WOMEN'S INTERNET USAGE IN UNIVERSITY SETTINGS IN MALAYSIA AND THE UNITED KINGDOM:

A COMPARATIVE CASE STUDY

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ABSTRACT

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The revolution in information technology has resulted in innovations that are having increasingly important effects on the life of their users, in both their personal and work lives. In particular, the Internet and associated applications such as email and the World Wide Web have had profound impacts over the last twenty or so years that they have been in widespread use, raising issues about various types of ~~"~~digital divide," including that between more and less developed nations.

This thesis reports a study carried out on two continents, Europe and Asia, to compare and contrast the adoption of these innovations in a roughly comparable context, that of a University department. Interviews were carried out with 27 women drawn from administrative and academic staff in the University of Brighton (UK) and Kolej Universiti Teknikal Kebangsaan (Malaysia). The results were analysed under the following themes:

1. Differential email usage patterns;
2. Differential web usage patterns;
3. Affective issues around the use of email and Web;
4. Perceptions of the role of the Internet in everyday life;
5. Computer-Mediated and Non-Computer-Mediated communication

The findings are explored in relation to current theories of technology adoption, principally Roger's Diffusion of Innovation Theory. While Rogers' theory serves as a useful descriptive

model, a further step is needed to provide explanations for some of the phenomena found, and this is provided by Hofstede‘s model of cultural dimensions.

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1 CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Over the past twenty years the integration of Information and Communication Technologies (ICTs), particularly the Internet, has become issue of vital importance in both economically developed and rapidly developing countries (Na Li & Kirkup, 2007). The Internet is no longer the –expensive high-tech toy of corporate elites and university professors" (Wellman & Haythornthwaite, 2002) but has instead become the routine appliance of most of the developed world and a sizeable portion of the developing world. Different cultures, however, will tend to differ in the ways in which they adopt and adapt any new technology, and it is this cross cultural perspective on technology appropriation that is taken in the project described here.

The project, which ran between 2004 and 2007, explored Internet usage among women from two occupational working groups, viz. academics and administrators in universities in two countries, Malaysia and the United Kingdom (henceforth UK). The study focused on Email and World Wide Web use. The women selected as the participants in this study were employed at two universities, namely Kolej Universiti Teknikal Malaysia Melaka (henceforth KUTKM) located in Melaka, Malaysia and the University of Brighton (henceforth UB) located on the south coast of England, in the UK. The participants were selected from the Faculty of Information and Communication Technology and Academic Services Centre at KUTKM, and the equivalent at UB, the School of Computing, Mathematical and Information Sciences.

Universities are a particularly interesting area of study in this regard as ‗the university is one of the environments that quickly adopted the Internet' (Codoban, 2005). The rapid spread of Internet use in and between universities was later reflected in the ways it evolved in other environments. Universities are also convenient as sites where women have access to computing technologies in ways that they might not elsewhere. This is particularly true in Malaysia where a high proportion of the workforce in universities is female. More than 60% of civil servants in Malaysia are women. This participation of women in workforce in Malaysia is mainly due to the economic expansion and industrialization that Malaysia witnessed few decades ago. This situation has resulted in women from Universities having ―the privilege of being provided a personal computer with an Internet access" (Johari, 2009).

1.2 SETTING OF THE STUDY

This study involved visiting the two sites and observing the participants at work, as well as conducting interviews with them. The primary method of data collection used in the present research was that of in-depth, semi-structured, interviews. This section provides an overview of practical issues related to the study and the sites where the study was carried.

1.2.1 The Kolej Universiti Teknikal Kebangsaan Malaysia

KUTKM was established in December 1, 2000. It was established under Section 20 of the University and University College Act 1971 (Act 30) under the Orders of KUTKM (Incorporated) 2001. KUTKM is the 14th largest public university in Malaysia. It is particularly known for being a pioneer in the use of the "Practice and Application Oriented" teaching and

learning methods for technical education in Malaysia. The University‘s publicity motto is ―Where great technical careers begin.” This is in accordance with the government‘s decision to cater for the human resource needs of Malaysia‘s industries. The University currently operates from its temporary campus at Jalan T.U. 2 and 3, Taman Tasek Utama, Ayer Keroh, Melaka (see Fig. 1).

Fig. 1: KUTKM’s Ayer Keroh Campus

It is also constructing its permanent campus at Bukit Senandung 1 and 2, Durian Tunggal, Melaka, where a 725-acre new campus is under construction (Fig. 2).

Fig. 2: KUTKM’s new Campus

The new campus comprises two rows of double storey buildings (main) and another three storey building situated approximately 0.5 kilometers from the main building.

KUTKM has five faculties, namely Electrical Engineering, Electronic and Computer Engineering, Mechanical Engineering, Manufacturing Engineering, and Information Technologies and Computing. There are four academic centres: the Academic Service Centre and the University-Industry Centre (UNIC), Centre for Teaching and Learning (CTL) and Centre of Post-graduates Studies (CPS). Additionally the Institute for Technology Management and Entrepreneurship (ITME) was established to offer post-graduate programmes. The University offers academic programmes at Diploma, Bachelor, Masters and PhD levels. KUTKM aims to produce professionals who are not only highly qualified and technically competent but are also highly skilful and efficient. The academic programmes offered by the University give equal emphasis to theoretical and practical aspects of the discipline. The teaching and learning approaches at the university are practice and application oriented and involve:

- Competency development
- Action-based learning
- Simulation of real situations and problems
- Solving industry related problems

KUTKM admitted its first batch of 347 students on June 10, 2001, and by April 2006, it had a total enrolment of 5326 students.

1.2.2 The University of Brighton

The University of Brighton (formerly Brighton Polytechnic until its re-designation in 1992) is a multi-site university based in the city of Brighton and Hove, on England's South East coast, approximately 100 kilometres south of London. The university occupies three sites in Brighton – Moulsecoomb, where this study took place, at Grand Parade, which is opposite the Royal Pavilion in central Brighton, and Falmer, in countryside outside the city boundaries. There are also several sites in Eastbourne.

The University was formed as Brighton Polytechnic in 1968 by merging the Brighton College of Technology and Brighton College of Art. As a polytechnic, degrees were granted under the auspices of the Council for National Academic Awards, an umbrella organisation responsible for monitoring the quality of degrees at most polytechnics during the 1960s and 1970s. It was awarded full university status in 1992, allowing it to offer degrees in its own right. The university has approximately twenty thousand students. It is organized into five faculties namely Arts and Architecture, Education and Sport, Health, Management and Information Sciences (MIS) and Science and Engineering. The study took place in the School of Computing, Mathematical and Information Sciences (CMIS), which is part of MIS and is situated on the Moulsecoomb campus (see Figs. 3, 4 and 5).

Fig. 3: Cockcroft Building, Moulsecoomb

Fig. 4: Mithras House, Moulsecoomb

CMIS consists of approximately sixty full and part time academic staff, who are supported by an administrative section of approximately forty. CMIS is specifically based in the Watts Building.

Fig. 5: Watts Building, Moulsecoomb

1.3 STATEMENT OF THE TOPIC: ISSUES IN INTERNET ADOPTION AND NON-ADOPTION

As the Internet evolves, its users and uses grow and diversify globally (Chen, Boase & Wellman, 2002). Much of the literature documenting the Internet's spread has focused on the differences between those who have access to the Internet and those who do not, or the differences between those who use it and those who do not. These differences or inequalities of access to and use of the Internet have come to be known as the Digital Divide (Hargittai, 2002 & NTIA, cited in Chen, Boase & Wellman, 2002). The research literature has spotlighted differences in Internet adoption, which have led to the development of this study.

