schedule. Soon students will be able to pay the registration courses fees via mobile phone. The system offers additional services such as

possibility to control the checklist for the degree plan or BU forum access, etc (Arntzen et al., p. 16-17).

2.3.2 **BUKC (Bangkok University Knowledge Center)**

Recently most of the various IT systems that BU developed were integrated in a single system called BUKC (Bangkok University Knowledge Center). Such system is available from the BU Web site (http://www.bu.ac.th). Since one of BU missions of the BU KM strategy is to become a reference in term of a learning organization and for openly sharing its knowledge with the world community such system is not protected by password, anyone can have access to it. The knowledge system has different modules; an e-learning module, a link to the LMS system, an online assessment module, a video online module a links module and faculty links module and finally an e-paper module. The e-learning module provides access to online courses and to some interesting topics to allow students and everyone to learn on their own at their own pace and during their favorite time. The online assessment module is used for course evaluation online. The video online module allows to view online some selected movies and documentaries. The link modules are links to faculty and school resources and finally the e-paper module provides access to the collection of academic papers published in BU Academic Journals. The integration of these various learning tools and systems provide an environment where learning and knowledge sharing can happen (Arntzen et al., p. 18-19).

2.3.3 **LMS (Learning Management System)**

Bangkok University is using a Learning Management System that was customized to its needs. Such system allows faculty and students to communicate, interact and exchange documents related to a particular class. Among the main features provided; Course information, Student list, Announcements, Forums, Documents, Exercises, Links, we can notice that both the Thai and English languages are used on the interface of such

system. Such system can be used as a knowledge repository where knowledge artifacts related to a course are stored and can be easily searched (Arntzen et al. 2009, p 17).

2.3.4 BU Online Library

Bangkok University is one of the premier universities in Thailand. The university has an e-university policy in accordance with which it had spent about 25 million Baht for enhancing computing performance and 24 x 7 networking service. With this effort, the university hopes to improve its HR and student management services, and also accommodate services such as e-learning and video on demand. The library's digitization plans includes provision for a large number of online magazines, books and databases in addition to an e-flow system for managing various documents and enabling their tracking along with digital signature capabilities. The university's efforts towards digitization of its library represent its overall efforts to pool the resources from various libraries across the world and make the same available to widest possible audience. This would give the opportunity to the faculty many new options to disseminate knowledge (Datacraft, 2006).

2.4 Mechanisms for Assessing Knowledge Management IT Tools

The knowledge management tools market has over 200 tools that range widely in terms of technology, functionality and price. Some of the popular software vendors that were considered as vendors providing knowledge management tools are Baan, Cognos, Documentum, IBM, Intraspect, Open Text, PeopleSoft, and Verity. Hence, it becomes extremely difficult to distinguish between knowledge management tools and mere IT solutions. Researchers have been listing tools they consider as knowledge management tools and classifying them according to the type of tools, the stream of technology, functions of tools, the stream of technology, the knowledge services, functions of tools, type of knowledge, two dimensions and by the knowledge management processes. A survey done by Delphi in 1997 indicated that the primary technologies of knowledge

management were databases and knowledge bases, followed by document management, intranets and groupware, and search and retrieval technology. However, later survey done by Meta Knowledge Management portal in 2002 showed that most surfers perceived Internet, enterprise information portals and collaborative tools as the technology to implement knowledge management systems (Montano, 2004, p. 177-178).

Many researchers however do contend that knowledge management tools should support the following tasks: knowledge creation, organization, retrieval and delivery. When evaluating knowledge management tools, one should also study the characteristics of the tool. These include context sensitivity, user sensitivity, flexibility, heuristic and suggestiveness. In addition to this consideration of organization, flexibility, security, maintenance and accessibility is also important while assessing knowledge management tools. It is usually seen that there is no single absolute tool that satisfies all the requirements of a knowledge management too. Knowledge management is more concerned with people and culture. Hence, any technology related to knowledge management must be able to stimulate and augment knowledge sharing, collaboration, and innovation without instilling technology-phobia behavior among the staff. In the best of circumstances, enterprise tools cannot be complete knowledge management tools as they deal with explicit knowledge and not tacit knowledge (Montano, 2004, p. 180-181).

2.4.1 Knowledge Management Assessment and Strategies

The systematic analysis of the organization's current knowledge management capability is known as Knowledge management assessment. This type of assessment evaluates anyone o an individual against a world-class practice and it identifies critical areas for applying knowledge management. It points out areas in the organization where knowledge management is needed. As higher education institutions strive to become knowledge-based, they need to meet the challenges of harnessing knowledge and

information to sustain competitive advantage. Effective KM strategies enable
organizations to link KM to strategic business goals, gains senior leadership buy-in and
support, implement effective KM solutions and address people, process, content and
technology issues (Feher, 2006, p. 720-721).

2.4.2   *Knowledge Management Assessment Tool KMAT*

The Knowledge Management Assessment Tool (KMAT) was developed by Arthur
Anderson Consulting in cooperation with the American Productivity and Quality Center. It
is based on an organizational Knowledge Management Model: the core activities of the
process of Knowledge Management i.e. share, create, identify, collect, adapt, organize and
apply are supported by our factors, so-called enabler's viz. leadership, culture, technology
and measurement (Mertins et al., 2003, p. 48). KMAT strives to achieve two aims:

> ➢ To ascertain the position of an organization with regard to knowledge
>   management in comparison to other organizations
>
> ➢ To evaluate the efficiency of the realization of the knowledge
>   management process, mentioned above.

The method of KMAT consists of a questionnaire without additional information
about the suitable sample size. The questionnaire is highly structured and has a section for
each of the four enablers (Mertins et al., 2003, p. 48). Within each of the segments four to
six statements have to be judged on two levels:

> ➢ *Performance*: Here the person filling the questionnaire judges how well
>   he/she thinks the organization realizes the given statement. A five step
>   scale is used for this judgment ranging from bad to excellent.
>
> ➢ *Importance*: Here the person filling the questionnaire judges the
>   importance of a given aspect of an organization. Answers are to be
>   given on a five-step scale ranging from essential to not at all important.

The questionnaire is then sent to and is evaluated by Arthur Anderson. From the result, it is derived which fields of design should be further developed and how this should take place. The problem with this approach is that the statements to be judged in the questionnaire are abstract in character and hence inaccuracies resulting from individual interpretations must be taken into account even in the case of large-scale sample. The questions were evaluated and judged to be too complicated to be answered by the respondents in general and students in particular. Hence, while the judgment levels were kept constant, the core activities and enablers were changed to make the questionnaire simpler to understand and easier to answer and interpret (Mertins et al., 2003, p. 49).

2.4.3 *Knowledge Management Assessment Instrument KMAI*

KMAI stands for Knowledge Management Assessment Instrument. The instrument was developed by Sheron Lawson in 2003. The Knowledge Management cycle was considered to be consisting of six steps: knowledge creation, knowledge capture, knowledge organization, knowledge storage, and knowledge application. An organization that is interested in actively implementing knowledge management as a strategic advantage must be utilizing all six processes in varying degrees depending on their environment. Each process makes up a component of a dependent variable to be used to measure knowledge management activity within an organization. The KMAI consists of six questions, each representing a process. Each question has four descriptive statements to assess the level of activity within the knowledge management cycle. Each question utilizes a five point Likert scale ranging from 1 to 5. This is described separately in the methodology section (Lawson, 2003, p. 62-63).

The present research uses this instrument to test the perceiving usefulness of knowledge management IT tools within the Bangkok University. The storage section was further modified to have only three statements. The Likert scale is divided into perception

and expectation to test the levels of both, though the present study focuses only on the perceived usefulness. Also instead of six questions, the present study only tests hypothesis and interrelations between different variables.

### 2.4.4   Knowledge Management Diagnostic KMD

The Knowledge Management Diagnostic was developed by Bukowitz and Williams in 1999. It is based on a model of knowledge management called Knowledge Management Process Framework which consists of seven knowledge activities: get, use, learn, contribute, assess, build/sustain, and divest. According to Bukowitz and Williams the first four activities get, use, learn, and contribute designate the daily routine in dealing with knowledge. By enhancing these activities the organization's reaction to the demands of the market is improved. The three knowledge management activities assess, build/sustain, and divest are attributed to the strategic planning of the organization by evaluating which kind of knowledge will be relevant in future. KMD is designed as a tool for self-evaluation and collects subjective qualitative data. It this serves to enable users to determine how well the different aspect of knowledge management process has been realized in the company. The interview takes place in a written form, and the choice of the sample is left to the company. The questionnaire is divided into seven parts according to the knowledge management process. In every category 20 statements are given describing possible actions for knowledge management. The agreement to the statement is measured by a scale and points given to the attributes are summed up for each of the seven categories and compared with the highest possible score (Mertins et al., 2003, p. 49-50).

2.5   Conclusion

Until recently, Knowledge Management (KM) has not been a high priority for higher education. However, today there is a growing recognition that knowledge management can enable higher education to evolve more smoothly to a highly interactive

and dynamic educational environment. Knowledge management practices essentially

provide a framework for understanding how and where to put focus in order to improve

the outcomes of education in accordance with the foals and mission of the organization.

However, knowledge management is not an end it itself but merely offers a set of practices

appropriate for an institution to help in reach goals in an efficient manner.

Following the new wave of using knowledge management concepts in the

academic institution, the top management of Bangkok University (BU) has also

encouraged new research initiatives based on analyzing and encouraging KM practices

within the whole organization. The present research assesses the different knowledge tools

currency in use in the University in terms of the frequency, important and ease of usage.
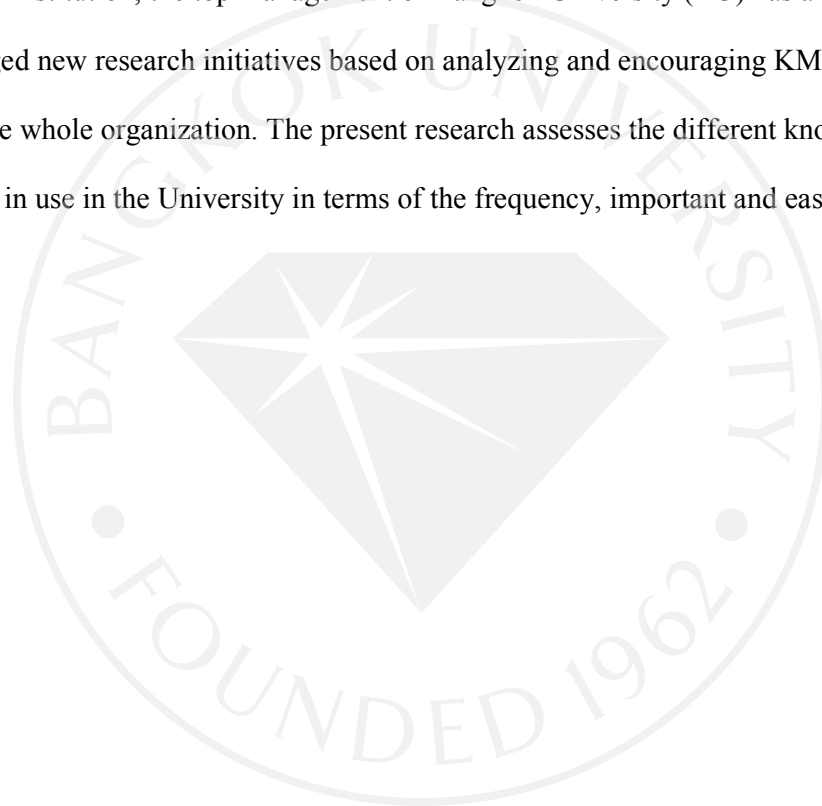
CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the research methodology used in this study. The chapter starts with a brief literature review regarding research methodology which is followed by a statement of the research questions of this study. After this the various aspects related to the design of the present survey such as method of enquiry and sampling design and size are discussed. Finally, the research analysis and decision methodology will be discussed which would be used as a guideline for the next chapter.

3.1   Literature Review

The collection, organization, and presentation of data are basic background material especially for any statistics based research. There are two sources of data: primary and secondary. "*Primary data are the data collected specifically for the study in question and may be collected from methods such as personal investigation or mail questionnaires. In contrast secondary data were not originally collected for the specific purpose of study at hand, but rather or a different purpose*" (Lee et al., 1998, p. 14). A sample or a census may be taken from primary or secondary data. "*A census contains information on all members of population whereas a sample contains observations from a subset of it*" (Lee et al., 1998, p. 15). This research uses primary data for analysis.

3.1.1   *Qualitative Analysis*

A unique aspect of qualitative research is that the analysis actually begins before data collection ends. That is to say, in qualitative research a project may be modified as it progresses. Qualitative data at the start appears unordered and phenomenological. Hence, a thorough analysis is needed to make sense of the disparate information. Otherwise subtle biases and selective attention may cloud the conclusions. Since, qualitative approach is highly individualistic and idiosyncratic; there is no single way to perform the analysis.

Some researchers use the data very meticulously and in fact come up with a semi-mathematical model out from the data they have collected, other researchers are more improvisational and use the data merely as a resource (Mariampolski, 2001, p. 255).

3.1.2 *Quantitative Analysis*

Quantitative techniques attempt to eliminate the subjectiveness of the qualitative methods. Quantitative analysis allow for statistical analysis that can help verify or provide confidences in the data. They include methods such as market tests, trend analysis and exponential smoothing. The first step in the quantitative analysis process is to count and rank the responses on the basis of frequencies. The second step is to calculate percentages. The processes and concepts include raw data, frequency, measures of central tendency, normal distribution, asymmetric distribution, spread of distribution, variances, the standard deviation, inferential statistics, bivariate statistics, testing techniques, regression analysis, multivariate analysis, multiple regression, factor analysis, cluster analysis, and discriminant analysis (Nykie, 2007, p. 102).

The data collected using the questionnaire for the present research study was a collection of both numerical and non-numerical parts. All the non-numerical parts were also converted into numeric values for the purpose of analysis. Hence, the analysis method used for the resent research was almost totally quantitative. Though there were a few open-ended questions in the survey, they were a part of qualification of the choice selected by the respondents. This was not a part of the analysis however, as the number of respondents who did respond to such questions were extremely few, and all had given varied responses, giving no scope to evaluate the trend of responses.

3.2 Research Questions

The aim of the present study is to assess the different knowledge management IT tools provided by the Bangkok University for its graduate students. While the initiatives of

the university towards knowledge management cannot be questioned, a true assessment of

the tools provided is always an important step towards gaining acceptance for the usage of

the tools.

Major Research Question:

How are the four Knowledge Management IT tools (The URSA System, BUKC,

LMS and BU online library) offered by Bangkok University measure up to the

learning expectation of its graduate students?

Sub-Questions Development:

➢ What is the graduate students' usage pattern[1] of Bangkok University

Knowledge Management IT tools?

➢ How do graduate students perceive the Bangkok University Knowledge

Management IT tools and processes in terms of helping them to learn?

➢ Are the graduate students more likely to use Knowledge Management IT tools

provided within the University as compared to other sources of knowledge (e.g.

direct interaction with other stakeholders though personal contacts, other

websites or knowledge resources or when looking for course work information

etc.)?

3.3   Methods of Inquiry

Sample surveys are nowadays widely accepted as a means of providing statistical

data on an extensive range of subjects for both research and administrative purposes.

Sampling is a key feature of the survey approach. Due to factors of expense, time and

accessibility (and for the present research, language issues), it is to always possible or

practical to obtain measures from a population. Researchers endeavor therefore to collect

information from a smaller group or subset of the population in such a way that the

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[1] Usage pattern is defined as frequency of usage as well as the usage purpose

knowledge gained is representative of the total population under study. This smaller group of subset is a sample. There are two methods of sampling (Cohen et al., 2007, p. 211).

One yields **probability sample** in which, as the term implies, the probability of selection of each respondent is known. There are three types of probability sampling methods: simple random sampling (which is a type of a lottery method, a table of random numbers or even at times a systematic approach), stratified sampling (where the population is stratified and then random samples are taken from each group) and cluster sampling (where the relevant population is widely dispersed so first a random cluster is chosen for the survey) (Seale, 2004, p. 175-176).

The other yields non **probability samples**, in which the probability of the selection is unknown. The non-probability techniques are associated with qualitative work such as theoretical sampling and qualitative interviewing. They are often used to access groups whose activities are normally hidden from public or official view. The main types of non-probability sampling are quota sampling (which is usually undertaken by market researchers to find interviewees who fit the preset criteria for the survey) and snowball or network sampling (this is used to obtains ample where there is no list of population available and the interviewees here are obtained through referrals) (Seale, 2004, p. 176).