Some of these differences relate to gender. Virtually all surveys and studies that have reported demographic data about Internet users show a central fact: _[w]omen are online less than men. They have been online for fewer months, and when they do go online, they spend less time' (Kennedy et al. 2003, p.73). Kennedy et al argue, based on a wide-ranging meta-analysis of adoption studies, that this suggestion holds true for women in both developed and developing countries. A study by Lind (2001) found that although there are relatively high numbers of women in the workforce in Malaysia, particularly in higher education institutions, they prefer face to face conversation and phone calls over the Internet in general and email in particular. They differ in this from their male counterparts (Lind, 2001). Somewhat in contrast with Lind's findings, Mitra et al (2005) suggested that women are more likely to adopt the Internet in a manner that fits with everyday practice, in contrast to men who are likely to use the technology for its own sake. Furthermore, Murphy and Greenwood (1998) reported that conflicting reports on Internet usage indicated that age and gender effects could be the factors in determining the

extent of slow adoption and usage of the Internet among the academics and non-academics. Summers (1990) and McMahon and Gardner (1995) suggested that males experience less anxiety about ICT and make more frequent use of it. Oliver (1993) and Van Braak (2001) underscored that female users demonstrated lower confidence levels than males about using computers. Summers and Easdown (1996) also discovered that users‘ area of specialization has a strong influence on their ICT usage. On the other hand, other studies have suggested that the gap between men and women‘s length of Internet usage had been narrowed and in some situations women use the Internet more than their male counterparts (Chen & Crowston, 2001). Little is known for certain about the digital gender gaps (DiMaggio et al., cited in Chen & Crowston 2001).

Other studies focus on culture, socio-economic status, length of use and educational attainment as differentiators in take-up. We discuss these in more depth in Chapter Two.

Given the lack of comparative qualitative data on this topic, it is very important to explore in detail patterns of usage and non-usage of the Internet among different types of female user - in this case academic and administrative staff - at higher education establishments - in this case in Malaysia and the UK. Given the Internet's massive growth, the Internet has assumed an importance in people‘s everyday lives inside and outside the workplace. In addition, a sufficient and sizeable number of people from the developing countries are now online, enabling meaningful investigation and significant analyses bearing in mind that the Internet may be a global technology but women, working in local or national contexts, have differences in their uptake and use. The present study makes a step towards filling this gap. It examines detailed

patterns of Internet use and investigates the different tasks which the Internet is used for – how and why it is used, the factors that affect an enjoyable Internet experience and the perceptions of the Internet by working women in Malaysia and the United Kingdom. The focus of comparison on Internet usage in this study is primarily on the following areas:

- detailed email and Web use patterns
- different tasks the email and Web are used for
- factors affecting an enjoyable Internet experience; and
- perceptions of Internet

The qualitative approach used for this study is designed to enable the researcher to explore this phenomenon to give a richly detailed understanding.

1.4 THEORETICAL FRAMEWORK

The focus of this section is to propose a theoretical framework for the study. According to Jacobsen (1999), the importance of a theoretical framework is rooted in the cycle of knowledge development: observation leads to theory in order to classify, explain and predict the observations. One major model that is helpful in explaining the reasons for use of the Internet, and especially email and the worldwide web, is Roger‘s Diffusion of Innovation Theory (Rogers, 2003; henceforth DIT). I shall discuss this theory to help understand and explain the phenomena associated with Internet usage among women in the two Universities studied.

1.4.1 Rogers' theory

Rogers' theory is widely used theoretical framework in the area of technology diffusion and adoption. According to Sahin (2006), the theory is "the most appropriate for investigating the adoption of technology in higher education and educational environments" (no pagination). Rogers described the diffusion process as one which is the spread of a new idea from its source of invention and creation to its ultimate users and adopters'. He distinguished between the adoption and the diffusion processes based on individual or group interaction with the technology. According to him, the diffusion process occurs within society, as a group process, whereas, the adoption process pertains to an individual. Within this context, "adoption" refers to the stage in which a technology is selected for use by an individual or an organization. Rogers claimed that ICT adoption is the mental process through which an individual passes from first hearing about an innovation to final stage of adoption. He further divided that adoption process into five stages. These are (1) awareness, (2) interest (3) evaluation (4) trial, and (5) adoption. Clearly these stages are arranged in linear order, because adoption is difficult without awareness, interest, evaluation and trial. The extent of adoption is therefore largely dependent on the stages before adoption (awareness, interest, evaluation and trial).

Although Rogers stressed that rejection of innovation (a decision not to adopt an innovation) may occur during any stage of the adoption process, discontinuance (rejection that occurs after adoption of the innovation) occurs after adoption as a result of a superior innovation replacing a previously adopted idea (See Chapter Two for more detail on Roger's theory).

1.5 RESEARCH OBJECTIVES AND QUESTIONS

The primary aim of this study is to gain understanding of concepts of and explore the differential patterns of Internet use (referring only to email and Web) between women, both academics and administrators, working in universities in Malaysia and the United Kingdom. It also focused on the usage of email and web in relation to other communication media (face-to-face communication, letter writing, telephone, fax and memo) that have traditionally been used in organizational and social communication. The study also gathered qualitative data on the women's perceptions and attitudes to email and the web in their daily life. In addition, the perceived barriers or difficulties in Internet uptake were also investigated. In order to address the objectives of the study, the following research questions were formulated:

RQ 1: What, if any, are the differences in Internet use patterns between working women in Malaysia and the United Kingdom?

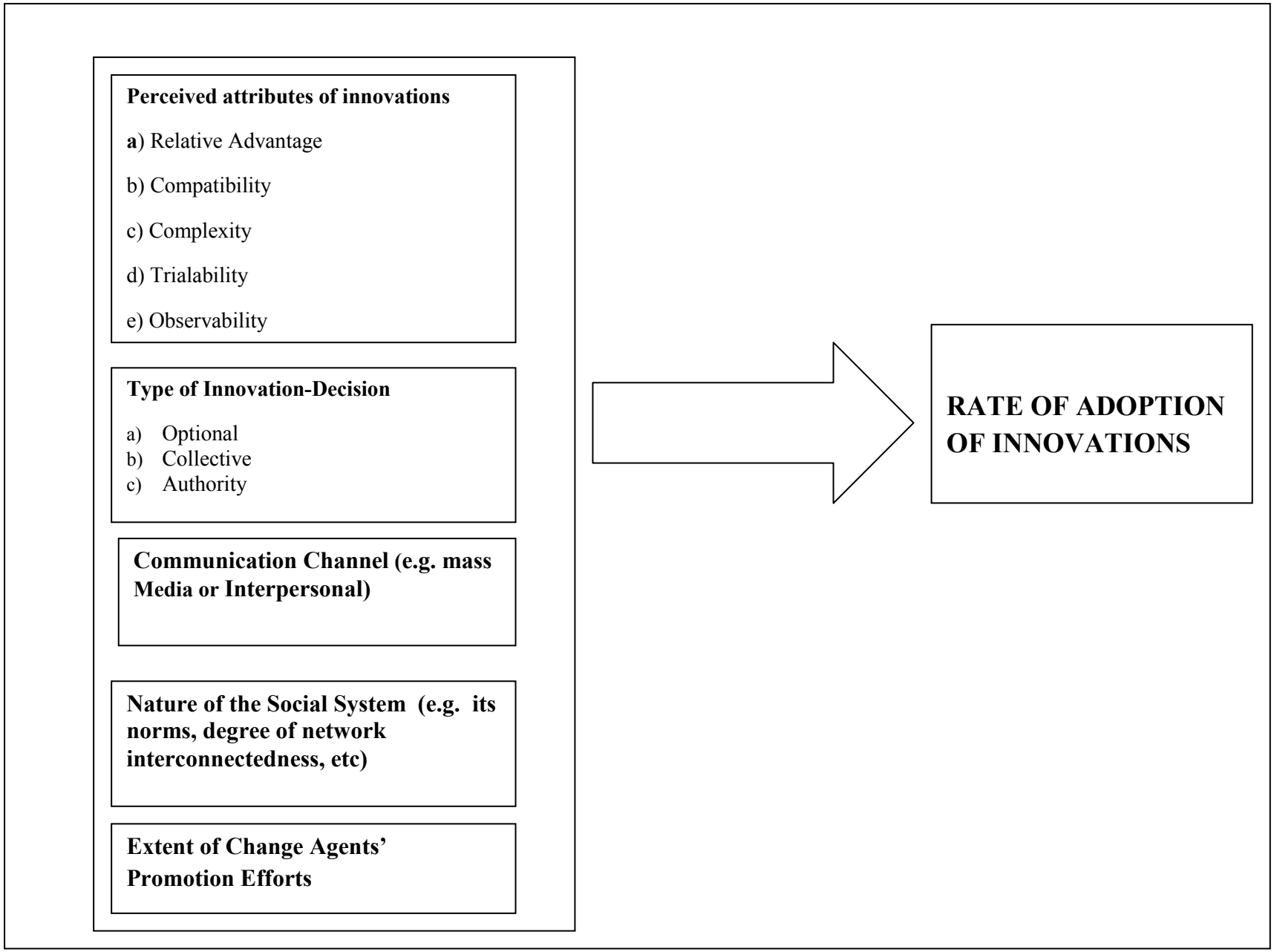
RQ 2: What are the different tasks carried out by these working women online: how and why are these tackled?