The method of inquiry was employed for this research is based on quantitative analysis of primary data. The sample used for research was based on a version of stratified sampling, though this is not an accurate description either. The population was stratified and restricted to English speaking course programs for reducing complexity of survey questionnaire design. In addition, the graduate students were taken as a whole, because of the small sample size. The data will be collected through the use of brief questionnaire, which will be distributed to a sample of the population under study – users who have been

using the knowledge tools. "*The questionnaire is a widely used and useful instrument for collecting survey information providing structured and often numerical data to be administered without the presence of the researcher and often being comparatively straight forward to analyze*" (Cohen et al., 2007, p. 318).

3.4   Research Methodology

As mentioned earlier, a questionnaire was developed to collect data to answer the research questions. The questionnaire consisted of a variety of types of questions whose responses ranged from Yes/No, to selecting the most appropriate options, to rating the options on a scale of 1 to 6 scale based on usage frequency, to grading a perceived/expected requirement on 1-5 Likert scale. There were a few open-ended questions too. However, these were a qualification of the response of the interviewees should they choose 'Yes' as a response to suggested improvements in the IT tools. However, not many people choose the 'Yes' option. Also not all respondents who chose the 'Yes' option suggested any changes, and those who did suggested a wide array of changes which was not feasible to categorize and judge patterns. Hence, the use of qualitative analysis was abandoned for this study.

The questionnaire for the research is divided into two parts. The first part measures the usage frequency of the different Knowledge Management IT tools used in the Bangkok University, which are the URSA, BUKC, LMS and BU online library. The second part of the survey questionnaire measures the learning usefulness levels of the different users with each of the knowledge management tools mentioned above. Almost all the survey questions were related to the assessment of the Knowledge management tools based on techniques such as Knowledge Management Assessment Tool KMAT, Knowledge Management Assessment Instrument KMAI and Knowledge Management Diagnostic KMD. However, the survey questionnaire did not follow the original format of any of the

tools mentioned above. The actual instrument that was used for the Survey Questionnaire Part-II was KMAI that has been described in the Literature review section. The KMAI was just modified to add the expectation part on a similar Likert scale. However, the analysis of this was abandoned when it became clear that most people either had copied their responses or had just answered the queries randomly using one scale less or more, so that the analysis of expectation became an unusable option.

3.5   Sampling Design

The quality of a piece of research stands or falls not only by the appropriateness of methodology and instrumentation but also by the suitability of the sampling strategy that has been adopted. Questions of sampling arise directly out of the issues of defining population on which the research will focus. The researchers must take sampling decisions early in the overall planning of a piece of research (Boyatzis, 1998, p. 59).

Survey Population - Population means "*the entire group of people about whom information is needed; also called universe or population of interest*" (McDaniel & Gates 2004, p. 270). The area of interest for the present research is the two international programs of the Bangkok University's Kluaynamthai Campus which are Master of Business Administration-International Program (MBA-IP) and Master of Communication Arts-International Program (M.Com Arts-IP). The complete population statistics for each program will be given in the next section of Sampling Size. The target population is the students studying under the two above-mentioned programs in the Kluaynamthai Campus. In addition to the two graduate populations, the international programs also have an undergraduate program which has more than 4000 students enrolled. However, this was not chosen to be a part of the target population because of the following reasons:

> ➤ The graduate students have much more experience in understanding the functions of all the four IT tools provided by the Bangkok University and

> hence can judge them better. Also in case of undergraduate students, the ones in the 1st and 2nd year would be excluded because they may not know the complete tools and extent of their helpfulness, so the population is automatically reduced.

> ➢ The graduate students are expected to do much of the research on their own, unlike undergraduate students who are dependent on their faculty for every assignment, so they would be better suited to judge the Knowledge management tools.

The survey instrument used here is a questionnaire, as mentioned earlier. Since the respondents are students, the qualitative nature of the survey such as asking extremely open ended questions is reduced to a bare minimum. In addition to this, since the survey takes place at a single location, and the population (which in this case is also almost equal to the sample population) is not very large, the survey has been administered individually to the students. For the present research, the research will distribute the questionnaire to the target population. The entire population of the MBA-IP and M.Com Arts-IP will be a part of the study.

Sampling Size – One of the first issues that arise during the course of sampling design is the size of the survey population. The survey sample is not an estimate of the total sample but rather an outlines of the sub-groups within the total population for which the analysis is required to be done (Fowler, 2002, p. 36). In the present research study for instance only the Bangkok University's Kluaynamthai Campus was the location under focus for the survey. In addition to this only two programs were considered as the focus groups within this campus: the two international programs MBA-IP and M.Com Arts-IP. The reason for this was that the survey was required to be in English and these only international programs would be eligible under this particular condition.

Most sample decisions do not focus on the estimates of the total population; rather they are concentrated on the minimum sample sizes that can be tolerated for the smallest subgroups of importance. This is because factors such as time and accessibility frequently prevent researchers from gaining information from the whole population. Therefore they often need to be able to obtain data from a smaller group of subset of the total population in such a way that the knowledge gained is representative of the total population defined under study (Fowler, 2002, p. 36). As mentioned, the restrictions of the sample group do exist for this particular study, however as the population within these subgroups are very small and so it makes sense to utilize the complete population as there are no issues of either cost or time in case of collecting information via questionnaire from the two subgroups, so the entire population will be under study here.

For the present research, the survey population is as follows:

1. Total number of students enrolled in MBA-IP for two years = 42. Out of this 42 students 26 are MBA-IP 2007 and 16 are MBA-IP 2008 students. Hence, the population size for MBA-IP program is (26 + 16) = 42. The population size can be taken for the complete population since the sample size is extremely small. The researcher was able to collect data from 28 students of the MBA IP-2007 batch; hence the effective sampling population for this research is (24 + 16) = 40. The percentage of the responses rate from this course was (40/42 * 100) = *95.24%.*

2. M.Com. Arts-IP 2008, total students is 9. The population size can be taken for the complete population since the sample size is extremely small. The researcher was able to collect data from 8 students of the M.Com. Arts-IP 2008 program; hence the effective sampling population for this research is 8. The percentage of the responses rate from this course was (8/9 * 100) = *88.88%*

The total percentage of responses received were (48/51 * 100) = *94.11%*

3.6   Survey Design

Likert Scales – Likert scale is the most commonly used form of scaling developed by Renis Likert and is a 5 point scale. A Likert scale consists of several declarative items that express a view point on a topic. Respondents are asked to indicate the degree to which they agree or disagree with the opinion expressed by the statement. The points may increase to 7 or reduce to 3 but the principle is the same. Good Likert scales use 10 or more statements. One issue that does arise in creating Likert or Likert-type scales is whether to ask the respondent for frequency information or levels of agreement. The present research uses both the types of information.

For the present research there are Likert type scales used for the analysis. The personal information that is used for categorizing the responses is just a chose one option type of response. For the first part of the survey questionnaire, the questionnaire collects personal information as well as gives the responder a choice to find their preferences of the tool and the services they use best. It also has some components of KM maturity based on how dependent the students/staff/faculty is on the knowledge management tools provided by the university. The responder is expected to first choose the frequency of the particular knowledge tool and then rate the activities used on a comparative basis 1 representing the most usage, while 6 represents the least usage.

For the second part of the questionnaire, the survey has two aspects judges on the Likert scale perception and expectation. The expectation of the responder as to the quality of the tool in a particular aspect has the following possible responses out of which he/she has to choose one.

1   =   Least Important

2   =   Not Important

3   =   Neutral

4 = Important

5 = Most Important

The perception of the responder as to the quality of the tool in a particular aspect has the following possible responses out of which he/she has to choose one.

1 = Strongly Disagree

2 = Disagree

3 = Not Sure

4 = Agree

5 = Strongly Agree

3.7 KM Variables and their Assessments in the Present Study

As was mentioned in the Literature review section, the KM tools assessment is primarily based on the KMAI and on the KMAT and KMD techniques for assessment. The survey questionnaire assesses four KM tools of the Bangkok University: the URSA, the BUKC, the LMS and the BU online library. The study also analyzes the usage patterns based on gender, age and type of users being questions and hence collects the corresponding information. After this the usage frequency of each of the tool is analyzed based on its usage frequency, activities and a usage pattern emerges from this. As mentioned, the usage is being analyzed on the modified version of the seven variables taken from the KMD tool i.e. get, use, learn, contribute, assess, build/sustain, and divest. The six modified variables analyzed are creation, capture, organization, storage, dissemination, application. The relationship between these two sets of variables is discussed in the Literature Review section above. All the variables here are analyzed on Likert scales. However, there are other factors too such as age, gender, frequency of tools used, and frequency of activities used under each of the tools. In addition to this, the organization variable is also judged in the last two questions which analyze the ease and

frequency of usage of the entire set of Information and Communication Tools provided by the Bangkok University management.

In the analysis section each question will be divided into these heads and then analyzed based on the usage pattern variation according to gender, age and type of users, and also the total set of users as a whole. This would serve two purposes: first the usefulness will be analyzed and second the barriers to the usage (in terms of gender, age and type of users) will come out automatically which can probably be analyzed in later studies. This is important since barriers vary according to culture which is not at present in the scope of the present study.

3.8   Reporting

After gathering the data used for analysis, the researchers organize it in an understandable format and then analyze it using the theories developed at the time of literature review. As mentioned, the survey has very few open ended questions and these were also omitted for the purpose of analysis because the response rate and quality of data was poor. Hence the survey was almost entirely quantitative in nature. The objective of the present research is to assess the tools and the ease of their usage which was judged using ranking methods, option-choosing methods and mainly Likert-scale methods.

All these responses were converted into quantitative i.e. numerical values and analyzed using by SPSS 17.

CHAPTER 4

DATA PRESENTATION

This chapter, as the name suggests, discusses the different aspects of the data that is being used for analysis for this dissertation. The research methodology section had introduced the variables used for the present study, so this section will start by explaining the dependent and independent variables. The selection of independent variables is based on both the literature review section as well as some additional studies and the present study will highlight the dependent variables which will be followed by some possible relationships between the dependent and independent variables which will be tested and analyzed in the data analysis section.

4.1   Data Collection

As mentioned in the Research Methodology section the data used for the present study has been collected from the students of the Bangkok University's Kluaynamthai Campus, who studied in two of the International programs: MBA-IP and M.Com Arts-IP. All the students studying in these two programs were both the target population as well as the sample population. This means that data was collected from all the students from these programs. The reason for selecting the Kluaynamthai Campus only, was ease of collection of data and the reason for selection of the International Programs was because the survey language is English. Also the process of collecting the data was using a specifically designed questionnaire in accordance with the research objectives and questions. The questionnaire was given to various respondents who were expected to fill the same and return back to the researcher. The data collected was mostly quantitative in nature, though there were some open ended questions asking for suggestions regarding further improvement of the different Information and Communication technology IT tools provided by the Bangkok University's management. The quantitative nature of the data is

attributed to the fact that the respondents were asked to either choose from the given options, or ranks the tools/activities based on usage frequency, or choose an option on the Likert scale regarding the perception of and expectation from the KM IT tools. All this data was collected and converted in numerical format and analyzed using by SPSS software. The data was collected during the working hours of the university each day.

While primary data was the sole analysis basis for the present study, certain secondary or historical information was also used. The first of these was the analysis of the University website which gives an idea of the different tools in existence in the BU for the purpose of Knowledge Management. The efforts and commitment of the University towards knowledge management also came across during these preliminary studies which forms the core of the present research. The next level of secondary information was the study done by various researchers regarding the evaluation of knowledge management in different organizations and institutions. The purpose of this study was to gather the modes of analysis, variables, statistical tools & techniques (such as questionnaires, hypothesis and data analysis procedures) used while analyzing the effort of an organization towards achieving Knowledge Management culture. The sources for this study include the University library which was the primary source of information for various related books and journals. In addition to this, the secondary data collection aspects also included the Internet (Google books & Google Scholar in particular) and guidance from Dr. Ribiere who helped in both reviewing the condensed materials efficiently relevant to the particular research and as well as pointing to other useful sources of information.

4.2   Literature Review (Independent and Dependent Variables)

Empirical research activities and understanding of research outcomes exist at two different levels of abstraction. Understanding is usually at a conceptual level and the abstraction variables at these levels are known as conceptual variables or constructs.

Constructs are basically the mental definitions of objects or events that can vary.

Empirical research activities are carried out at an operational level of abstraction where

scores are contained from cases on measures. These measures represent operational

variables. Variables are made operational by the measures used to obtain scores from the

cases studied. The present study uses variables that are measured based on each case so

they are conceptual in nature (Schwab, 2005, p. 11-12).

Dependent variables are outcomes or consequences; they are variables that

researchers seek to understand, explain, and /or predict. Independent variables are those

thought to influence or at least predict dependent variables. Dependent variables are

typically influenced by more than one independent variable. Further, variables can be

dependent in one context and independent in another. Research interests determine the

dependent variable in any study. Though many times the independent variables represent a

cause and corresponding dependent variables represent the consequence, a causal linkage

is not necessary between the two types of variables. Independent variables may simply

predict dependent variables without any linkages. The simplest example of this would be

the crowing of a cock which through predicts the dawn has no role towards causing it

(Schwab, 2005, p. 12-13).

Since the present tool is the assessment of Knowledge Management IT tools used

in Bangkok University, the characteristics of users are of primary importance. Since all the

users are students, the distinction would be the academic programs in which they appear

might influence the use of Knowledge Management IT tools. Also the Knowledge

Management is directly dependent on the national culture; the effect of this factor must

also be studied. Since the study is limited to students, age factor – though will be studied –

yet will not cause much difference, but gender is most definitely a characteristic and its

effect would be analyzed. Yet another factor which will influence the perception and

expectation of the user is the particular tool they use most frequently. Hence, the following is a list of the primary variables i.e. demographic variables (variables that depict the type of users) for the present study:

> Academic Program

> Age

> Gender

> IT Tool

IT tool here is considered to be a demographic variable because, there are four tools provided by the University that are being analyzed here and a good or bad impression of the IT tool quality might be just the satisfaction or dissatisfaction from a particular tool. Interestingly this was one of the results of the study. Each demographic variable are also analyzed for their effect on each other.

The basic nature of the present study is the analysis of the effect of demographic variables on the Knowledge Management variables. Knowledge management is considered to be a summation of the following six factors:

> Knowledge Creation

> Knowledge Capture

> Knowledge Organization

> Knowledge Storage

> Knowledge Dissemination

> Knowledge Application

The relationship between the demographic and Knowledge Management variables is shown in the figure 4.1 below. As can be seen the academic program, age, and gender variables may have an effect on the IT tool used, which in turn has an effect on the six knowledge management dependent variables. In addition to this, the usage frequency for

each of the IT Tool (URSA, BUKC, LMS, and BU Online Library) also forms a part of the demographic variable set.