RQ 3: What are the factors affecting their subjective enjoyment of Internet use?

RQ 4: What are women's perceptions of the role played by the Internet in their lives?

These then lead to the broader question of what explanations can be found for any differences in use (RQ1 & RQ2) and in subjective attitudes (RQ3 & RQ4).

Figure 1.1: Variables Determining the Rate of Adoption of Innovation



1.6 ETHICAL ISSUES

There are some ethical issues which are pertinent for this study such as issues of informed consent, confidentiality and research integrity. These ethical issues are very significant irrespective of the research approaches; however, they are fundamental in qualitative studies like the present one due to the nature of the approach. Consent letters were sent to the subjects and confidentiality integrity, transparency and honesty in the data analysis were guaranteed. In order to achieve data validity and reliability, the copies of the transcribed data were sent to the subjects for confirmation that they agreed with the contents of the interview and they were not in any circumstances compelled to make any statements.

1.7 ASSUMPTIONS AND LIMITATIONS OF THE STUDY

There were several assumptions in this study that need to be set out. Firstly, as the participants were selected based on a purposive sampling basis, they fulfill the requirements of the study in terms of access, both technical (they have access to a working Internet connection and PC) and cognitive/motor/perceptual (they know how to use the Internet and have no major disabilities).

Secondly, body language was deemed to be manifesting the participants‘ responses and was assumed to be analysable and observable using the data collection instrument.

Thirdly, as the number of women involved in this study totalled twenty seven, thirteen academics and fourteen administrative staff, the study must necessarily be seen an exploratory and descriptive. Findings from this study may not represent a larger population. [This is now particularly the case, as the data was gathered several years ago and Internet use, including mobile access, has developed dramatically in both countries in the interim].

1.8 SIGNIFICANCE OF THE STUDY

The concepts of adoption of email and WWW for academic and administrative work might not be new in Western countries such as Britain due to the long history of the Internet in Western countries where the Internet originated. However, they are considered new in developing countries such as Malaysia. Although women form a very important portion of civil servants in Malaysia as well as in the United Kingdom, there are still contradictions of research findings on their Internet usage patterns and attitudes. Conducting this study provided valuable information about the pattern of the Internet adoption among the women in environments that are culturally very different. Moreover, the researcher believes that this is the first scholarly study to compare systematically users and uses of the Internet (email and Web) between women in Malaysia and United Kingdom. Taking a broader perspective, since this study is related to differences in Internet use it provides insights and understanding of the gender specific digital divide, and thus should help _…define and articulate the nature of the digital divide' (Haythornthwaite & Wellman, 2002, p.11).

1.9 CONCLUSION

Analysis of how social and cultural differences in Internet use are becoming more important for understanding overall Internet activity and more specifically the digital divide. This chapter sets the context by first presenting the background to the study. The aims of the study, the research questions, the conceptual framework and the significance of the study are then presented. The subsequent chapters will review theoretical foundations in detail and refer to the related literature. This study addresses a number of important fields within Information Science, notably technology acceptance, gendered approaches to technology

and the digital divide. These fields of study are further discussed in Chapter 2, which constitutes the literature review for the study. Chapter 3 focuses on the methodology adopted, while Chapter 4 provides a description of the interviews carried out during the main part of the study. A discussion of the findings of the interview study, presented in relation to the literature, is presented in Chapter 5. This is followed by a consideration of the implications of the findings in Chapter 6. The concluding chapter presents the contribution of the study to knowledge in this area and suggests further aspects to be explored in further work.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

> We are moving from a world of Internet wizards to a world of ordinary people routinely using the Internet as an embedded part of their lives. It has become clear that the Internet is a very important thing, but not a special thing. In fact it is being used more – by more people, in more countries, in more different ways.
> (Haythornthwaite & Wellman, 2002, p. 6)

For business, educators and individual citizens alike, the Internet has become the main tool for information retrieval and communication, and we see every day the growing popularity and ubiquity of personal computers and Internet services (Thurlow et al, 2004) as part of everyday existence (Chen, Boase & Wellman, 2002) in workplace, school, home and cybercafé environments. As well as facilitating business processes, the usage of the Internet has important economic, educational and social implications for individuals. It brings a numbers of benefits to users, such as job opportunities, education, information access and technology updates as well an infinite network of social and professional affiliations (Dinev & Koufterous, 2003). The growth in Internet use in the late 1990s has been considered one of the most important developments in society in modern times. It has had major impacts on learning and job productivity and consequently, made it indispensable for educationists (Hamer, 2001).

Stein (1999) identifies three main high level motives behind adopting Internet applications. He observes that most users connecting to the Internet are generally interested in:

(a) accessing files are available on the net

(b) making data that they think may interest or influence others accessible to them

(c) communicating with other users.

The convergence of ICTs means that activities that were considered impossible in the past or were hampered by time and distance are now performed with ease. For instance, the ability to network computers in different locations has eased the transfer and retrieval of dispersed information (Adeogun, 2003). The Internet is a worldwide linkage of networking. Millions of computer throughout the globe are connected in such a way that information can be sent from any computer to any other computer 24 hours a day (Schmidt & Rieck, 2000). These computers can be in any place; homes, shops, schools, universities, etc. They can be single personal computers or workstations in educational institutions or company networks.

Historically, the concept of the Internet began during the World War II when the United States Army were looking for any effective way to communicate among themselves and their allies. The concept developed drastically in 1960s when the US Department of Defence connected four sites via a computer link. In 1980, Tim Berners-Lee designed a system to facilitate collaborative working within his organization and it was the expansion of this concept that led to the birth of the WWW. It has since then developed into an enormous free tool for sharing vast amount of information between those connected (Garland, Anderson & Noyes, 1998). Internet use for information retrieval, communication, and learning activities has increased dramatically from three million in 1990 to approximately 6,700,000,000 in 2008 (www.Internetworldstats.com./stats.htm). The rapid growth of Internet depends mainly on the real opportunities it offers for electronic commerce, the integration of television, radio and entertainment systems and the communication opportunities that are provided by the email, audio and video-conferencing.

Internet facilities, especially email and the WWW, play a significant role in the work of educational establishments, as of other complex organizations. The Internet has been used widely for much administrative work such circulating information, delivering memo, arranging meetings, responding to students and even online learning. The adoption of this new communication system has transformed many institutions, especially in the West, from being local and traditional establishments to the modern, innovative, dynamic organisations, able to operate efficiently at a global level: _[o]rganizations frequently allocate substantial sums of money to adopt, implement, manage and integrate information technologies with organizational activities to provide better products and/or services' (Twati & Gammack, 2006, p. 175). The spread of the Internet into educational organizations is not limited to Western institutions but has also spread to developing countries. Although the adoption and diffusion of the Internet and its usage is not as fast as is in developed world however, developing countries have also allocated substantial resources and huge amount of their budget for their organizations and begun to build infrastructures to support a more reliable and quicker transfer the information. Unlike the traditional educational administrative methods, communication among the staff, students and other stakeholders via email can be very flexible, dynamic and arguably more effective.

Academics as well as administrators can communicate efficiently through usage of email and other functions provided by the Internet. This new development can enable distance learning and collaborative work in general, reducing the burden of expenses and overcoming distance via email and videoconferencing. For decades,

institutions of higher learning, big and small have experimented with various information and communication technologies (ICT) to expand and in some cases, replace traditional communication with their students and colleagues. Thus, many institutions of higher learning are embracing and competing in using Internet as a vehicle to capture the vast distance learning market, and communicate with their students.

In the current knowledge-based economy increasing the efficiency of administrative work is an important goal. Globalization requires new methods of delivering, communicating, and training, partly to enhance traditional methods of information delivery, knowledge sharing, and effective running of organizations (Dongsong, 2002). Malaysia, a country in Southeast Asia which has experienced a tremendous economic growth in the past decades, sees adaptation of the Internet as complementary but not alternative means of providing knowledge, skills and training to its workforce. It also rigorously utilizing in many organizations especially among the staff to communicate, sharing information and discussing the concerned academic matter. Interestingly, academicians as well as administrative officers also efficiently used the Internet to communicate with their respective students whether within the campus or around the world. This method, although is not an alternative to traditional methods of communication (such as letter and telephone), imbue administrative works with new dimension and provide more effective and efficient milieu for interaction.

Despite the enormous amount of resources have been spent for equipping high institutions with high effective Internet tools especially in Malaysia, there are still many obstacles that impede fully utilization of the Internet for administrative

objectives. According to Chen, Boase and Wellman (2002), the widest digital divide (DD) is between North America and the rest of the world, and secondarily between other developed countries and developing countries. NTIA points out that _…unequal access to the Internet [is] because of characteristics such as gender, age, race, ethnicity, education, income, geographic location, English language ability…' (cited in Chen, Boase & Wellman, 2002, p76). Furthermore, Kennedy et al., (2003) findings concurs to that of NTIA when he identified that gender, socio economic status, race, age as key factors that contribute differentials in access to the Internet' (p.73). However, Haythornthwaite and Wellman (2002) pointed out another factor which is the _experience'.

> Across all studies, the largest and most significant differences in access and use are related to years of experience [and] those who have been online longer spend more time online each day, and more likely to be online at any particular day. They are the ones who engage in the most kinds of online activities.
>
> (Haythornthwaite & Wellman, 2002, p.17)

Chen, Boase and Wellman (2002), pointed out that there are substantial differences between who uses the Internet and how long they have been using it. Hence, "…it is time for more differentiated analyses of the Internet that take into account how it has increasingly become embedded in everyday life…" (Haythornthwaite & Wellman, 2002, p.17). Although Teo (1998), studied the differential effect of occupation on Internet usage among IT personnel, non IT personnel and students particularly in Singapore, yet, to date, the differential effects of Internet (email and Web) use among women in developed and developing countries represented by the United Kingdom and Malaysia respectively, has not been carried out.

According to Arendt (2008) quoted in White (1998) ‗information and communication technologies (ICTs) are transforming dramatically many aspects of economic and social life, such as working methods and relations, the organization of companies, the focus of training and education, and the way people communicate with each other' (p.92). However, it was reported that small and medium entrepreneurs are not fully engage in using and benefiting from Internet like their large and mega companies and entrepreneurs counterparts (Arendt, 2008). The higher institutions have been equipped in both developed and developing countries with computer and ICT equipments. Even when benefits are obvious, people are still reluctant to use Internet due not many factors. The factors that contribute to the Internet use include, among others, gender, computer experience, training and instruction and ethnic background.

In this chapter, after a short discussion of the approach taken (2.2), we review a range of studies in Internet adoption and non-adoption, in three areas:

- Gender and Information Technology (2.3)
- National and cultural differences (2.4)
- Digital Divide and development issues (2.5)
- Organizational Issues (2.6)
- Electronic Mail and Computer Mediated Communication (2.7)

Finally we review possible theoretical frameworks for the study (2.8).

2.2 METHOD ADOPTED FOR LITERATURE REVIEW

In order for any study to be included in this review, it must satisfy two conditions. First, it must be an empirical or theoretical study, which examines the ICT usage. Secondly, it must have examined or investigated the ICT components or related constructs targeted to be included in this study. Articles were collected by using two methods: 1) library search of a number of journals related to IT and behaviour and 2) a number of on-line database systems such as ERIC and Science Direct were searched using key words relating to ICT and related constructs, such as Internet, email, WWW, cultural diversity, media internal communication and so on.

Once the relevant articles had been collected, each study was read and coded by using a checklist. The following general information was extracted from each item: (a) author(s), (b) date of publication (c) publication source (d) research design (experimental, survey and theoretical) and sampling procedures (g) reliability and employed. Further, the main objective (focus) of each study was coded to establish the relevance of the study. The articles were then synthesised to create the following review of literature.

The main areas found to be of relevance, together with the key studies identified, were:

- role of ICT in modern society (Ebben & Kramarae, 1988; Green, Owen & Pain, 1993; Morohan-Martin, 1998; Bikson & Panis, 1995; Heimrath & Goulding, 2001; Trauth, 2002; NTIA, 2002)
- barriers to using ICT in academic and administrative arenas (Murphy & Greenwood, 1998; Van Braak, 2001)

- accessibility of computer hardware (Middleton, Flores & Knaupp, 1997; Novak & Schlosser, 2000; Chabran, 2000; Jones, Connolly, Gear & Read, 2001; Cullen, 2001; Hoffman, 2003; Couldry & Markham, 2007),
- ICT and culture (Hofstede, 1980; Gudykunst, 1994; Allwood & Wang, 1990; Usunier, 2000; Kirkup & Hodgson, 2001; Veiga, Floyd & Dechant, 2001; Burgmann, Kitchen & Williams, 2006; Li and Kirkup, 2007; Fassott, Chao & Hoffmann, 2006)
- ICT and gender (Bikson & Panis, 1995; Durndell & Lightbody, 1993; Ebben & Kramarae, 1988; Durndell, 1991; Green, Owen & Pain, 1993; Dorer, 2000; Bimber, 2001; Heimrath & Goulding, 2001; Consalvo & Paasonen, 2002; Trauth, 2002; NTIA, 2002).

2.3 INTERNET AND GENDER

A large number of studies have been conducted to investigate the Internet usage across gender (Dorer, 2000; Consalvo & Paasonen, 2002). Gender identities in different national cultural contexts embody different expectations of the people performing them (Silva, 2000; Li et al, 2005). Despite the economic agenda driving the adoption of the Internet, little cross-cultural research has been done on its use, for instance in educational contexts. _The Internet may be a global technology but students work in local/national contexts, and have difference in other aspects of their identities; one of the most important of which is gender identity‘ (Li et al, 2005, p.2). Lauretis (as cited in Consalvo & Paasonen, 2002) writes that the construction of gender is the product and the process of both representation and self-representation.

This means that gender, as a socially agreed construction is produced and reproduced through an everyday practice of _doing gender', in which the positioning or representations of the self as masculine or feminine always also include the appropriation of the relevant meaning construction. Dorer (2000) argues that the ways in which Internet as a new technology contributes to gender is examined on three levels: media representations, social conditions, and the everyday practice of doing gender. These three levels are all characterized, at the time of his study, by a strong linkage between masculinity and the Internet. The coding of the Internet as a male domain is strongly linked to the interpretation of the Internet as male-coded technology. This gender marking of technology has been unconditionally transferred to the Internet. Beginning with the stage of research and development, the Internet is construed as a male dominated area (Dorer, 2000). (Note for revised version: more recent developments such as Internet-enabled mobile phones and the wide use of commercial sites such as eBay, ASOS and so on, will have changed the strength of some of these points).

Media representations of gender and the Internet continue to follow traditional gender lines. Nevertheless, an increasing differentiation over time can be observed in mediated constructions of masculine and feminine stereotypes as depicted in Table 2.1 below.

Table 2.1 Construction of gender in three different phases in the development of the Web

Phase	Phenomena
The first phase (1969-1989)	Occurs when the large mainframe computers in the military, in research institutions, and in large corporations are connected to communicate with each other. During this period, _hackers‘ and _cyberpunks‘ – young people who have acquired the _secret‘ technical know-how fight for an open web. The idea of a virtual community is realized in a multitude of networks. It is this phase that concepts such as disembodiment, immortality, body-machine hybrids, the cyborg - cybersex – the Internet _mysteries‘ – emerge and meet with an enthusiastic response by scientists, including cyber feminists.
The second phase (1990-1995)	This is the period of myth formation, of rumours and rising expectations. Kroker & Weintein (as quoted in Dorer, 2000) explain that the (old) media are busily spreading the myth of Internet and its universal opportunities, announcing the _digital revolution‘. It is a time of quick profits, web based utopias, web critique, and media arts, allowing a new _virtual class‘ to emerge based on these divergent interests.
The third phase	During the third phase the Internet develops into a mass medium. More and more users log on to the Web, while the traces their mouse clicks leave in user statistics and log files are tracked for commercial exploitation. Increased digital networking accelerates concentration and globalization processes; it changes the way the money and the stock markets operate and makes the new economy the most important growth sector. Debates over control, regulation, and censorship on the one hand, versus freedom of expression and media freedom on the other (with respect to child pornography for instance) demonstrate the struggle for political influence and control. Standardization is the arena in which much of the struggle for hegemony is fought, since different users groups have developed their own standards and rules of engagement, which are inscribed by the web.