Figure 4.1: Relationship between demographic variables (represented in blue and green) & Knowledge Management variables (represented in red)
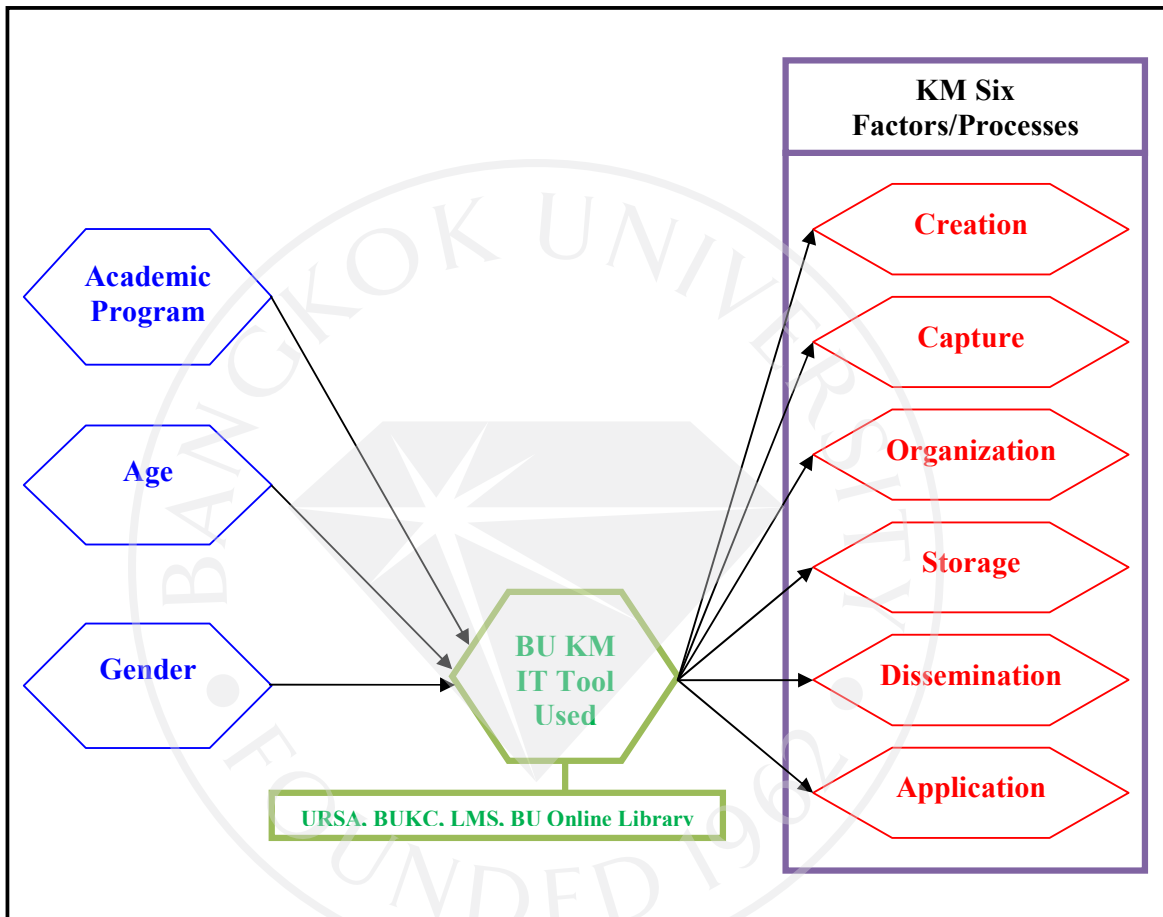
Some variables that come under the IT will be analyzed for their effects on the KM variables. These variables are as follows:

> Rank – The students are expected to rank each of the variables according to their choices. The effect of their choices will in turn have a significant effect on the KM variables, as it will predict which particular tool is most used and efficient. The rank here will take care only that tool that is ranked first.1

> ➢ Choice – This parameter gives an idea of the preference of students when they look for any particular information. The effect of this variable on KM variables will affect the perception and expectation for each of the KM variables and help in suggesting suitable recommendations.
>
> ➢ Usefulness_ perceptions of BU IT tools
>
> ➢ Usefulness_ expectations from BU IT tools

4.3   Descriptive Analysis

Descriptive analysis refers to the procedures that describe data. Descriptive analysis is primarily used in order to present information in a convenient, usable, and understandable form. Some procedures that come under descriptive analysis in order to made the data more presentable calculating frequency, presenting data in a graphical form, measuring central tendency parameters (such as mean, median, and mode), calculating dispersion of the scores (such as variations and standard deviations), and identifying outliers in the distribution of scores. For the present study, descriptive statistics was used to analyze the distribution characteristics of the independent variables described above. First a factor analysis of the perception related variables of the survey variable data is done. The number of factors that are extracted here are 6. This is because there are six primary variables for the knowledge management and the total 23 observations that are taken as variables.

The first figure in this series, which is given below shows the communalities of all the variable using the principal component analysis method.

Figure 4.2: Communalities for the 23 variables

Communalities

	Initial	Extraction
KCreationAP	1.000	.816
KCreationBP	1.000	.784
KCreationCP	1.000	.781
KCreationDP	1.000	.823
KCapturingAP	1.000	.788
KCapturingBP	1.000	.779
KCapturingCP	1.000	.750
KCapturingDP	1.000	.805
KOrganizingAP	1.000	.749
KOrganizingBP	1.000	.758
KOrganizingCP	1.000	.786
KOrganizingDP	1.000	.776
KStoringAP	1.000	.849
KStoringBP	1.000	.797
KStoringCP	1.000	.811
KDisseminatingAP	1.000	.853
KDisseminatingBP	1.000	.747
KDisseminatingCP	1.000	.712
KDisseminatingDP	1.000	.757
KApplicationAP	1.000	.867
KApplicationBP	1.000	.876
KApplicationCP	1.000	.828
KApplicationDP	1.000	.874

Extraction Method: Principal Component
Analysis.

The next figure 4.3 shows the extraction matrix where 6 components are extracted.

Figure 4.3: Extraction Matrix for the 6 components

Component Matrix[a]

	Component					
	1	2	3	4	5	6
KCreationAP	.838		.277			.188
KCreationBP	.731	-.247		-.152		.401
KCreationCP	.628	-.195	.306	.150	-.467	-.120
KCreationDP	.770	-.277	.351		-.165	
KCapturingAP	.708	-.190	.248	-.196	.368	-.123
KCapturingBP	.748	-.377		-.106	.153	.198
KCapturingCP	.666	-.447		-.295		-.132
KCapturingDP	.706	-.203	.252			-.447
KOrganizingAP	.578	-.204	-.196	.323	.382	.290
KOrganizingBP	.732	-.141		.444		
KOrganizingCP	.788	-.159	-.345			-.135
KOrganizingDP	.816	-.264				-.185
KStoringAP	.575	.515	.178		.439	-.146
KStoringBP	.696	.240	-.124	.475		-.107
KStoringCP	.756	.323		.360		
KDisseminatingAP	.716	.539	.169			-.109
KDisseminatingBP	.738			.224	-.315	.230
KDisseminatingCP	.548	.461	.335	-.169	-.111	.216
KDisseminatingDP	.670	.282	.444	-.136		
KApplicationAP	.774	.103	-.423	-.245	-.129	
KApplicationBP	.749	.243	-.389	-.298	-.109	
KApplicationCP	.725	.116	-.450	-.125		-.249
KApplicationDP	.822		-.407	-.118		.116

Extraction Method: Principal Component Analysis.

a. 6 components extracted.

The figure 4.4 below shows the factor analysis for the six components. By looking at the result of the factor analysis we can notice that Six KM components emerged. If we look at the loading for the KCreation factor, the 4 variables load on 4 different components (2,3,5,6) meaning that different aspects of Knowledge Creation are measured. We will have expected these 4 variables to load on the same factor.

If we look at the loading for the KCapturing factor, the 4 variables load on the components number 2 and 5, which means that the different aspects of Knowledge Capturing are measured. We will have expected these 4 variables to load on the same factor.

If we look at the loading for the KOrganizing factor, the 4 variables load on the different components number of 1, 2, 4 and 5, which means that the different aspects of Knowledge Organizing are measured. We will have expected these 4 variables to load on the same factor.

If we look at the loading for the KStoring factor, the 4 variables load on the different components number of 3 and 4, which means that the different aspects of Knowledge Storing are measured. We will have expected these 4 variables to load on the same factor.

If we look at the loading for the KDisseminating factor, the 4 variables load on the different components number of 3 and 6, which means that the different aspects of Knowledge Disseminating are measured. Though we see 3 variables load on the components number 4 but we will have expected these 4 variables to load on the same factor.

If we look at the loading for the KApplication factor, the 4 variables load on the same component number 1, which means that all the KApplication variables measuring the same concept. Thus our expectations have been met for this factor.

Overall, we can say that the KMAI Tools is not as valid and reliable as we could have expected it to be. The reasons might be that the tool is new and it has not been through a lot of testing and validation and/or also because we had to customize this tool to the University environment. Therefore, rephrasing might have generated a different interpretation by the respondents.

Figure 4.4: Factor Analysis using mutation matrix

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
KCreationAP	.221	.379	.485	.254	.445	.354
KCreationBP	.315	.304	.230		.677	.270
KCreationCP	.126	.389	.175	.189		.736
KCreationDP	.126	.585	.271	.197	.286	.520
KCapturingAP	.144	.712	.365	.161	.313	
KCapturingBP	.269	.522	.134	.186	.598	.152
KCapturingCP	.361	.702			.317	.160
KCapturingDP	.179	.748	.239	.241		.308
KOrganizingAP	.188	.192		.600	.554	-.100
KOrganizingBP	.187	.318	.116	.676	.283	.268
KOrganizingCP	.619	.431		.408	.194	.113
KOrganizingDP	.421	.614	.110	.344	.219	.211
KStoringAP	.189	.262	.757	.311		-.273
KStoringBP	.315	.124	.294	.751		.179
KStoringCP	.359	.110	.433	.660		.210
KDisseminatingAP	.379	.152	.761	.246		.204
KDisseminatingBP	.358		.264	.387	.322	.540
KDisseminatingCP	.184		.763		.180	.251
KDisseminatingDP		.283	.749	.114	.234	.201
KApplicationAP	.834	.182	.220	.152	.225	.129
KApplicationBP	.833	.116	.340	.109	.185	
KApplicationCP	.800	.289	.149	.271		
KApplicationDP	.771	.188	.215	.292	.320	.102

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

1.   *Population in each sub-group (each Academic Program)*

There are three academic programs in the Bangkok University that are the focus of

the present study: MBA-IP 2007 & 2008 and M.Com IP 2007. The number of students in

MBA-IP 2007 are 26 (24 is the effective population), which makes it the largest sub-group

comprising of 50% of the total population, followed by MBA-IP 2008 with 16 students i.e.

33.3% and M.Com IP 2007 with 9 students (8 is the effective population) i.e. 16.7%. The

response rate for the total population was 94.1%. This can be shown in the graph &

frequency chart below.

Figure 4.6: Percentage Population in the two academic programs

Population in each Academic Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MBA IP 2007	24	50.0	50.0	50.0
	MBA IP 2008	16	33.3	33.3	83.3
	M.Com Arts P 2008	8	16.7	16.7	100.0
	Total	48	100.0	100.0	

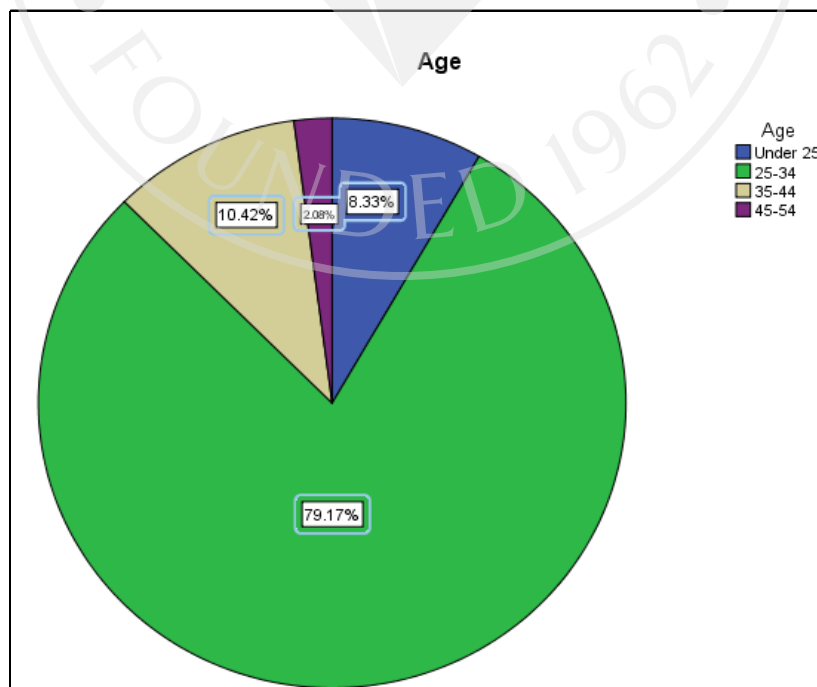Figure 4.5: Frequency distribution of population in academic programs
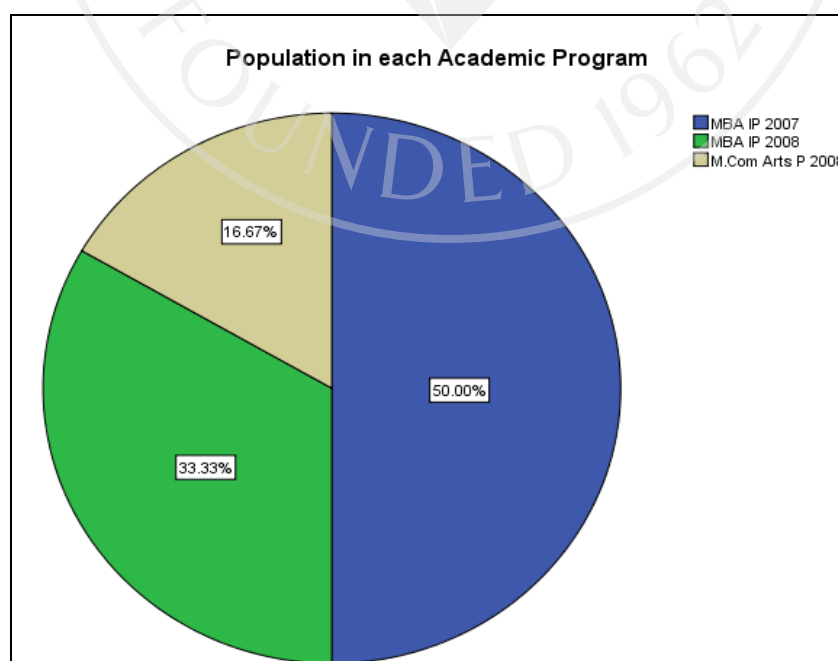
Age

Of the sample surveys taken from the target population, the maximum population

lies between the age group 24-34 comprising about 79.2% of the entire population. This is

followed by the population between the age group 35-44 comprising of 10.4% of the

population and population under the age 25 comprising 8.3% of the population. One of the

students has entered his/her age-group as between 45-54, which may be an error. This is

shown in the frequency table and chart below.

Figure 4.7: Frequency Distribution of the age of users i.e. students

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 25	4	8.3	8.3	8.3
	25-34	38	79.2	79.2	87.5
	35-44	5	10.4	10.4	97.9
	45-54	1	2.1	2.1	100.0
	Total	48	100.0	100.0	

Figure 4.8: Percentage of age of students in the two academic programs

2.   *Gender*

The survey population shows a clear domination of females who comprise of 64.6% of the entire population over males who comprise of only 34.6% of the entire population.

Figure 4.9: Frequency distribution of gender of the students

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	18	37.5	37.5	37.5
	Female	30	62.5	62.5	100.0
	Total	48	100.0	100.0	

Figure 4.10: Percentage distribution of population by gender
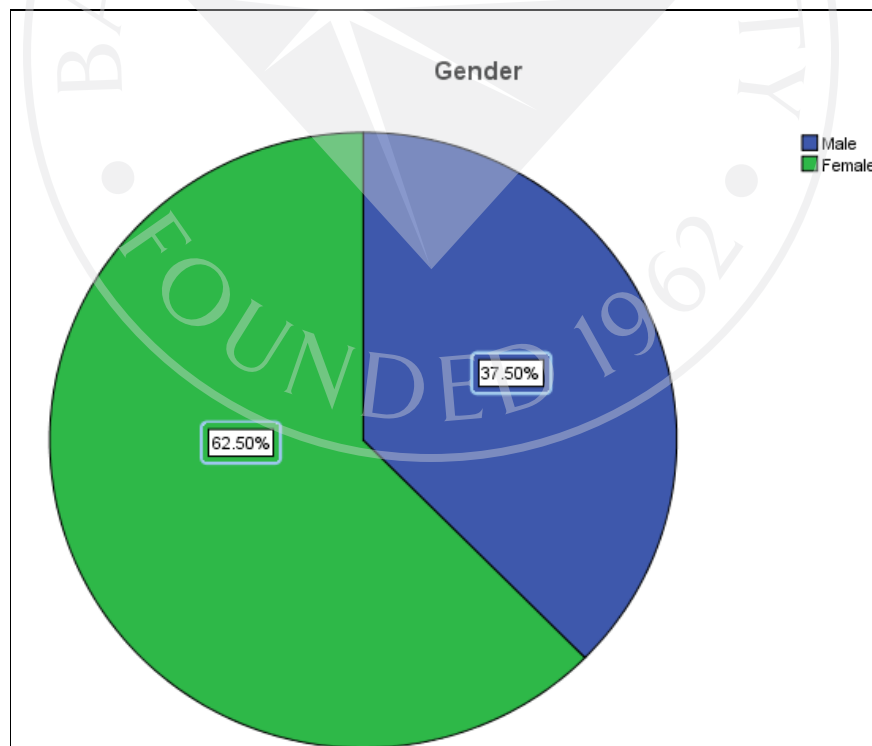
3. ***IT Tools usage rank***

This variable only calculates the IT tool most used by the students. URSA is in fact

the maximum used tool by the students with 64%, followed by BU online library with

27.1%. LMS is used most by only 3 of the people whereas BUKC is used most frequently

by only one user.

Figure 4.11: Usage frequency of the different IT tools at BU

Rank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	URSA	31	64.6	64.6	64.6
	BUKC	1	2.1	2.1	66.7
	LMS	3	6.3	6.3	72.9
	BU Online Libary	13	27.1	27.1	100.0
	Total	48	100.0	100.0	

Figure 4.12: Percentage distribution of the usage of different IT tools at BU
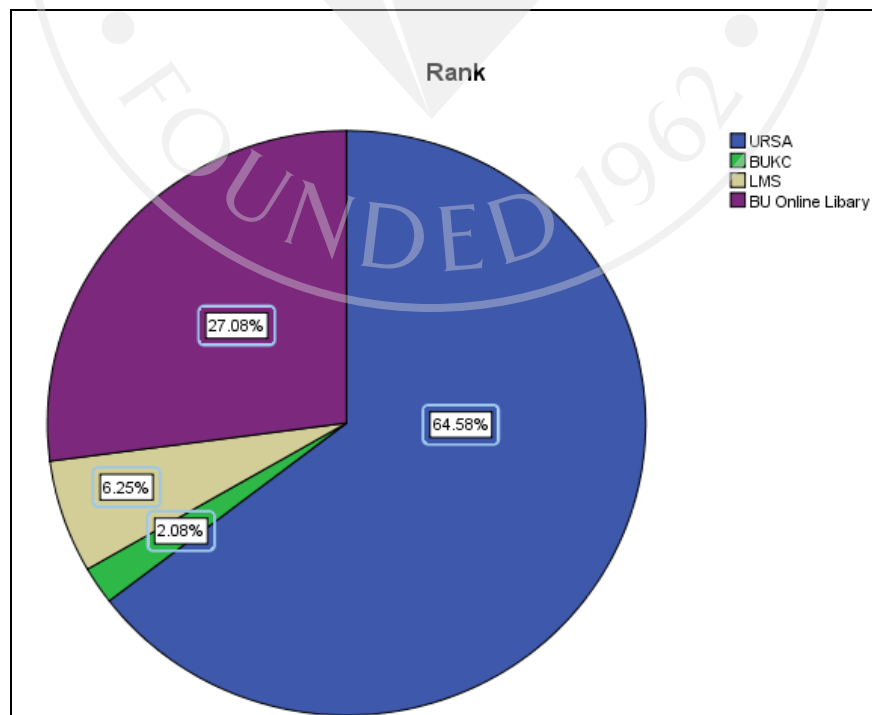
4. *IT information source choice*

This variable shows a comparison of the foremost information choice sources. As can be seen in the frequency table and chart, looking in BU IT systems is done by merely 16.7% of the population i.e. only 8 out of 48 students prefer this option. Most of the students prefer using the internet.

Figure 4.13: Frequency distribution of Information source choice

Choice for information sources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Contact other students	11	22.9	22.9	22.9
	Contact faculty member	1	2.1	2.1	25.0
	Look in BU ICT systems	8	16.7	16.7	41.7
	Outside source like internet	28	58.3	58.3	100.0
	Total	48	100.0	100.0	

Figure 4.14: Percentage distribution of Information source choice
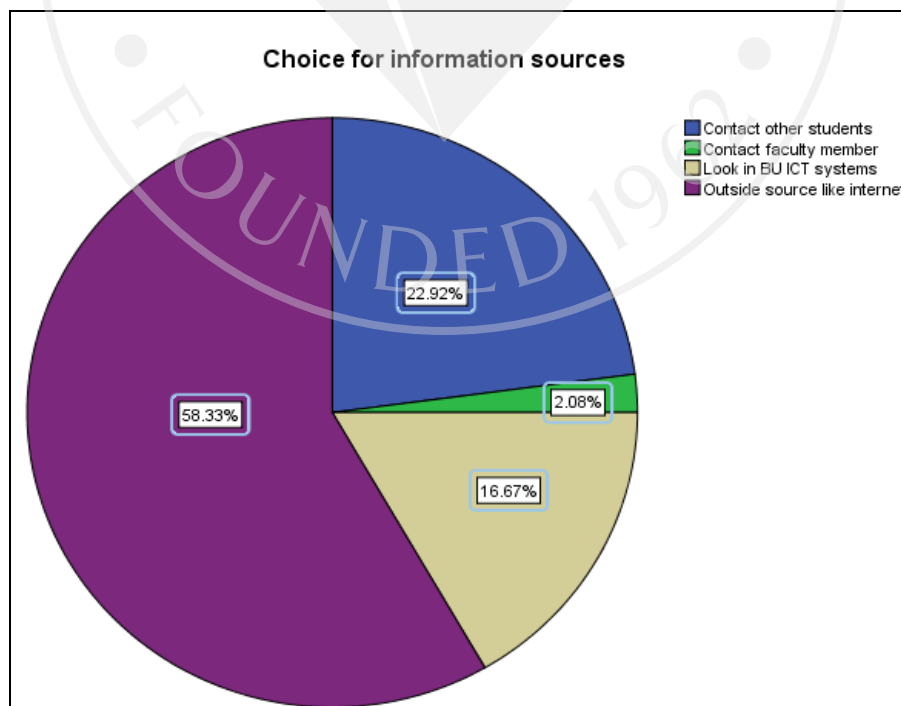
In addition to the choice of information source, students were also asked to give the reason *why* they had selected the particular information source. From the frequency table shown below it is clear that most students 64.4% selected a particular information source because it was faster to access. This was closely followed by students selecting the information source because it was easier to access, almost 60% students selected this option. This was followed by accuracy and detailed nature of source, each of which was selected by 20% of students. Trustworthiness of the source was selected by only 11.1% of the source. Only 3 students selected other reasons, being necessity of availability of the information source at their workplace.

Figure 4.15: Analysis of reasons for selecting a particular information source

$Reasons Frequencies

		Responses		Percent of Cases
		N	Percent	
Reasons for choice of information source[a]	Faster	29	35.4%	64.4%
	More Accorate	9	11.0%	20.0%
	Trustworthy	5	6.1%	11.1%
	More Detailed	9	11.0%	20.0%
	Easier	27	32.9%	60.0%
	Other reason	3	3.7%	6.7%
Total		82	100.0%	182.2%

a. Dichotomy group tabulated at value 1.

The above mentioned information can be shown in the form of a bar graph as below.

Figure 4.16: Analysis of reasons for selecting a choice of information source (Bar Chart)
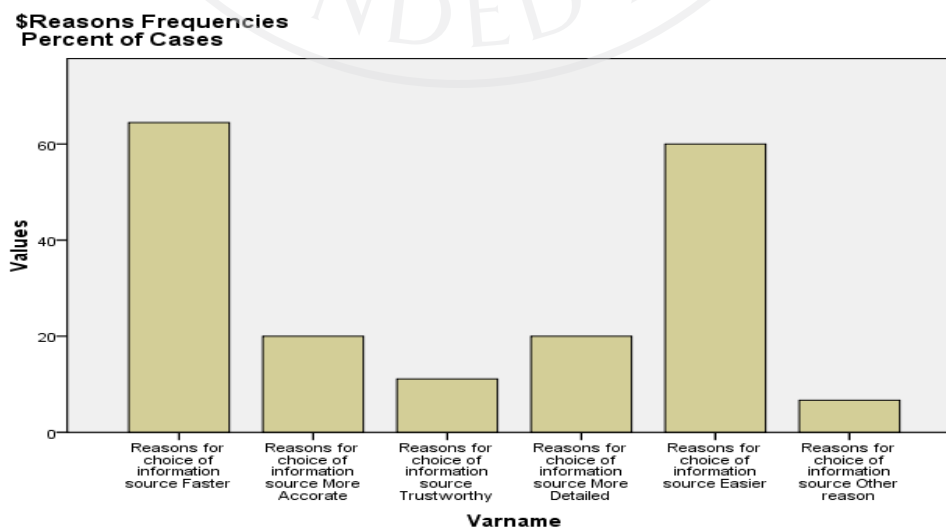
4.4   Statistical Analysis

The statistical analysis for the study was done by using the Statistical Package for Social Science SPSS version 17.0.

The main focus of the analysis of the present research is the relationship between demographic and the six KM variables. The point of analysis that were tested are summarized below:

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'creating knowledge'

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'capturing knowledge'

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'organizing knowledge'

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'storing knowledge'

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'disseminating knowledge'

- Presence or absence of relationship between academic program/ gender/IT tool and KM variable 'applying knowledge'

In addition to testing the presence or absence of the above mentioned relationships, the presence or absence of relationship between the following demographic variables were also tested:

    a.   Academic programs and gender in the Bangkok University international graduate programs

    b.   Relationship between Academic program and IT tool used the most

    c.   Relationship between gender and IT tool used the most

    d. Relationship between Academic program and the choice for information

       source

    e. Relationship between gender and the choice for information source

Also for the purpose of the present study, only perceptions of the variables are considered, as the expectation variable is making the variable list extremely large and difficult to analyze.
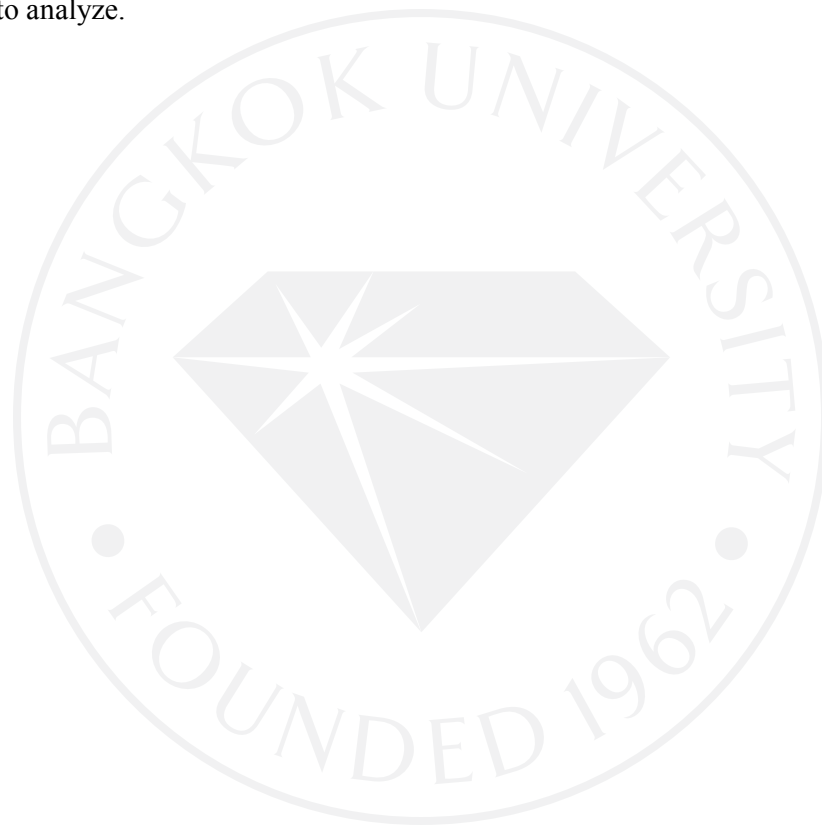
CHAPTER 5

DATA ANALYSIS

This chapter describes the analysis of the data that was taken from the questionnaire. Both descriptive and inferential statistic analysis are used in this case. The chapter presents the descriptive analysis of data by examining various relationships between the independent variables and the first level of dependent variables. After this each of the six KM variables mentioned in the earlier section will be tested. As mentioned previously Statistical Package for Social Science SPSS version 17, was used for the present study.

5.1   Descriptive Analysis

➢ *Academic programs and gender in the Bangkok University international graduate programs*

The academic population of graduate students at Bangkok University is dominated by female population. They comprise of more than 60% of the entire target population. Not only that, the number of female students is more than the male students in each of the graduation classes under study. While this observation does not affect the study in any way, it is nevertheless an interesting aspect. The frequency distribution and the bar charts for this analysis are given below:

Figure 5.1: Population statistics for each program under study

Population in each Academic Program * Gender Crosstabulation

Count

		Gender		Total
		Male	Female	
Population in each Academic Program	MBA IP 2007	11	13	24
	MBA IP 2008	5	11	16
	M.Com Arts P 2008	2	6	8
Total		18	30	48

Figure 5.2: Bar chart showing that the female population exceeds male population in each of the graduate program under focus, by a healthy margin

Bar Chart
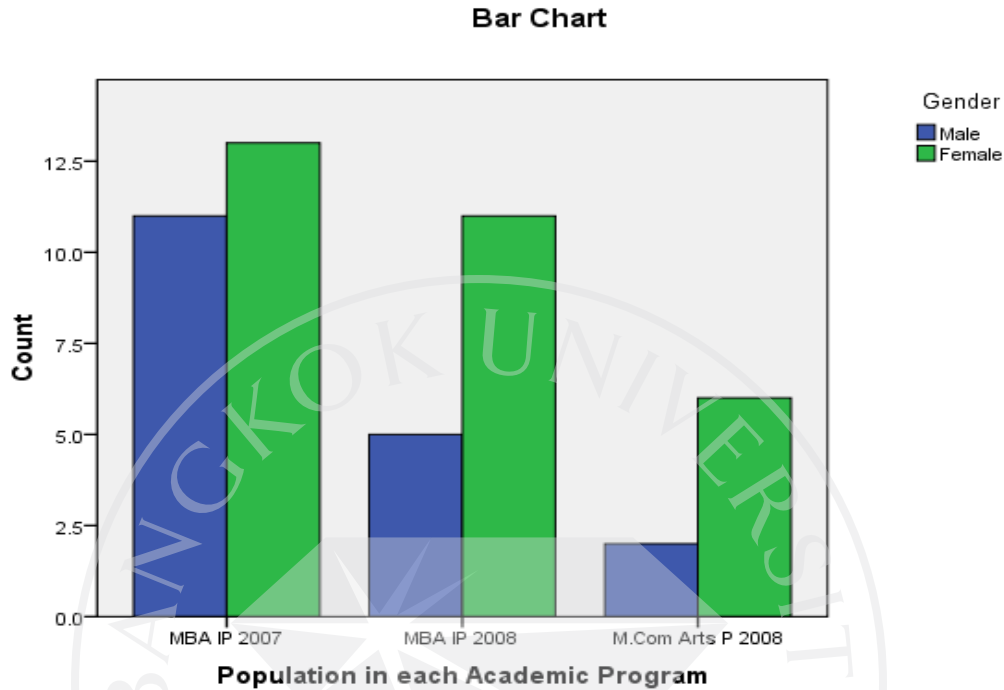
> ***Relationship between Academic program and IT tool used the most***

The choice of IT tools is a very important aspect of the present study, and its variation is an equally important factor for knowledge management. As mentioned earlier, for the purpose of analysis only the first choice of the users is being considered. Another way could of course be by using the mean frequency, but this aspect might not be very useful, since the rank does not necessarily show the frequency of usage, hence only the most frequent usage is considered. The usage frequency of each tool is considered separately. As discussed earlier, URSA is the first choice of IT tool, and this aspect does not change for MBA programs. Interestingly, however, the usage choice of URSA and BU online library is same for M.Com IP students. The following graph and frequency distribution describes this aspect.

Figure 5.3: Frequency distribution of IT tools usage choice

Population in each Academic Program * Rank Crosstabulation

Count

		Rank				Total
		URSA	BUKC	LMS	BU Online Libary	
Population in each Academic Program	MBA IP 2007	16	0	3	5	24
	MBA IP 2008	11	1	0	4	16
	M.Com Arts P 2008	4	0	0	4	8
Total		31	1	3	13	48

Figure 5.4: Chi-square tests for the usage frequency of various IT Tools

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.061[a]	3	.382
Likelihood Ratio	3.318	3	.345
Linear-by-Linear Association	.003	1	.956
N of Valid Cases	48		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .38.

➢ ***Relationship between gender and IT tool used the most***

The chi-square tests done are not a very accurate representation since one of the pre-conditions here is that expected count must be more than 5, hence the interconnection is not determined clearly. While there may not be any obvious relationship between gender and IT, yet since gender is an important part of a culture so this relationship cannot be ignored. The percentage distribution table shows a similar response i.e. there is not much difference in the usage pattern of different tools as per gender. Each tool shows a slight deviation, whoever, it seems to be evenly balanced out and the present populations being the first study under focus, cannot be used to give a proper analysis of this factor.

Figure 5.5: Chi-Square test for the usage of each IT tool as per gender

Gender * Rank Crosstabulation

				Rank			
			URSA	BUKC	LMS	BU Online Libary	Total
Gender	Male	Count	11	1	2	4	18
		Expected Count	11.6	.4	1.1	4.9	18.0
		% within Gender	61.1%	5.6%	11.1%	22.2%	100.0%
	Female	Count	20	0	1	9	30
		Expected Count	19.4	.6	1.9	8.1	30.0
		% within Gender	66.7%	.0%	3.3%	30.0%	100.0%
Total		Count	31	1	3	13	48
		Expected Count	31.0	1.0	3.0	13.0	48.0
		% within Gender	64.6%	2.1%	6.3%	27.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.061[a]	3	.382
Likelihood Ratio	3.318	3	.345
Linear-by-Linear Association	.003	1	.956
N of Valid Cases	48		

a. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .38.