Source: Lovinnk & Schultz (as cited in Dorer, 2000)

The three phases were further extended into a three-phase model of media representations of gender and Internet. During the first phase, corresponding to early stages of web development, the general public, as opposed to the academic community, remained largely unaware of the newly emerging technology. Media

representations during the second phase show that the mainstream of meaning production concerning the Internet is linked predominantly to masculinity. In the third phase, characterized by the commercialization of the Internet, the media cease to address themselves specifically to male Internet users and they pay increasing attention to female users. Media representations of gender and Internet have changed and give rise to more and more differentiated images of masculinity, while at the same time introducing a conservative stereotype of women circumscribed by the private sphere. Only rarely are new stereotypes of women such as the low skilled female tele-worker or the high-powered female multi-media expert, constructed in the media.

The practice of linking the Internet and masculinity occurs not only because the Internet‘s research and development phases are ascribed to male action, but also because the Internet is defined as a –technical” field and this type of domain already has a long tradition of male domination and exclusion of women. However, as opposed to that construction, Plant (as cited in Dorer, 2000) suggests redefining the Internet as a net, a braiding, a weaving instead of as technology; Turkle (as cited in Dorer, 2000) suggests that viewing the linkage _Internet-technology-masculinity‘ is unnecessary and reductive, as it eliminates other ways of imagining the Internet and uses of it.

Moreover, Durndell (1991) and Durndell and Lightbody (1993) found in their longitudinal studies that reported school use of computers and the Internet rose to a high, non gender-differentiated level, but reported domestic use of computers and the Internet remained highly gendered, with males reporting significantly more use of

their computers and Internet than females did. Knowledge of the Internet and IT concepts similarly were found different across the gender over the study period, with males retaining an advantage over females. In line with Durndell (1991) and Durndell and Lightbody‘s studies, Durndell and Thomson (1996) found that males are using the Internet and computer more than females whether this be their own computer or their friend‘s. It was also found that generally from 1986 to 1995 using computers and the Internet increased dramatically for both genders. These findings suggested that the Internet and computer usage are still the domain of males. The study also found that males expressed more confidence in using computers and the Internet than their female counterparts.

An early survey of about 10,000 world wide web (WWW) users found that almost two thirds of the Internet users were male (61%), while females accounted for only one third (39%) (Sherman et al, 1998). Although the proportion of the Internet usage is dramatically increasing among women (as was reported by Heimrath and Goulding, 2001), the evidence of gender imbalance is salient. Heimrath and Goulding (2001) reported another poll similar to Sherman‘s. According to a 1999 poll by the market research company (NOP), the percentage of Internet users across gender remained constant at 60 to 40 for male and female respectively. However, the percentage of women online has quadrupled over the past three years while the percentage of men has tripled and among 15-25 year old Internet users females outnumber males (Heimrath & Goulding, 2001).

Heimrath and Goulding (2001) link women‘s underuse of computers to social conditioning and cultural understanding. According to De Nicola (1996) quoted from

Heimrath and Goulding (2001), parents, teachers and even software engineers were discriminating against women in issues related to the computer and the Internet, giving women subtle clues that the computer is not for them. He reported that parents buy computers twice as often for boys as for girls, which inevitably plays a role in boys‘ upper hand in gaining experience over their female counterparts. Many researchers (Green, Owen & Pain, 1993; Ford & Miller, 1996; Shade, 1998; Bimber, 2000; Heimrath & Goulding, 2001) have contended that male values have been institutionalized in the technology through its manufacturing, embedding a cultural association with masculine identity in the technology itself. According to Green, Owen and Pain (1993), the technology is gendered *by design*.

Researchers (Green, Owen & Pain, 1993; Bimber, 2001; Heimrath & Goulding, 2001) have been trying to explain the possible reason(s) for women to be demotivated in interacting with and benefiting from the huge amount of information on the Web and pursing computer-based courses at all levels. Among the reasons reported was that teachers pay less attention to females than males in the class, a lack of female role models and consequent feeling of isolation. In his study on gender and the Internet, Bimber (2001) highlighted other possible reasons for women disengagement with the computer and the Internet especially in the area of communication. It was also argued that women are dissuaded and discouraged from using the Internet because of the male-oriented culture and behaviours associated with it, including male monopolization of discussion lists and bulletin boards and harassment of female users. In addition to this, it was also found that because it was historically associated with warfare, women were still have negative perception about computing technology and consequently avoided using it (Shade, 1998).

In his logistic regression analysis, Bimber (2001) found statistical significant effect of gender on Internet use. He found that women significantly less likely than men to use Internet frequently, especially when other factors such as employment role, education and socioeconomic status are taken into accounts ($\beta = -0.10$, $p = 0.01$), which suggested that women are less intensive Internet users than men. According to Chin & Chia (2004) females expressed less positive perceptions of the Internet than did males - specifically on the perceived usefulness and perceived control of the Internet - which consequently affected their Internet usage.

In addition Ford and Miller (1996) indicated that female students at Sheffield University perceived the Internet as too big and unstructured and found searching the Internet difficult, unfriendly, not enjoyable and they can only use it when unavoidable. On the other hand, males were happy to use it, fascinated by it, searched the Internet and enjoyed using it. Liff and Shepherd (2004), in their study on Internet use and gender, concluded that women spend less time using the Internet, less confident and do not use the Internet in the way the men use it. Women use the Internet as an additional communication medium, while men trend to use the Internet as a source of fun, enjoyment, and pleasure. Trauth (2002) also reported that men and women employ computer technology for different tasks. Women prefer interaction with computers that provide help or make a connection with someone, while men see computers as extensions of power. Trauth then concluded that it is not that women do not have skills but rather than they do not want to be part of the computer culture and will choose other interests over ICT. However, Busch (1995) found that female students report less self-efficacy with regard to complex computing tasks, have less programming experience,

and have less experience in playing computer games than their male counterparts. The lack of self-efficacy that reported from female students might negatively affect the magnitudes of their Internet usage and willingness to employ technology. In a Malaysian study, Ramayah and Mastura Jaafar (2008) also found that males were more actively using the Internet than their female counterparts.

It appears that differences between males and females in use of and attitudes towards ICT originated from gender role socialization. Gender identity is formed through a process by which societal norms and attitudes are internalized. The process begins within context of family life but parents, schools and peers reinforce existing gender role expectations.

Table 2.2 Male and Female differences in Internet use across the world

			Male		Female	
Country	**Per capita GDP, 2003 World Bank indicators**	**Internet use overall**	**Use**	**Average hours/week**	**Use**	**Average hours/week**
United States	$37,870	71.1%	73.1%	13.1	69.0%	10.1
Sweden	$28,910	66.1%	67.7%	9.4	64.4%	5.8
South Korea	$12,030	60.9%	67.8%	15.9	53.8%	12.1
United Kingdom	$28,320	59.2%	63.6%	NR	55.0%	NR
Japan	$34,180	50.4%	54.7%	7.3	46.2%	4.3
Germany	$25,270	45.9%	50.4%	12.4	41.7%	10.7
Singapore	$21,230	40.8%	47.2%	14.9	34.0%	15.9
Spain	$17,040	36.4%	46.4%	13.3	27.2%	8.0
Italy	$21,570	31.2%	41.7%	9.5	21.5%	7.0

Source : Dholakia (2006)

Table 2.2 indicates that differences in Internet usage across gender exist even in high income countries. Dholakia's (2006) study also showed that the proportion of Internet use among the women also differed across the high-income countries. For example, Sweden has a higher proportion of women Internet users than other countries in Europe such as Italy, and Japan has a higher proportion of female Internet users in Asia compared to Singapore. South Korea case is considered an exception, where Internet usage is high for both males and females among the higher income countries. Researchers from the marketing and advertising field, Kwak et al (2002) found that in the US, men were more likely to purchase goods online. Rodgers & Harris (2003) identified in their study that emotional factors may explain why men were more likely to purchase products online while women expressed less emotional satisfaction with the experience, found online buying less convenient, and were less trusting of e-commerce than men (as cited in Farfaglia et al., 2005). A study by Jayawardhana (2004) looked into how personal values influence attitude and behaviour to e-shopping. The findings of this study confirm that e-shoppers placing stronger emphasis on self-direction, enjoyment and self-achievement values are more likely to have a favourable attitude toward e-shopping than those with a weaker emphasis on these values. Thus, attitudes, measured by the desire to browse, repatronage intentions and switching intentions, had a direct influence on e-shopping behaviour. It is significant to observe that personal values had only indirect effects on e-shopping behaviour, via attitude toward e-shopping.