> ***Relationship between Academic program and the choice for information source***

Again the chi-square values do not satisfy the basic condition of count being more than 5, so this relation too is not very clear. This might be because the choice of information source usually depends on the people under focus and their characteristics. Since the education level of students in both the programs are similar, the difference that might arise here could be attributed to the difference in course difficulty, thought this too may not be a very lucid explanation. The result obtained from the study however does point out one thing that faculty members are not very preferred as the source of information among students in any programs and students prefer using internet as the source.

Figure 5.6: Chi-Square test for the relation between Academic Program and Choice for information source

Population in each Academic Program * Choice for information sources Crosstabulation

			Choice for information sources				Total
			Contact other students	Contact faculty member	Look in BU ICT systems	Outside source like internet	
Population in each Academic Program	MBA IP 2007	Count	7	0	3	14	24
		Expected Count	5.5	.5	4.0	14.0	24.0
		% within Population in each Academic Program	29.2%	.0%	12.5%	58.3%	100.0%
	MBA IP 2008	Count	1	1	5	9	16
		Expected Count	3.7	.3	2.7	9.3	16.0
		% within Population in each Academic Program	6.3%	6.3%	31.3%	56.3%	100.0%
	M.Com Arts P 2008	Count	3	0	0	5	8
		Expected Count	1.8	.2	1.3	4.7	8.0
		% within Population in each Academic Program	37.5%	.0%	.0%	62.5%	100.0%
Total		Count	11	1	8	28	48
		Expected Count	11.0	1.0	8.0	28.0	48.0
		% within Population in each Academic Program	22.9%	2.1%	16.7%	58.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.752[a]	6	.188
Likelihood Ratio	10.525	6	.104
Linear-by-Linear Association	.011	1	.917
N of Valid Cases	48		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .17.

➢ ***Relationship between gender and the choice for information source***

Gender might be an important factor in the choice of academic sources. This is entirely dependent on cultures. A simple example would be a patriarchal culture, where probably usage of internet in outside places may not be a very popular option among the female students. However, this is not always the case. For example the choice of fellow students as the primary source of information might be because the students might prefer to understand the material which might not be so clear or explanatory in the online libraries. In case of contacting faculty members, the count is extremely low and does not

even reach the minimum 5 mark, hence the information available is not sufficient to make any analysis here. Chi-square tests, while not being very conclusive in this case too, however do clearly point towards the lack of proper interaction between students and faculty members yet again.

Figure 5.7: Chi-Square test for the relation between gender and Information sources

Gender * Choice for information sources Crosstabulation

			Choice for information sources				Total
			Contact other students	Contact faculty member	Look in BU ICT systems	Outside source like internet	
Gender	Male	Count	7	0	1	10	18
		Expected Count	4.1	.4	3.0	10.5	18.0
		% within Gender	38.9%	.0%	5.6%	55.6%	100.0%
	Female	Count	4	1	7	18	30
		Expected Count	6.9	.6	5.0	17.5	30.0
		% within Gender	13.3%	3.3%	23.3%	60.0%	100.0%
Total		Count	11	1	8	28	48
		Expected Count	11.0	1.0	8.0	28.0	48.0
		% within Gender	22.9%	2.1%	16.7%	58.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.977[a]	3	.113
Likelihood Ratio	6.563	3	.087
Linear-by-Linear Association	1.990	1	.158
N of Valid Cases	48		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .38.

The next four sections below analyze the relation between academic programs/gender with both perceptions of and expectations from IT tools. As the chi-square details emerge, it is seen that a very high percentage of data fails on the validation part since the count value is less than 5 for more than 50% cells, which means that the data is absolutely insufficient to make any inferences between the variables mentioned.

➢ ***Relationship between gender and overall perception of IT tools***

While Chi-square analysis shows that any lasting analysis cannot be made from the data, the means table shows that that female student consider the IT tools to be slightly

more than average in terms of the perception of their usage towards learning. Male

students on the other hand consider that the IT tools are below average in terms of the

perception of their usage towards learning.

Figure 5.8: Means table and Chi square test for the relation between gender and overall

perception of IT tools

Report

ICT usage perception

Gender	Mean	N	Std. Deviation
Male	2.5000	18	1.04319
Female	3.0333	30	.92786
Total	2.8333	48	.99645

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.084[a]	4	.279
Likelihood Ratio	5.119	4	.275
Linear-by-Linear Association	3.223	1	.073
N of Valid Cases	48		

a. 7 cells (70.0%) have expected count less than 5. The minimum expected count is 1.13.

 ➢ ***Relationship between gender and overall expectations from IT tools***

The Chi-square test reveals that there is a relationship between gender and IT

expectations. The mean difference between male and female is significant (p=.006).

Female students have higher expectations in terms of their perceptions of learning from

the IT tools, while male students have below than average expectations in terms of their

perceptions of learning from IT tools. Combining these results with the previous analysis

gives an interesting observation that female students have higher expectation and their

perception of the IT tools is also marginally above average, while male students have

below average expectations and their perception is also below average in terms of the

learning using the IT tools.

Figure 5.9: Chi square test for the relation between gender and overall expectations from IT tools

Report

ICT usage expectation

Gender	Mean	N	Std. Deviation
Male	2.8889	18	1.27827
Female	3.7667	30	.85836
Total	3.4375	48	1.10908

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.423[a]	4	.006
Likelihood Ratio	16.793	4	.002
Linear-by-Linear Association	7.047	1	.008
N of Valid Cases	48		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is .75.

➢ ***Relationship between academic program and overall perception of IT tools***

While Chi-square analysis shows that any lasting analysis cannot be made from the

data, the means table shows that the students in the batch 2008, whether in MBA IP or

M.Com Arts IP, have average to slightly above average perception in terms of learning

using the IT tools providing by Bangkok University. In contrast the MBA IP 2007 has

below average perception in terms of learning from the IT tools. The result cannot be

generalized for all the comparisons between 2008 and 2007 batches, but the results are

interesting to say the least.

Figure 5.10: Chi square test for the relation between academic program and overall perception of IT tools

Report

ICT usage perception

Population in ea...	Mean	N	Std. Deviation
MBA IP 2007	2.6250	24	.87539
MBA IP 2008	3.0000	16	1.09545
M.Com Arts P 2008	3.1250	8	1.12599
Total	2.8333	48	.99645

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.575ᵃ	8	.379
Likelihood Ratio	9.963	8	.268
Linear-by-Linear Association	2.031	1	.154
N of Valid Cases	48		

a. 12 cells (80.0%) have expected count less than 5. The minimum expected count is .50.

➢ ***Relationship between academic program and overall expectations from IT tools***

While Chi-square analysis shows that any lasting analysis cannot be made from the data, the means table shows that the students of MBA-IP 2008 program have very high expectations in terms of learning from the IT tools provided by the Bangkok University. The students of M Com.Arts-IP 2008 as well as students of MBA-IP 2007 have above average expectation, but those are not too high either. Comparing with the result of the previous section, it can be seen that the high expectations of MBA-IP students are not fulfilled, though they still consider the usage to tools in terms of learning process

to be average. M Com.Arts-IP 2008 students however have a fairly decent balance

between their expectations from the tools, and what they perceive.

Figure 5.11: Chi-Square test for the relation between gender and overall expectations from of

IT tools

Report

ICT usage expectation

Population in ea...	Mean	N	Std. Deviation
MBA IP 2007	3.0833	24	1.13890
MBA IP 2008	4.0000	16	1.09545
M.Com Arts P 2008	3.3750	8	.51755
Total	3.4375	48	1.10908

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.423[a]	8	.098
Likelihood Ratio	16.128	8	.041
Linear-by-Linear Association	1.951	1	.162
N of Valid Cases	48		

a. 12 cells (80.0%) have expected count less than 5. The minimum expected count is .33.

5.2   Analysis of Usage Frequency of IT Tools

As was discussed above, there is not much of a difference between the usage patterns of various tools based on gender. However, variations based on Academic programs are pertinent, which will be analyzed in this section.

➢ **URSA**

As was seen earlier, URSA is the most favored among all the IT tools provided by the Bangkok University. However, the usage pattern shows that most of the students regardless of the academic programs use the system few times a month or a week, which means either the information given is not complete or the data presentation is not satisfactory. The same result can be drawn from the chi-square test, as 5 out of 9 cells i.e. more than 50% have count less that 5, so the analysis is not definite. However, BU graduate students use the URSA tools the most which can be lead to a positive indication for further improvement by Bangkok University KM team.

Figure 5.12: Usage Pattern and Chi-square test of URSA based on academic program

Population in each Academic Program * URSA frequency of usage Crosstabulation

			Almost every day	Few times a week	Few times a mont	Total
Population in each Academic Program	MBA IP 2007	Count	2	5	17	24
		% within Population in each Academic Program	8.3%	20.8%	70.8%	100.0%
	MBA IP 2008	Count	1	5	10	16
		% within Population in each Academic Program	6.3%	31.3%	62.5%	100.0%
	M.Com Arts P 2008	Count	0	3	5	8
		% within Population in each Academic Program	.0%	37.5%	62.5%	100.0%
Total		Count	3	13	32	48
		% within Population in each Academic Program	6.3%	27.1%	66.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.561[a]	4	.816
Likelihood Ratio	2.036	4	.729
Linear-by-Linear Association	.011	1	.916
N of Valid Cases	48		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .50.

Figure 5.13: Usage Pattern chart of URSA based on academic Program
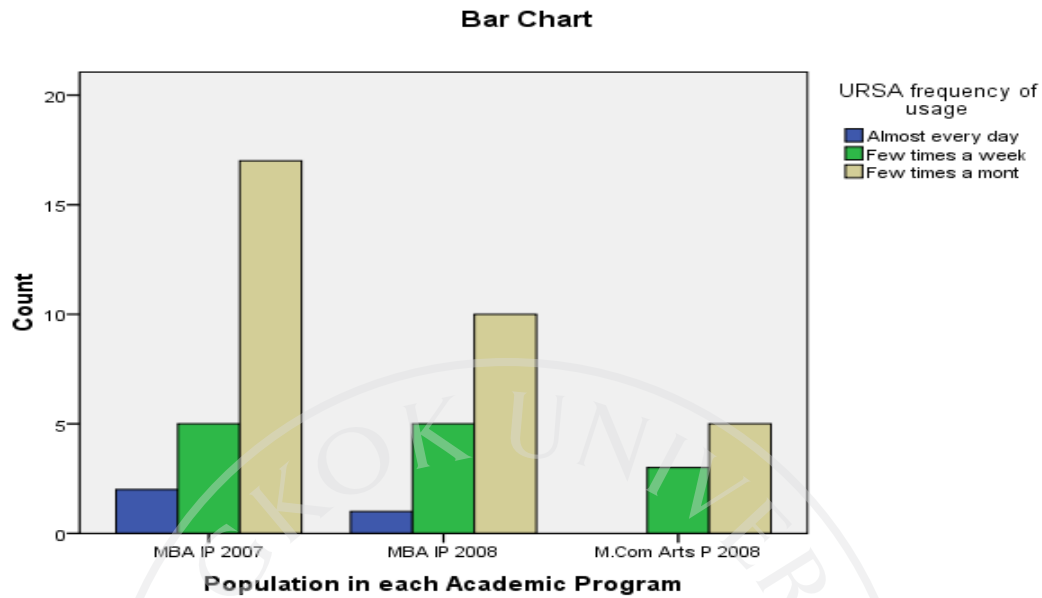
> **BUKC**

BUKC happens to be the least favored among all the IT tools, Reason for this is extremely difficult to judge since many students have not used the system at all. The circled parts of the frequency chart show that more than 50% of the students do not use this system ever. This tool needs to be studied in detail regarding its usage pattern. The chi-square test also echoes that the data extracted from the responses are not enough to make a study between the BUKC usage and the academic program.

Figure 5.14: Usage Pattern and chi-square test of BUKC based on academic program

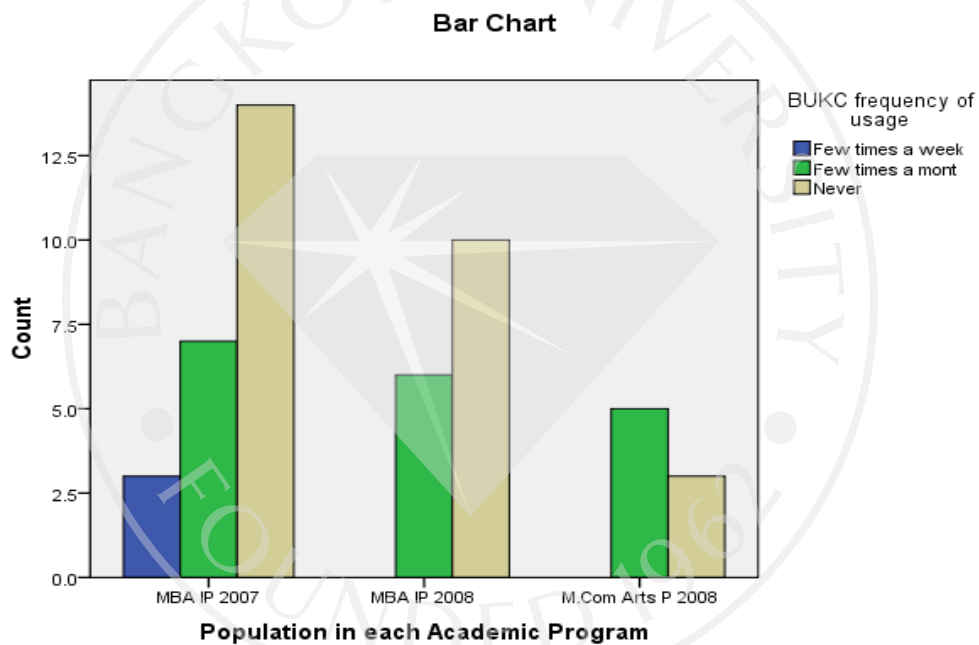**Population in each Academic Program * BUKC frequency of usage Crosstabulation**

| | | | BUKC frequency of usage | | | |
			Few times a week	Few times a mont	Never	Total
Population in each Academic Program	MBA IP 2007	Count	3	7	14	24
		% within Population in each Academic Program	12.5%	29.2%	58.3%	100.0%
	MBA IP 2008	Count	0	6	10	16
		% within Population in each Academic Program	.0%	37.5%	62.5%	100.0%
	M.Com Arts P 2008	Count	0	5	3	8
		% within Population in each Academic Program	.0%	62.5%	37.5%	100.0%
Total		Count	3	18	27	48
		% within Population in each Academic Program	6.3%	37.5%	56.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.407[a]	4	.248
Likelihood Ratio	6.441	4	.169
Linear-by-Linear Association	.000	1	1.000
N of Valid Cases	48		

a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .50.

Figure 5.15: Usage Pattern chart of BUKC based on academic Program

> **LMS**

The Learning Management System LMS of BUKC has similar usage patterns to the URSA IT tool. Most of the students regardless of their programs prefer using the systems few times a month. The figure below shows the patterns in detail. No other patterns can be drawn from the results, as from the chi square tests it is clear that 75% of the cells have a count less than 5.

Figure 5.16: Usage Pattern and chi-square test of LMS based on academic Program

Population in each Academic Program * LMS frequency of usage Crosstabulation

			LMS frequency of usage				Total
			Almost every day	Few times a week	Few times a mont	Never	
Population in each Academic Program	MBA IP 2007	Count	0	6	18	0	24
		% within Population in each Academic Program	.0%	25.0%	75.0%	.0%	100.0%
	MBA IP 2008	Count	1	0	12	3	16
		% within Population in each Academic Program	6.3%	.0%	75.0%	18.8%	100.0%
	M.Com Arts P 2008	Count	0	1	6	1	8
		% within Population in each Academic Program	.0%	12.5%	75.0%	12.5%	100.0%
Total		Count	1	7	36	4	48
		% within Population in each Academic Program	2.1%	14.6%	75.0%	8.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.393[a]	6	.109
Likelihood Ratio	14.033	6	.029
Linear-by-Linear Association	2.286	1	.131
N of Valid Cases	48		

a. 9 cells (75.0%) have expected count less than 5. The minimum expected count is .17.