In contradiction to Ebben and Kramarae (1988), other studies, by Bikson and Panis (1995), Ford and Miller (1996), Bimber (2001), Heimrath and Goulding (2001)

and NTIA (2002) suggest that men and women have similar overall rates of computer usage since 1993. Although James et al (2001) concentrated on new users, their study indicated that women constituted a majority of new Internet users during 1997-2000. Bimber (2000) found that men were about half a percent more likely than women to have access to the Internet in 1996 and 1998 but the result was statistically insignificant. However, he found that the gap was sharply increased to 10 percent in 1999 and was statistically significant. Hoffman et al (2001) also reported that the gender difference in relations to the Internet usage has dramatically decreased and the gap narrowed down between Spring and Fall 1997 but then remained flat through Spring 1998. NTIA (2002) found that the gender difference in the Internet usage declined from about 4 percentage points in 1997 to nearly zero in 2000 and remained zero in 2001. Furthermore, Ono and Zavodny (2002) also discovered that women were more prone to use the Internet irrespective of location, whether home or elsewhere, than their male counterparts. However, the gap in Internet usage still exists, although it is gradually diminishing.

Nevertheless, Kirkpatrick and Cuban (1998) noticed that the gender gap is narrowed when both genders are exposed to the same amounts and types of experiences. Atan et al (2002) added that the absence of gender disparity especially in using computer is obvious when females and males are in a learning environment that requires the constant use of specific computer software to support learning activities. Interestingly, females perceive technology as a less of a threat when they view computers as a method of communication rather than computational tool (King et al, 2002). Wong (2005) found that academics in Universiti Putra Malaysia were actively using ICT, especially emails, for both academic and personal purposes. However, the

mean and standard deviations suggested that females were more likely to use email than their male counterparts. The study found that females scored significantly higher than males in four out of five items related to email usage. The females were also significantly more skilled than males in sending attachments and other related Internet activities. Interestingly, Dohlakia (2006) reported that in October 1997, 27.1% of the users were between 25 and 49 years of age, however, 29.3% of them were males compared to 25.1% of females. By September 2001, females had outnumbered males (66.0%) were female users compared to 61.8% of males. Rainie (2002) declared that a gender reversal has taken place in the United States, with absolute numbers of women outnumbering men in the use and access to the Internet.

The data collected by the Pew Research Centre indicate that there are more women (55.1%) than men (44.9%) among those access the Internet from home, while there are more men (61.4%) than women (38.5%) who access the Internet from both home and work. According to Dohlakia (2006) gender differences do not imply greater general male usage of *all* applications; women dominate the use of some application such as research, travel and health-related information, while men dominate others such as surfing for fun, hobby information, online news, financial information and so on.

In relation to efficacy in using Internet, Hargittai and Shafer (2006) in their experimental design study found differences between men and women statistically insignificant. However, the study found women less likely to have a positive perception about their ability of their online skill levels. The researchers (Hargittai & Shafer, 2006) also highlighted that the decisions about what content to view online may also reflect people‘s perceived self-efficacy. This suggested that the perceived

ability (self-efficacy) plays a significant role in the selection of the Internet and consequently length of Internet usage.

On the role of efficacy in determining usage of the Internet, Norazah and Norbayah (2006) in their study on Internet use adoption among academics discovered that experienced and efficacious Internet users were more dynamic, risk takers, possess a higher level of knowledge, were active information seekers, have more social participation, maintain extensive interpersonal networks and have contact with people within their social system and outside. Although this study had gender as one of the main variables, however, the effect for efficacy and experience was not verified. Thus, it was unknown whether gender in addition to respondents‘ efficacy affects Internet skills.

Hence, on the light of these contradictories of research findings, it very important if not essential to investigate the Internet usage among women to shed more light on their Internet cultural usage, attitudes and perception towards the Internet across geographical areas especially Malaysia and United Kingdom.

Women's Attitude towards Internet/ ICT

It is impossible to mention the Internet without also thinking about computing in general, because computer experience, skills and attitudes will affect the Internet experience and attitudes (Morohan-Martin, 1998). Morohan-Martin stresses that for both males and females, computer competency and comfort predicts not only *computer* experience and behaviour, but also *Internet* competency, comfort,

experience and behaviour. Females have been less likely to embrace new technology and women‘s relationship to the computer has been characterized as problematic or negative as discovered by extensive literature on the gendering of computer technologies (Green, Owen & Pain, 1993; Trauth, 2002; Heimrath & Goulding, 2001; Ebben & Kramarae, 1988; Bikson & Panis, 1995; NTIA, 2002).

Morohan-Martin (1998) continues to point out several negative attitudes towards technology such as the fact that females more likely to be technophobic, have less experience with technology and more fear of technology. Thus, these negatives indicators increase the resistance to adopting new technology in general, and might consequently hinder female usage of the Internet. Additionally, in cross-cultural research, females are reported to be more likely technophobic and less likely to be technophiles, perceive less advantage for new technology and have less experience with technology. Almost parallel with these views, DTI (1999) reported that women were less likely to think computers would be useful in their daily lives and less interested in buying new gadgets and appliances. The gap between males and females in having computer experience has diminished if not disappeared in the United States (henceforth US) and United Kingdom (henceforth UK) but it is still quite strong in other cultures.

Women on the Internet

NUA Internet Surveys (2002) reports that almost ten percent of the world‘s population now has access to the Internet. The global Internet audience had grown to 580.78 million people by the end of May 2002, a rise of 173.68 million since December 2000 when the total Internet audience stood at 407.1 million. A year later, the population of women and men went online almost equally, in the United Kingdom

men lead women in usage, but the gap is narrowing. On the other hand, obtaining reliable statistics on women's Internet use in developing countries, are difficult because the standard indicators are rarely disaggregated by sex, and the available data are not very reliable or comparable. However, Haffkin & Taggart (1998) state that, it is clear the number of women going online in developing countries is small and the distribution is limited. Nevertheless, the rise of women on the Internet has grown rapidly and hugely in the last decade. "Although there are no reliable data on the size of the world's online population, educated estimates show that use of the Internet has diffused at an unprecedented speed" (Chen & Wellman, 2003, p.2) and interestingly, as pointed out by Morohan-Martin (1998), women are the fastest growing population of Internet users. More recent women's online statistics are shown in Figure 2.1. Table 2.2 summarises the studies conducted into the statistics of Internet users in various parts of the world and Table 2.3 specifically depicts women's online presence in Malaysia and the United Kingdom.

Gender differences in the uses and gratifications of Internet use for US, Netherlands and South Korea were explored in a qualitative study of conventional and Internet shopping by Dittmar et al (as cited in Farfaglia et al., 2005). They highlighted that the issue of gender and Internet uses and gratifications has largely been overlooked in the literature as participation levels for women have reached parity in many countries. The study utilizes data from the Multinational Web Use Study conducted in the spring 2003 by the Social and Behavioural Research Lab at Rensselaer Polytechnic Institute and aims at determining if different patterns of Internet use and outcome expectations between men and women existed cross-

culturally. This study adopts the online survey questionnaire method and recruited 1344 participants. The key findings of the study were:

- Women in all three countries use fewer Internet applications than men.
- Women send fewer instant messages than men.
- Women use the Internet less for information motives than men.
- Pattern of community membership for men and women are similar. Work and sports/hobby communities were the most popular for both men and women. Women were the majority in religious belief groups.

The study concludes that there are gendered differences for Internet use within the countries sampled, but they do not fit neatly into the dichotomy of men as information gatherers and women as seeking social communication. South Korean women may be the least experienced with computer and Internet use, yet they have become rapid adopters. In spite of their greater sense of self-efficacy, they still lag behind men in web skills. Dutch women feel that they are proficient in the use of the web, but are less likely to get news, do research for work, or look for a product online than their male counterparts. This may be due to having less experience on the WWW, working at a low skilled job, or a lack of trust in these information sources. Dutch women and men were equally likely to use the media technology for interpersonal communication via instant messages, email, online dating, and online gaming. US men and women engage in online functional and social activities with the same frequency, except for news gathering where men still dominate. Finally, women and men find gratification in online work and professional communities. Men are motivated for self-improvement goals, but not economic gain. Women continue their professional associations online and this provides social companionship.

Figure 2.2 Percentage of females in world's information society

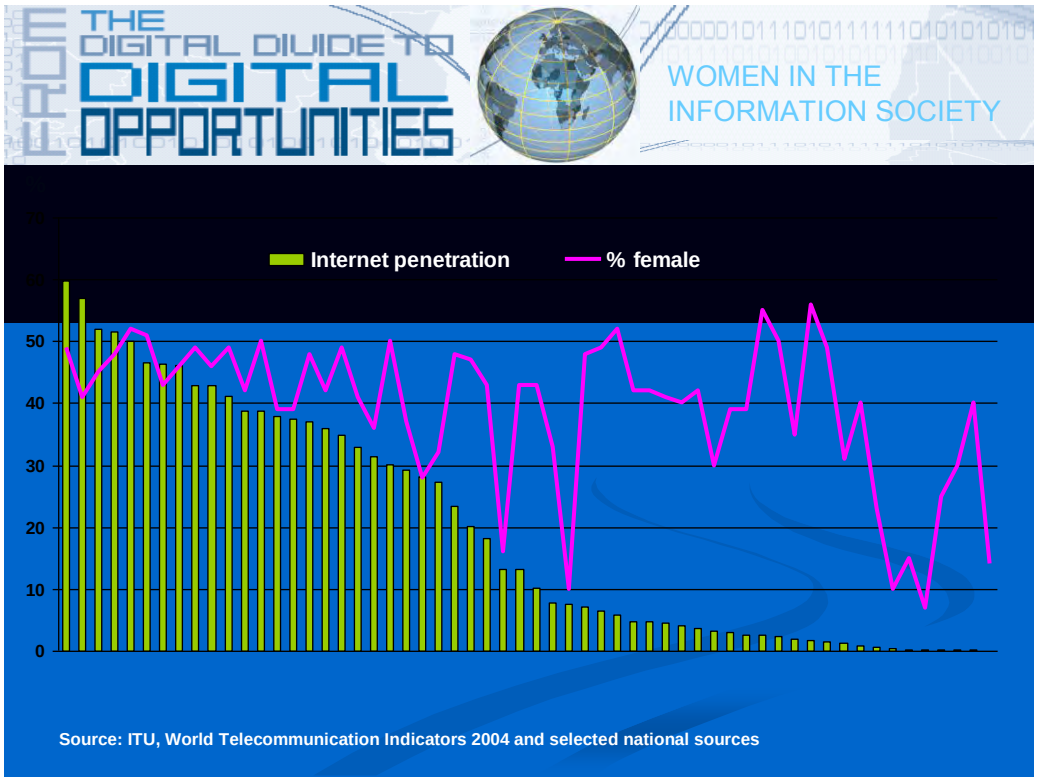


Table 2.3 Estimates of the Internet's online population and female online population world wide

Researcher (s) and year	Country/countries where surveys conducted	Estimates of Internet users	
		millions	percentage
Darlington (2000)	• USA • UK	148 20	54 33
NUA (2002)	• EUROPE • United States and Canada • Asia/ Pacific	185.83 182.83 167.86	NA NA NA
		Estimates/ descriptions of women's Internet users / in comparison to men	
Darlington (2000)	USA and UK	At the beginning, men outnumbered women, however over time the gender differentiation has been diminishing.	
Jupiter MMXI, 2001 cited in American Woman (2002)	• SWEDEN • UK • GERMANY • ITALY • SPAIN	46 per cent 42 percent 39 per cent 31 per cent 29 per cent	
Greenspan (2003)	• USA • UK • SWEDEN	Women Internet users hold the slight edge over men in the U.S 46.84 percent of women Internet users 44.61 Percent of women Internet users. 44.62	

Table 2.3 Women's online population in Malaysia and the United Kingdom

Researcher (s) and year	Country	Women's online population	
		millions	percent
Darlington (2000)	United Kingdom	Not Available	44
Net Value (2000)	United Kingdom	3.8 million	38.2
Continental Research (2001)	United Kingdom	Not Available	49
NUA Survey (2002)	United Kingdom	Not Available	42.2
Online Annual Internet Survey, 2001 as quoted in Feller & McNamara (2002)	United Kingdom	Not Available	45

e-Mori Technology Tracker September, 2001 as quoted in Feller & McNamara, (2002)	United Kingdom	Not Available	43
MIMOS (2002)	MALAYSIA	Not Available	30.8

The use of technology for communication and information access in administrative processes has changed and transformed knowledge workers and their effectiveness. Internet usage in educational settings has changed the quality of knowledge work and expanded the scope and rapidity of academic and non-academic staff to effectively interact among themselves to improve the quality of their work. In universities, the Internet has dramatically changed methods of interaction and providing alternative learning styles and learning in creative ways (Isman & Dabaj, 2004). Liu, Macmillan and Timmons (1998) investigate integrating technology into a learning process as a complex instructional system in which student learning is effected by lecturers, students, administrative and technical staff, computer hardware and software resources and computer laboratory and classroom settings. Empirically, they found that students with positive attitudes toward using computers also have positive attitudes toward using computers for learning process. Effective utilization of the Internet, especially email and the WWW, would not only contributing to the speedy of the academic and non-academic higher institution staff work processing but also would enormously expand the availability of information, expanding the scope of their thinking, and improve the quality of their work.

2.4 NATIONAL AND CULTURAL DIFFERENCES

Although, the Internet is a nation-less global technology in which information is shared across the world, there are substantial empirical studies suggesting that there are cultural and national difference in attitude and usage. For instance, since the origin of the Internet is American, it is argued that it echoes America culture and ideology. According to Chen, Mashhadi, Ang, and Harkrider (1999); Collis, (1999); and Joo (1999) information and communication technology is racially white, western, male

artefacts and that the Internet itself overtly embodies American cultural qualities in terms of its language and technical users' values. Collis (1999) argued that culture is a critical factor in influencing people's accepting and use of Internet recourses. Collis and Williams (1987) and Bronsnan and Lee (1998) also suggested that students' attitudes toward computers or the Internet and their usage were found to be related to certain cultural and background characteristics.

The culture that a specific individual or community holds to is believed to have a great impact on how individuals behave, communicate and interact with each others. Hofstede (1980) defined culture as _the collective programming of mind which distinguishes the members of one human group from another… culture in this sense, includes systems of values; and values are among the building blocks of culture' (p.21). We will refer to the five dimensions of cultural difference that Hofstede's work has popularised based on his study of IBM offices across the world. These are:

- Power Distance - the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed *unequally*. In business contexts this would imply a hierarchical organization rather than a –flat" one.
- Individualism versus collectivism - the degree to which individuals are integrated into groups. In individualist societies, ties between individuals are loose: everyone is expected to look after him/herself and his/her immediate family. The US would seem to be a good example. In collectivist societies people are integrated into strong, cohesive groups, often extended families. In a society such as Japan, collectivism extends to the workplace.
- Masculinity versus femininity, refers to the distribution of roles between the genders, a fundamental issue for any society to which a range of solutions are found. The women in feminine countries have the same modest, caring values as the men; in the masculine countries they are somewhat assertive and

competitive, but not as much as the men, so that these countries show a gap between men's values and women's values.

- Uncertainty Avoidance. This refers to tolerance for uncertainty and ambiguity. It indicates to what extent a culture programmes its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, different from usual.
- Long-Term Orientation versus short-term orientation. Values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'.