Figure 5.17: Usage Pattern chart of LMS based on academic Program
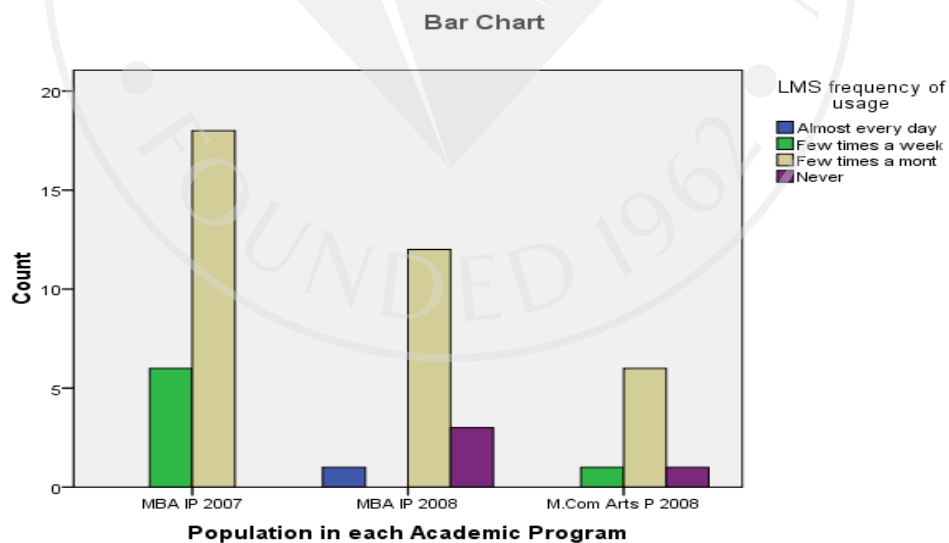
> **BU Online Library**

    The BU online library is the second most preferred IT tool provided by the

Bangkok University. The usage pattern of the tool is interestingly better than any other

tools suggesting that people depend on the tool for their regular work, since for use it a

few times per week or month. Patterns cannot be drawn from the data as the count is less than 5 for more than 50% of the cells, which means that chi-square test would give erroneous results. Many students have however requested more journals to be included in the online library.

Figure 5.18: Usage Pattern of BU Online Library based on academic Program

Population in each Academic Program * BU frequency of usage Crosstabulation

			BU frequency of usage				
			Almost every day	Few times a week	Few times a mont	Never	Total
Population in each Academic Program	MBA IP 2007	Count	1	7	11	5	24
		% within Population in each Academic Program	4.2%	29.2%	45.8%	20.8%	100.0%
	MBA IP 2008	Count	1	3	9	3	16
		% within Population in each Academic Program	6.3%	18.8%	56.3%	18.8%	100.0%
	M.Com Arts P 2008	Count	1	5	0	2	8
		% within Population in each Academic Program	12.5%	62.5%	.0%	25.0%	100.0%
Total		Count	3	15	20	10	48
		% within Population in each Academic Program	6.3%	31.3%	41.7%	20.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.350[a]	6	.214
Likelihood Ratio	11.072	6	.086
Linear-by-Linear Association	1.113	1	.291
N of Valid Cases	48		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .50.

Figure 5.19: Usage Pattern chart of BU Online Library based on academic Program
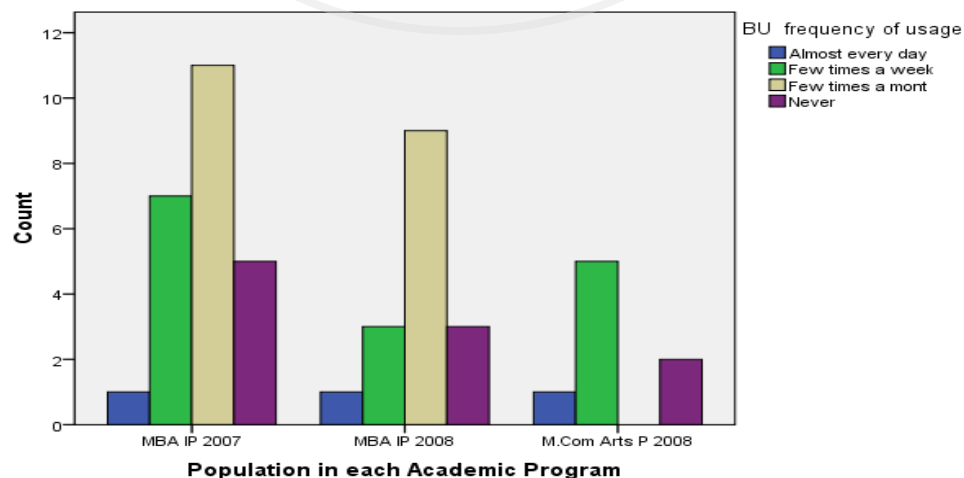
5.3   Analysis of IT Tools Usage

The figure below shows the Perception and Expectation of the entire BU IT usage.

The graph and frequency table shows the percentage and frequency of results.

Figure 5.44: Perception and Expectation from IT usage

ICT usage perception

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To a very low extent	5	10.4	10.4	10.4
	To a low extent	10	20.8	20.8	31.3
	To a medium extent	24	50.0	50.0	81.3
	To a high extent	6	12.5	12.5	93.8
	To a very high extent	3	6.3	6.3	100.0
	Total	48	100.0	100.0	

ICT usage expectation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To a very low extent	4	8.3	8.3	8.3
	To a low extent	2	4.2	4.2	12.5
	To a medium extent	20	41.7	41.7	54.2
	To a high extent	13	27.1	27.1	81.3
	To a very high extent	9	18.8	18.8	100.0
	Total	48	100.0	100.0	

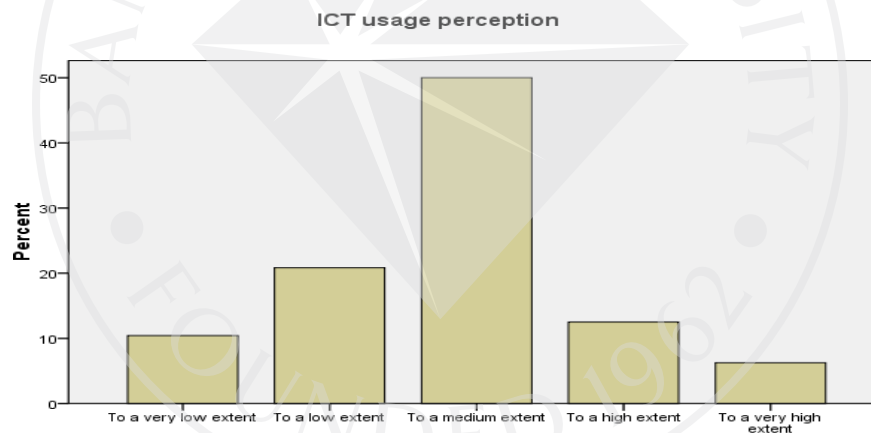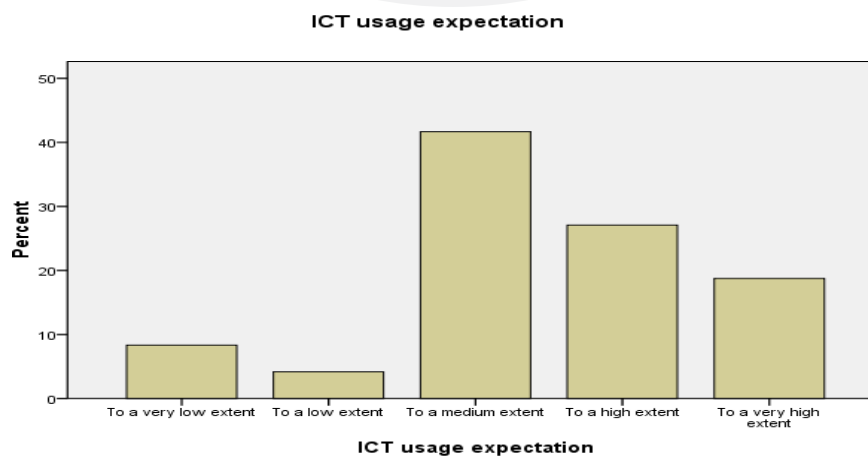Figure 5.45: Percentage of IT usage Perception responses

Figure 5.46: Percentage of IT usage Expectation responses

5.4 **Comparative Analysis of Perceptions and Expectations**

➢ *Creating Knowledge*

Looking at the creation variable it can be seen that perception for every response is less than expectation. Also all the statements given has more or less the similar response from students. It was further seen that students considered that the rewards for faculty members given if they came up with required plans was neither highly expected and was not highly perceived either. The students did expect highly from the present of tools that could collect information from faculty members and students. However, the need was not really met.
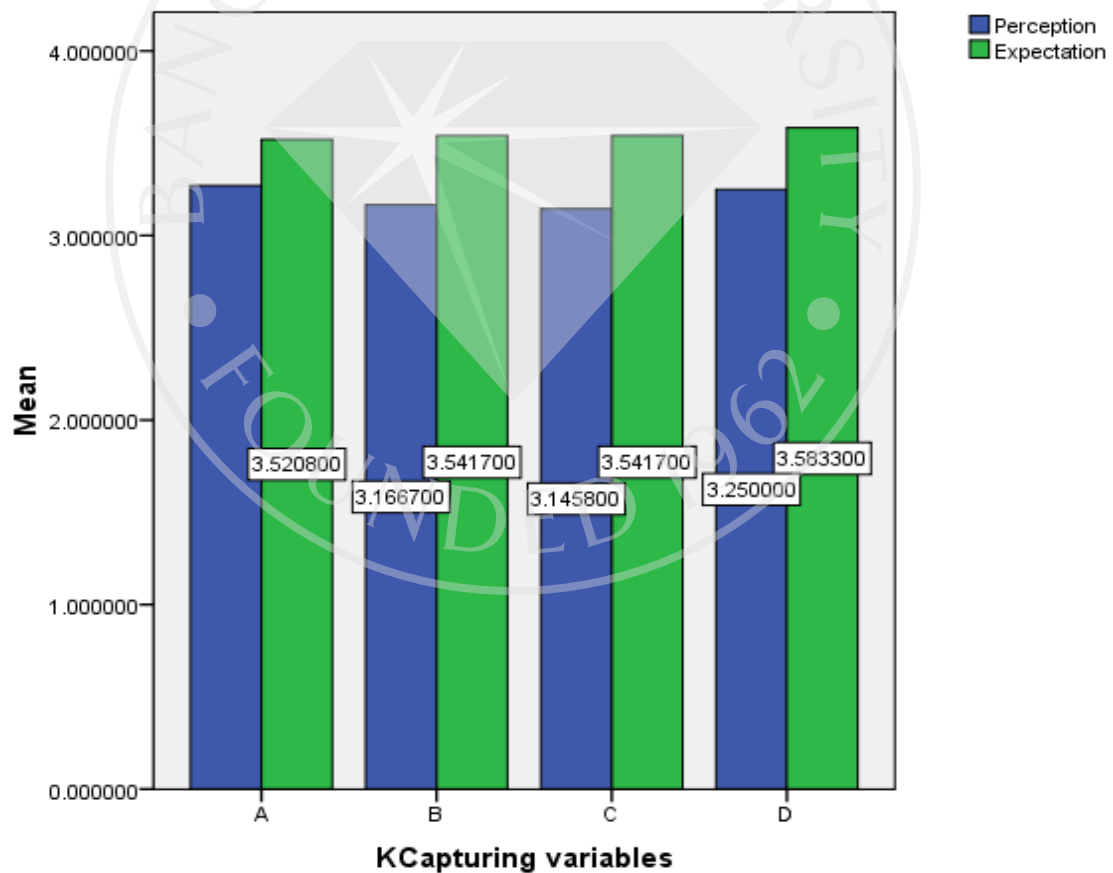
Figure 5.47: Perception and Expectations for Knowledge Creating
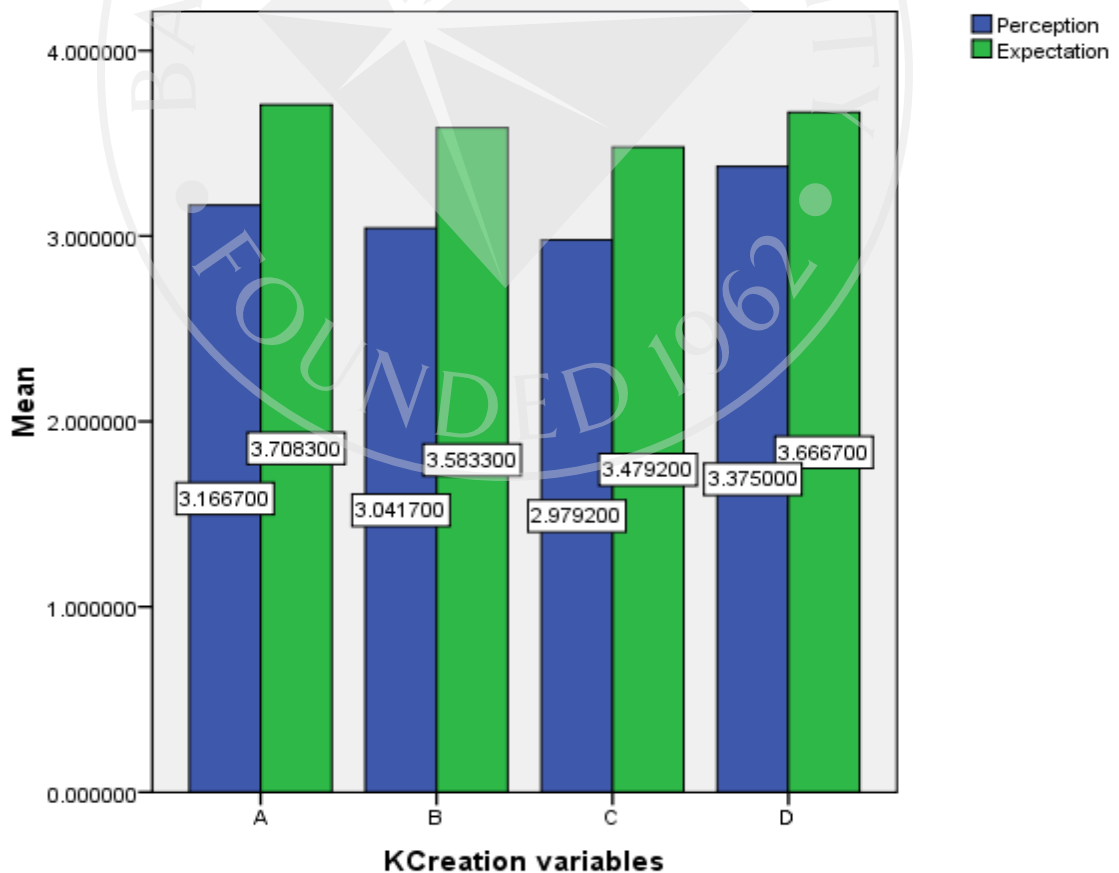
➤ *Capturing Knowledge*

Looking at the figure below it is clear that perception for every response is less than expectation. Also all the statements were responded similarly by students. The students considered that while all the factors inquired in the questionnaire were not met, the capturing of knowledge was done fairly well as both the expectations and perceptions were above average and near to each other. However, since the statements actually inquired about the students' awareness of the presence of tools, and not their utility, the response was an expected one.
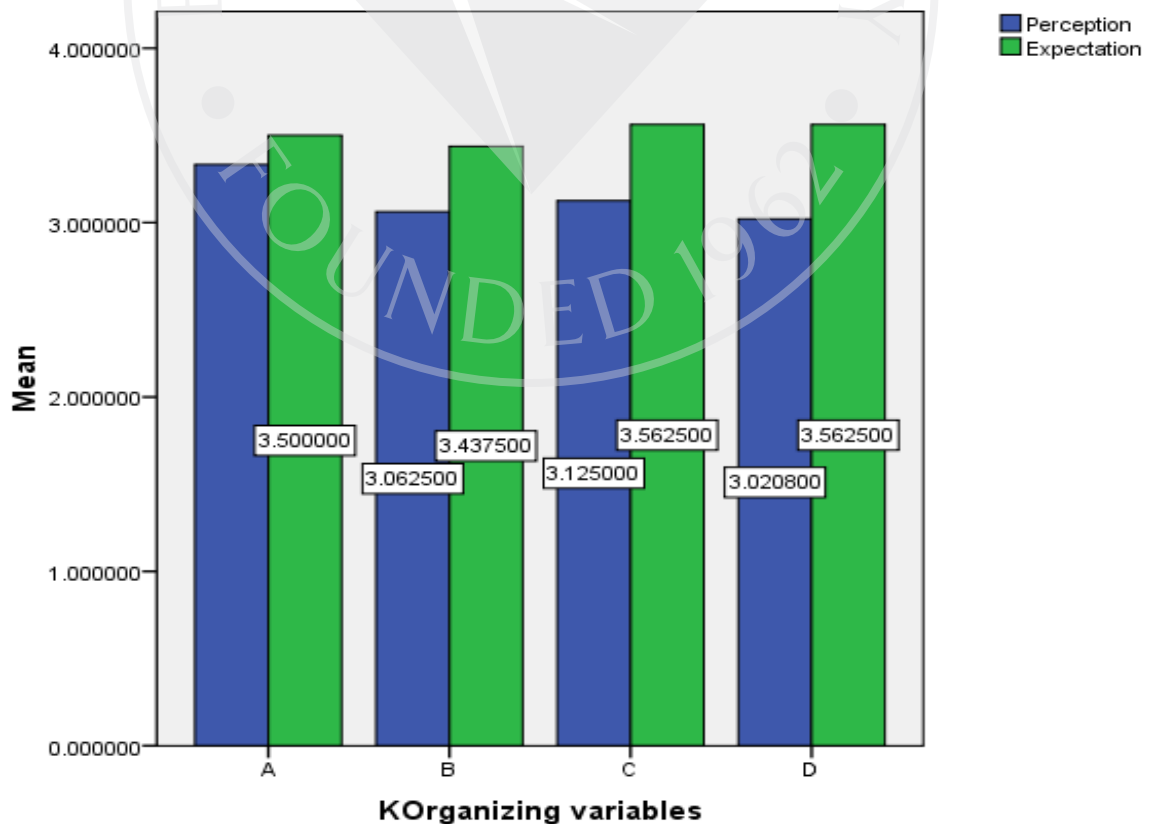
Figure 5.48: Perception and Expectations for Knowledge capturing

➢ ***Organizing Knowledge***

Looking at the figure below it is clear that perception for every response is less than expectation. While the responses were more or less similar, the response for question C and D were higher in terms of expectation as compared to statements A and B. This means that the learning from experience and response to problems and challenges was expected to be important, but perceived to be not up to the mark, in fact it is rated below average, which a issue of serious concern. Also feedback to faculty & students on their ideas and knowledge was perceived to be an important part of knowledge management but again was perceived to be at barely an average level. Both these points show that the culture of knowledge management needs proactive development from the management, else merely purchasing tools will not help.
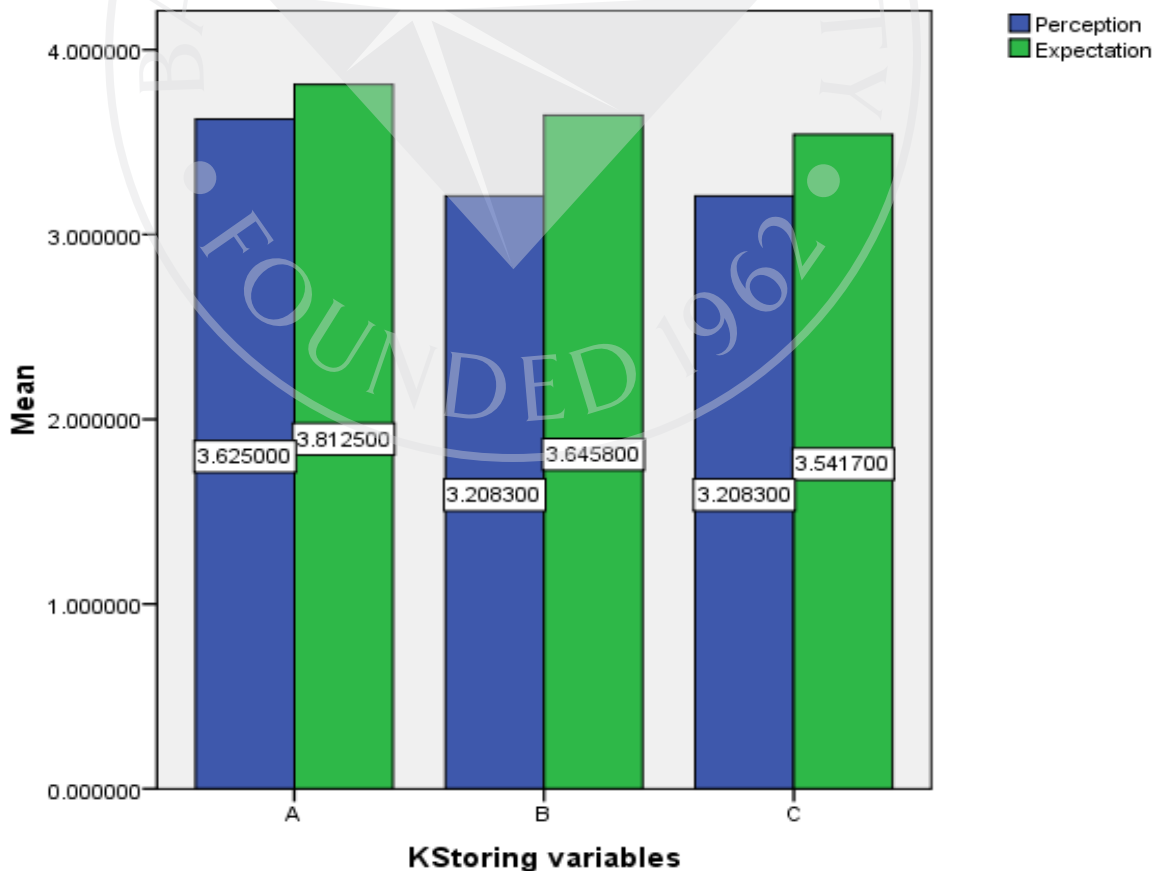
Figure 5.49: Perception and Expectations for Knowledge organizing

> ➤ ***Storing Knowledge***

Looking at the figure below it is clear that perception for every response is less than expectation. However, the response to the question A was higher in terms of both perception and expectation. Students expected that BU ought to utilize databases, repositories and information technology applications and were fairly satisfied with what they experienced. The same could not be said about the present of newsletter and publications. Both these were considered to be important but the efforts of the university on this issue were perceived as barely average. Again an issue which points clearly towards the lack of a sufficiently proactive KM culture in the University.
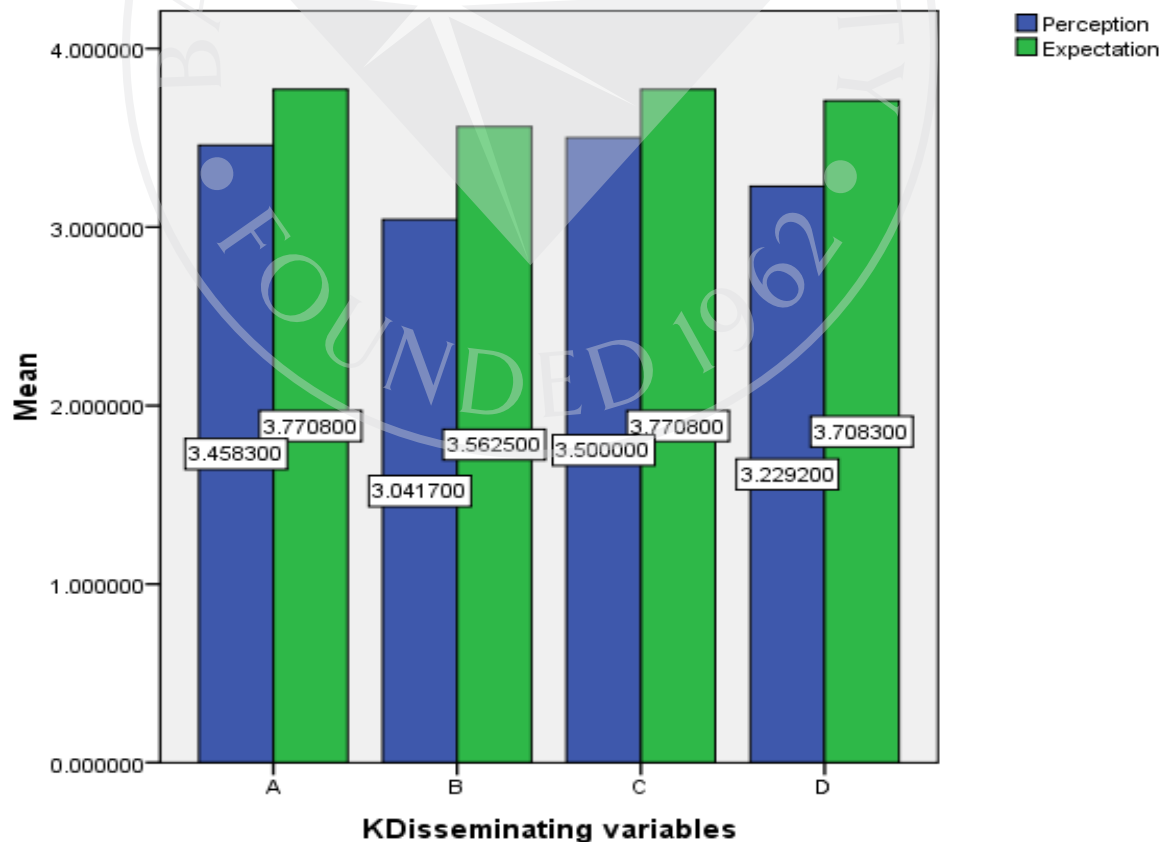
Figure 5.50: Perception and Expectations for Knowledge storing

➤ *Disseminating Knowledge*

Looking at the figure below it is clear that perception for every response is less than expectation. The 2nd question however yielded the least perception and expectation response showing that people did not really bother about the particular factor. This is probably the most concerning issue amongst all, since it relates to the timely passage of information via reports to faculty members and students and the response showed that the students perceived this effort to be below average. However, on the other hand, the students were fairly happy with the number and quality of seminars, and presence of knowledge bases that were easily accessible.
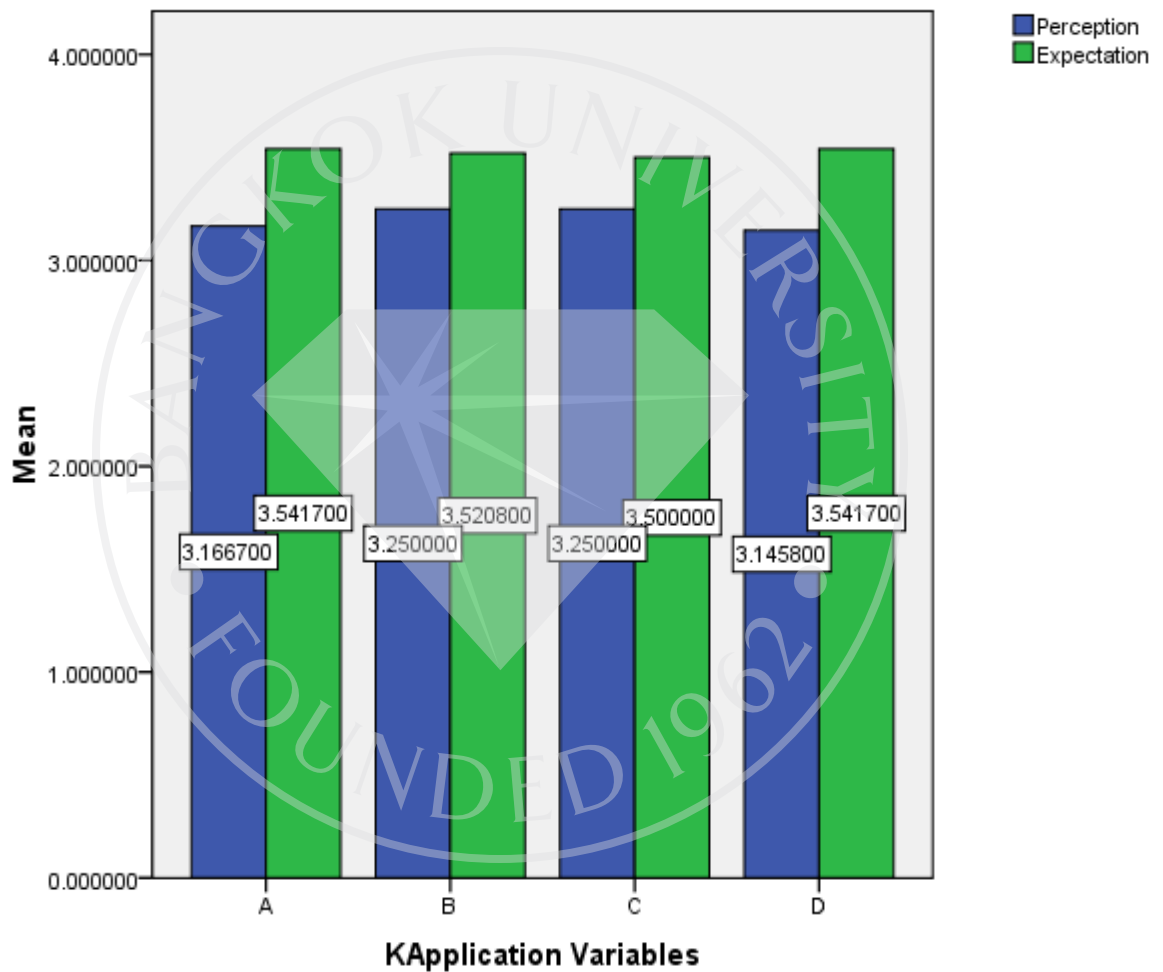
Figure 5.51: Perception and Expectations for Knowledge Disseminating

➢ ***Applying Knowledge***

Looking at the figure below it is clear that perception for every response is less than expectation. Also all the statements given has more or less the similar response from students.
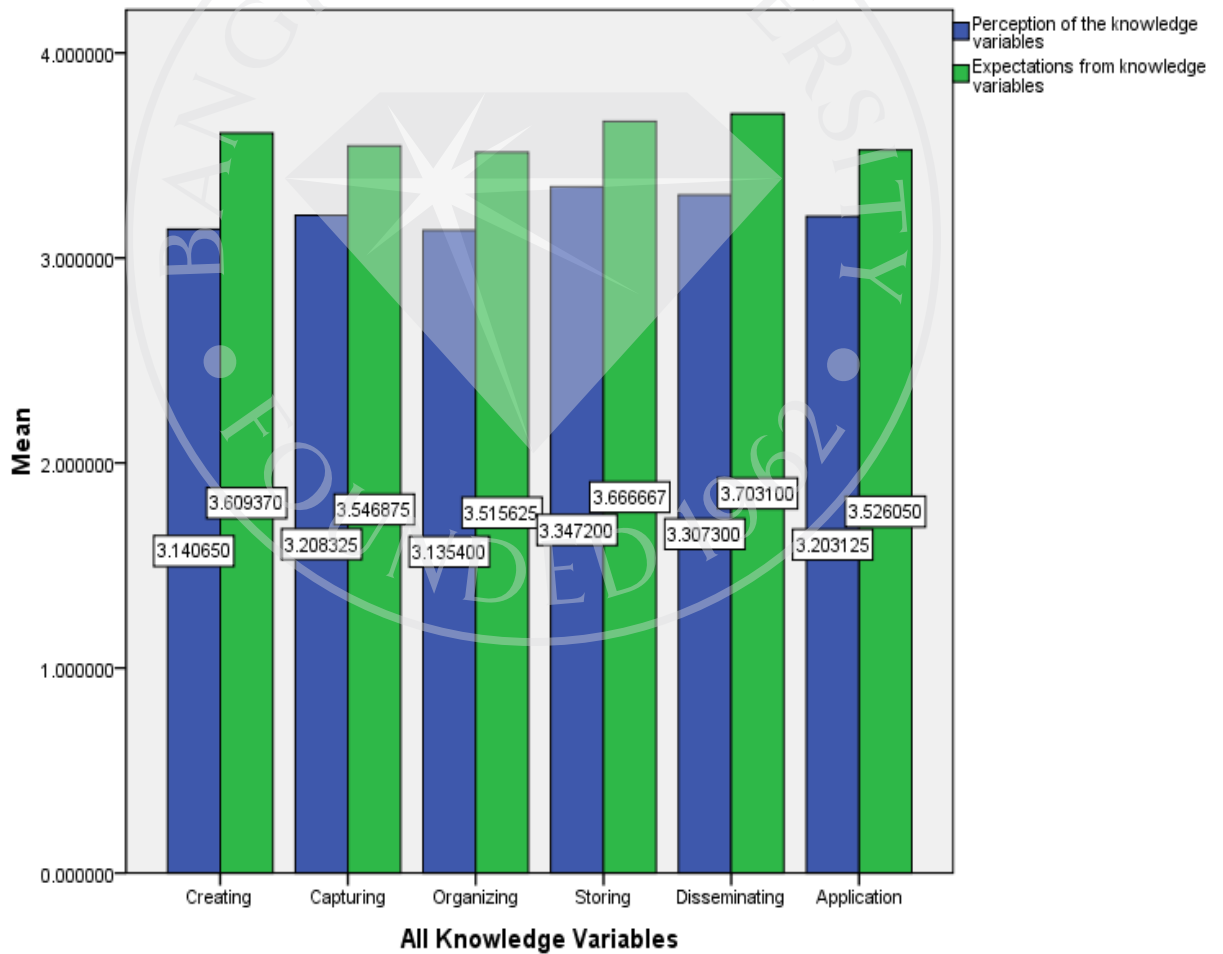
Figure 5.52: Perception and Expectation for Knowledge Application

➢ *Comparison of Perception and Expectation of IT Tools for each of the Six*
Knowledge Variables

From the figure below it can be seen that overall perception was lesser than expectation showing that the tools did not satisfy the students in terms of what they expected. The lowest score was for organizing while the highest was for disseminating followed by creating.

Figure 5.53: Perception and Expectation for IT Tools for all Six Knowledge Variables

➢ *Overall Comparison of Perception and Expectation of IT Tools for all the Six Knowledge Variables*

The figure below shows the overall perception and expectations of students from the KM IT tools. It can be seen that the students perceive the tools to be less useful that what they expect from them. Thus based on the overall mean value from the below graph, it can be said that the Bangkok University IT Tools need more initiatives to make existing IT tools to be more useful.

Figure 5.54: Overall Mean of Perception and Expectation
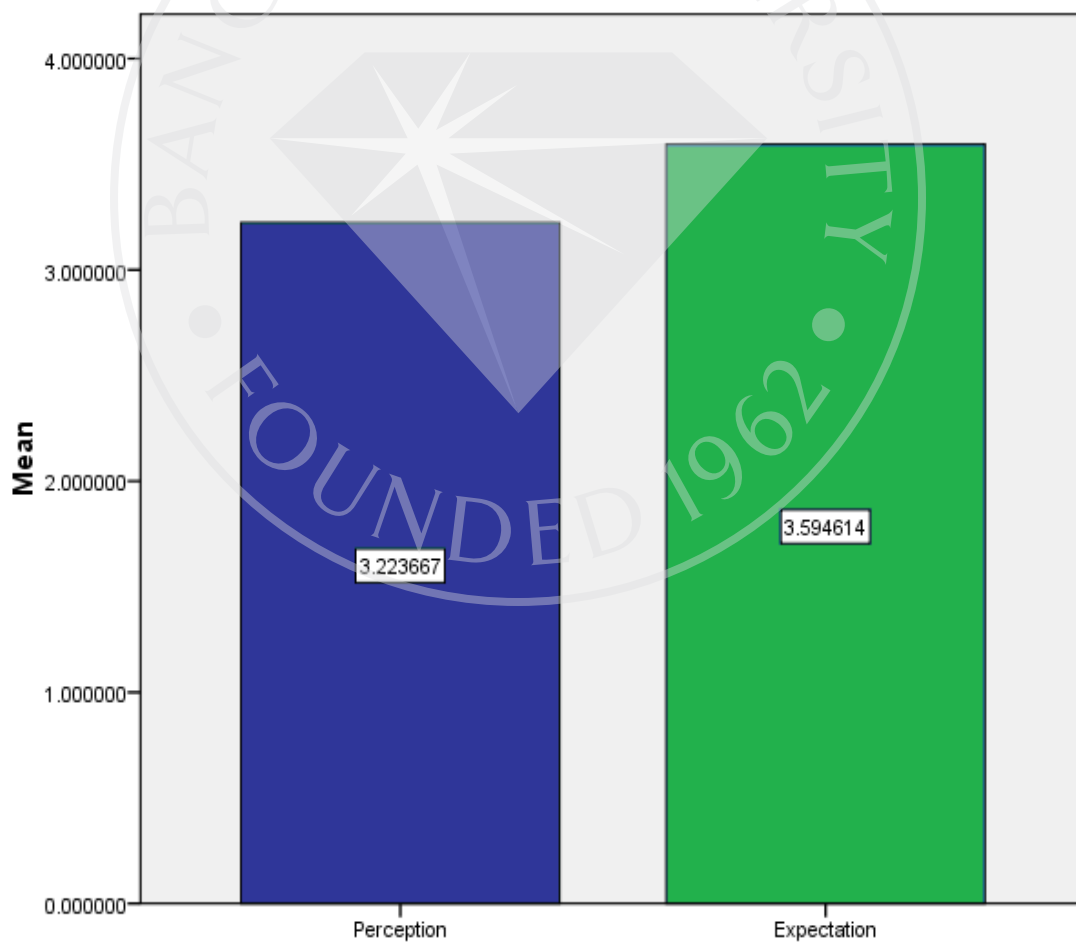
CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

In this chapter, the findings from the study are discussed. The chapter starts with a summary of the findings from the previous chapter. After this conclusions drawn against the research objectives are discussed. The next and final section discusses the recommendations and suggestions for future research.

6.1   Conclusion

The aim of the present study is to assess the different Knowledge Management IT Tools provided by the Bangkok University. While the initiatives of the university towards knowledge management cannot be questioned, a true assessment of the tools provided is always an important step towards gaining acceptance for the usage of the tools.

6.2   Findings of Research Question and Sub-Questions

Sub-Questions:

➢ *What is the graduate students' usage pattern[1] of Bangkok University Knowledge Management IT tools?*

The IT tools provided by Bangkok University are for the purpose of knowledge management. KM consists of six factors: creation, capture, organizing, storing, dissemination and application. These are the main secondary variables under analysis. The detailed analysis of these parameters shows that there were significant issues faced by students regarding the tools. URSA is the preferred tool and BU Online library is also employed fairly regularly by different sub-groups. LMS is employed to a very minor extent and BUKC is hardly being employed by any of the students. Even URSA was employed by the students only a few times a month and BU Online library fared marginally better with some the usage frequency near to a few times a week. LMS, as

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[1] Usage pattern is defined as frequency of usage as well as the usage purpose.

some students pointed out, needed to be accepted and utilized fully by the faculty while BU Online library needs subscriptions to a larger database of knowledge chiefly journals.

Looking at the responses, it was clear the almost all the graduate students were aware of the Knowledge Management tools using URSA the maximum followed by BU Online library and LMS. BUKC happened to be the only sore point since barely any student used the system. The reason for this fact needs to be discussed in detail. The variation pattern for the usage of the IT tools was not constant the results were inconclusive as to the variation of usage with age or academic program or even gender. The reason or academic program might be because both the groups were very small graduate groups and so the variation might significant. A detailed study and comparison with undergraduate group might be helpful here. Gender wise variation proved to be unbalanced since almost 66% of the entire students were female which probably skewed the results in their favor. But more than that, the number of male students was also less, which meant any pattern making was futile. Similar problem occurred with the variation with age, as almost all the students were in similar age groups. The variation as per choice of source of information was conclusive in the sense that Internet was the clear choice with faculty member figuring as the last choice. The interesting aspect was that the frequency of people going in for BU IT tool as well as to their fellow students was similar. An analysis of choices based on situation i.e. when they would choose particular information might be useful here.

> ***How do graduate students perceive the Bangkok University Knowledge Management IT tools and processes in terms of helping them to learn?***

The study showed that except for organizing and applying knowledge most of the tools were similar in performance. The creation, capturing and dissemination of the tools

were considered to be similar and average. The organizing however was seen to be very important. This is because, most of the students who sought to go outside for sourcing information using internet were mostly impressed by the organization and ease of finding data. Almost all students regardless of their academic programs considered thought that the learning perception from KM tools was just average. Most preferred using Internet to the sources made available by Bangkok University. The reasons for the use of tools can be clearly seen from the expectation versus perception analysis of tools that was done in detail in the analysis section. Overall people felt that their expectations were not met and the learning tools were perceived to be less helpful than what the students expected. Also the responses showed that the students expected the organization of the IT tools to be better, even though the tools failed to satisfy the students on all the six knowledge variable counts.

> *Are the graduate students more likely to use Knowledge Management IT tools provided within the University as compared to other sources of knowledge (e.g. direct interaction with other stakeholders though personal contacts, other websites or knowledge resources or when looking for course work information etc.)?*

As compared to the other sources of information, the Knowledge Management Tools provided by Bangkok University were not very much used. The first preference for sourcing knowledge was through internet and the next source of information was other students. The Knowledge Management Tools provided by Bangkok University did figure at the third place, however barely any student was willing to interact with faculty for clarifications which was a strange aspect.

Our main Research Question was

> **How are the four Knowledge Management IT tools (The URSA System, BUKC, LMS and BU online library) offered by Bangkok University measure up to the learning expectation of its graduate students?**

and based on our various analyses and findings we can conclude that the Knowledge Management IT tools provided by Bangkok University do provide some help and service to students but if we compare the expectations of students to their perceptions we can see that there is room for improvement. We will recommend that the BU Management Teams who are in charge of KM and IT to further assess the need of students in term of learning and knowledge management.

6.3   Recommendations for Future Research

There are many opportunities for future research study in this area. Needless to say, the first step needs to be a bigger sample size, since the present study consisted to only 48 students. The study should also be conducted for Thai programs other than international programs and also for undergraduate programs as well since this would give a better idea of the relationship between culture and knowledge management. The inclusion of the Rangsit campus in the study, with an aim to better the cross interaction between the two campuses is yet another direction which the future study could take.

A direction which a future study ought to take is the inclusion of faculty and staff, since all the aspects of Knowledge Management basically starts from them, and they are also responsible for bringing in a culture that encourages the students to use the IT tools provided by the Bangkok University.

The present study was a very rudimentary and preliminary analysis of the KM tools used in the Bangkok University but it showed some interesting findings that might be worth investigating further.

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APPENDIX – I

<u>Survey Questionnaire</u>

<u>Part I: Survey measuring Usage Frequency of the different Knowledge Management Tools</u>

1. Gender   ☐ Male   ☐ Female

2. Age   ☐ Under 25   ☐ 25-34   ☐ 35-44   ☐ 44-54   ☐ Above 54

3. BU academic Program   ☐ MBA-IP 2007   ☐ MBA-IP 2008   ☐ M Com. Arts-IP 2008

4. Please rank the following tools in terms of how often you use them. Use (1) for the tool used the most and (4) for the tool least used.

    URSA (University Record System Access)   BUKC (BU Knowledge Center)

    LMS (Learning Management System)   BU Online Library

5. How often do you use *URSA* system?

    ☐ Many times a day   ☐ Almost every day   ☐ Few times a week   ☐ Few times a month   ☐ Never

6. What activity do you conduct the most in *URSA* system?

    Please put frequency of usage from Most (1) to Least (6). Leave any option that you do not use,   Leave the question, if you do not use any services of the system.

    Grade Report & Personal Information   Online Payments

    Email, Forums & Campus news   Registration requests for lectures

    Review schedules for class & exam   Other _____

7. Do you require any other information/services in *URSA* that are not already there? Please tick one option.   ☐ YES   ☐ NO

    If your answer to the question above was <u>**YES**</u>, please write the information/services that you would like to see _____

8. How often do you use *BUKC* (Bangkok University Knowledge Center)?

    ☐ Many times a day   ☐ Almost every day   ☐ Few times a week   ☐ Few times a month   ☐ Never

9. What activity do you conduct the most in *BUKC* (Bangkok University Knowledge center)?

    Please put frequency of usage from Most (1) to Least (6). Leave any option that you do not use, Leave the question, if you do not use any services of the system.

    E-learning Module   Use BUKC to link to go to LMS   Online Assessment System

    Online Video   View course Outlines   E-paper   Other (please explain) ____

10. Do you require any other information/services in *BUKC* that are not already there? Please tick one option.   ☐ YES   ☐ NO

    If your answer to the question above was <u>**YES**</u>, please write the information/services that you would like to see _____

11. How often do you use *LMS* (Learning Management System)?

☐ Many times a day ☐ Almost every day ☐ Few times a week ☐ Few times a month ☐ Never

12. What activity do you conduct the most in *LMS* (Learning Management System)?

Please put frequency of usage from Most (1) to Least (6). Leave any option that you do not use,

Leave the question, if you d not use any services of the system.

Forums	Course information	Documents & Exercises
View Announcements	Review student list	Use external links
Other (please explain) _____		

13. Do you require any other information/services in *LMS* that are not already there? Please tick one

option.   ☐ YES   ☐ NO

If your answer to the question above was **YES**, please write the information/services that you would

like to see_____

14. How often do you use *BU Online Library Services* (journal, database & e-book etc.)

☐ Many times a day ☐ Almost every day ☐ Few times a week ☐ Few times a month ☐ Never

15. What activity do you conduct the most in *BU Online Library*?

Please put frequency of usage from Most (1) to Least (6). Leave any option that you do not use,

Leave the question, if you d not use any services of the system.

Search content (journal, books…)	Download thesis paper	Read E-books
Download Journal articles	Links to web resources	Watch online TV
Other (please explain) _____		

16. Do you require any other information/services in *BU Online Library* that are not already there?

Please tick one option.   ☐ YES   ☐ NO

If your answer to the question above was **YES**, please write the information/services that you would

like to see _____

17. Bangkok University provides multiple Information and Communication technologies (ICT) to be used

within the university as mentioned-above.

Based on your *Perception*, how do current IT tools help your learning process?

☐ To very low extent   ☐ To a low extent   ☐ To a medium extent

☐ To a high Extent   ☐ To very high extent

Based on your *Expectation*, how do current ICT tools help your learning process?

☐ To very low extent   ☐ To a low extent   ☐ To a medium extent

☐ To a high Extent   ☐ To very high extent

18. **When** you look for information related to your course work, are you more likely to first: (check only one)

☐ Contact another students   ☐ Contact faculty member   ☐ Look in the BU IT systems

☐ Use outside source (e.g., Internet)   ☐ Other (please specify) _____

Why? (check all that apply)

☐ Faster   ☐ More accurate   ☐ Higher trust   ☐ More detailed

☐ Easier   ☐ Other (please specify) _____

Part II: Survey for factors that assess the Effectiveness of the Knowledge Management Tools

Note: **In the following section, _Perception_ means what you think of the usefulness of current Knowledge Management IT Tools in terms of learning.**

For _Expectation_, please think how such Knowledge Management IT Tools could be more useful in order to meet your learning expectation.

Perception			Expectation		
1	=	Least Important	1	=	Strongly Disagree
2	=	Not Important	2	=	Disagree
3	=	Neutral	3	=	Not Sure
4	=	Important	4	=	Agree
5	=	Most Important	5	=	Strongly Agree

		Perception					Expectation				
1. Creating Knowledge		**1**	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
A	BU has KM IT Tools for creating and acquiring knowledge from different sources such as faculty members & students.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU encourages and has KM IT Tools for the exchange of ideas and knowledge between faculty and students.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU rewards faculty members and students for new ideas and knowledge	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
D	BU has KM IT Tools for creating new knowledge from existing knowledge and uses lessons learnt and best practices from projects to improve successive projects.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Capturing Knowledge											
A	BU responses to faculty members and students ideas and documents them for further development.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU has KM IT Tools in place to absorb and transfer knowledge from faculty members and students.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU has KM IT Tools for converting knowledge in to action plans and the design of new curriculum development.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
D	BU has policies in place to allow faculty members and students to present new ideas and knowledge without fear and ridicule.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Organizing Knowledge											
A	BU has a policy to review knowledge on a regular basis. Mechanisms are specially tasked to keep knowledge current and up to date.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU has KM IT Tools for filtering, cross listing and integrating different sources and types of Knowledge.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU provides feedback to faculty members and students on their ideas and knowledge.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
D	BU has KM IT Tools for applying knowledge learned from experiences and matches sources of knowledge to problems and challenges.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	4. Storing Knowledge										
A	BU utilizes databases, repositories and information technology applications to store knowledge for easy access by all faculty members and students.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU utilizes various written devices such as newsletter, manuals to store the knowledge they captured from faculty members and students.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU has different publications to display the captured knowledge.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	5. Disseminating Knowledge										
A	BU has knowledge in the form that is readily accessible to faculty members and students who need it.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU sends out timely reports with appropriate information to faculty members, students and other relevant departments.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU has libraries, resource center and other forums to display and disseminate knowledge.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
D	BU has regular lectures, conferences, seminars and training sessions to share knowledge.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	6. Applying Knowledge										
A	BU has different methods for faculty members and students to further develop their knowledge and apply them to new situations.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B	BU has KM IT Tools to protect knowledge from inappropriate or illegal use inside and outside of the campus.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
C	BU applies knowledge to critical competitive needs and quickly links sources of knowledge in problem solving.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
D	BU has KM IT tools to analyze and critically evaluate knowledge to generate new patterns and knowledge for future use.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

~Thank You for Your Kind Cooperation~

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