As earlier mentioned, the type of culture holds in a specific community, group or a country determines amongst other things their way of communicating within the community or with other communities across the globe. According to Usunier (2000), differences between countries in terms of context and communication would determine kinds of message for communication. He cited examples of Swiss, Germans, and Scandinavians as ―low-context" cultures which consequently use explicit types of message for communication, while the Japanese, Arabs and Latin Americans are ―high context" cultures using implicit messages to communicate. Burgmann, Kitchen and Williams (2006) indicated that relatively little work has investigated the role and influence of national culture on the web. However, some work has focused on different aspects of cultural adaptation and the Internet. It was suggested in many studies (Usunier, 2000; Veiga, Floyd & Dechant, 2001; Burgmann, Kitchen & Williams, 2006) that cultural backgrounds have enormous impact on Internet usage, type of website viewed and even language of Internet communication. Veiga, Floyd and Dechant, (2001) suggest that theoretical arguments for the link between culture and Internet usage rest on the premise that the beliefs and values shared by a group of people (culture) affect their behaviour in a variety of ways that

can hasten or retard the implementation of technological change. Many studies have found that managers in different countries hold fundamentally different values about technology and its usage (Shane, 1993; Straub, 1994; Tan, Watson, & Wei, 1995). Implementation approaches attuned to these effects are more likely to enhance perceived usefulness, ease of use, and attitudes towards use and, hence, to increase technology acceptance (Veiga, Floyd & Dechant, 2001).

Straub (1994) in his study conducted on usage of email and fax in Japan and United States found that while U.S. companies exploit the advantages of IT such as Email, Japanese firms do not. The Japanese, however, do utilize FAX extensively. He attributed the differences in using these two technology materials to culture. According to him, high uncertainty avoidance in Japan and structural features of the Japanese written language could explain Japanese perceptions about new work technologies such as Email and FAX. Furthermore, he found that cultural effects play an important role in the predisposition toward and selection of electronic communications media. Surprisingly, responses to traditional media such as face-to-face and telephone were remarkably similar between cultures.

Many researchers (Allwood & Wang, 1990; Kirkup & Hodgson, 2001; Li and Kirkup, 2007) have classified cultures around the worlds into various categories. The most typical categories are Western versus oriental culture. Western values are seen as valuing individualism and are low-context while oriental culture is seen as collectivist and high context. According to Kirkup and Hodgson (2001) there is enough evidence to show that students in different cultures do hold different attitudes towards computers. Allwood and Wang (1990) studied conceptions of computer

among students in China and Sweden. They found that Chinese students were more optimistic about the effect of computers on society than were Swedish students. The researchers also suggested that students‘ attitudes towards computer and usage were found to be related to certain cultural and background characteristics of students in different countries. Thus, it was argued that culture is a critical factor that influences people acceptance and use of learning resources based on the Internet. In consistent with previous studies, Kirkup and Hodgson (2001) also found that cultural difference among Chinese and British women was another evidence of different attitudes towards Internet and computer usage.

On the other hand Ibrahim and Zaidah (2006) in their study on Internet usage among university students based on their cultural backgrounds found that Malaysians were not different on their Internet usage as regards races (Malay, Chinese and Indian). According to the researcher, ethnic groups, environmental background and religion identity has no effect on Internet usage among Malaysians. Moreover, Syeda Tasmania Ahmed (2001) further explains that Malaysian women in her study feel that the presence of indecent material on the Internet is the main obstacle to adoption. Apart from that, other barriers cited in the study were lack of knowledge (37 per cent), not socialized with high technology (15 per cent), do not have enough computer skill to use the Internet (11 per cent) and no interest to use Internet (4 per cent). Hence, it is seen that women‘s attitude derived from lack of knowledge, skill or perceived technicality still poses a barrier to adopt the technology.

However, some researchers argue that barriers are cultural and social rather than technological. Jackson et al (2008) in their empirical study found the effects of

culture, gender and their interaction on measure of computer, Internet, videogame playing and cell phone use. More precisely, the study found that American children were actively and effectively using computers and the Internet more than their Chinese counterparts. Nevertheless, the study found that while America children demonstrated roughly equal usage across gender, Chinese males were using Internet longer than their female counterparts. This difference across nations was ascribed to the cultural difference across both countries. Li and Kirkup (2007) also investigated the Internet usage across culture (between China and UK). It was found that British people have been using Internet longer and have a wide range of experiences with computer application, computer language and the Internet usage than Chinese people. In both Britain and China, male respondents used the Internet more frequently than females. Moreover, most British reported that they looked at English language website, because most websites are in English, while Chinese students not only looked at Chinese sites but also visited English websites.

It seems clear that cultural and national background might be a major determinant of the Internet accessibility and kind of web use, even if it not always clear exactly what these effects will be. Since the more individualistic kind of cultural orientation affects personal performance, with individuals valuing individual achievement and personal autonomy, this may lead to a low perceived value for technologies as a group support system. Collectivism on the other hand puts more emphasis on the group performance and group affiliations. In an interesting study, for example, Ishida (1998) reported that Japanese strawberry farmers became Internet users only after it was explained to them that they could, as a group, make more money by selling fresh strawberry directly to consumers rather than through

wholesalers. As Straub (1994) observed, individuals in more collectivist societies such as Japan tend to avoid communication technologies such as email that minimize the social presence of the user even though such technology may be otherwise more appropriate and efficient.

Furthermore, Veiga, Floyd and Dechant (2001) argued that in higher individualistic societies, perceptions about usefulness of IT are likely to be based on beliefs about how the system affects the individual‘s job performance rather than how it affects the performance of the group. However, the judgement of the usefulness of IT in collectivism perspective is based on the extent to which the system is seen to enhance the task performance of groups. Consequently, individuals use the IT and especially the Internet depends on their cultural orientation and social structure of the culture. In gross terms, if a person in an individualistic culture believes that using the Internet or specific website would bring personal interest to him/her, he/she might adopt its use, whereas to motivate collectivists, the benefit must be general to all members of the society.

Another factor often used to distinguish cultures is their acceptance of uncertainty. It worth mentioning also, that in a culture high on uncertainty avoidance, individuals are more likely to avoid learning new technologies introduced into their working place because of the uncertainty and ambiguity involved. For example, Abdul Gadar (1997) found reluctance to participate among managers of Arab countries where uncertainty avoidance and power distance are high (Veiga, Floyd & Dechant, 2001).

Values linked to long-term versus short-term orientation are also likely to hold significant importance for technology acceptance and in particular for perceptions about the technology. Adaptation of short-term benefit oriented culture had a more significant influence on intention to use the IT or the Internet than long-term orientation. However, although the short-term is argued to positively affect the usage of IT, perception of long-term-oriented culture may be based on how the system appears to meet the needs of work in the future (Veiga, Floyd & Dechant, 2001). Hence, the effects of short and long-term culture orientations are based on the appearance of the system to meet the needs and desires of an individual. Park and Jun (2003) found differences between Koreans and Americans in using the Internet. According to them, Korean users were more innovative than Americans users, but showed higher perceived risk on privacy and security as well as higher perceived risk on product than American users, while there was no significant different between both countries in online shopping experience nor in the Internet busying intention. It was also found that many Koreans perceived high risk of Internet shopping but however, many have shopped online when the security system were not good. These differences are ascribed to the differences in cultural backgrounds of people in both countries. It was known that Koreans taking risk of buying online despite of its risk because Chinese are less-risk averse than American in their choices between risky option and sure outcomes. This is also because in Korean society as a collectivist culture, family will help out any group member who loses a lot of money after selecting a risky option. On the other hand, in individualist cultures like America, a person is expected to bear the consequence of his/her decision. Thus, due to the collectivist culture in Korea, Koreans were more inclined to the Internet shopping even if the risk is salient compared to the Americans.

Singh et al (2006) investigated Internet usage across German, Brazilian and Taiwanese online consumers. It was found that cultural adaptation on the web site is an important determinant of ease of use and attitude toward an international web site. It seems for Taiwanese consumers that cultural adaptation is more important in determining their attitude toward the web site than for Brazilian and German consumers. This study in consistent with previous studies that show that culturally determined attitudinal preferences and the attitude-behaviour link is driven by the cultural assumptions of a society (Veiga, Floyd & Dechant, 2001; Park & Jun, 2003). However, another study conducted by Jaruwachirathanakul and Fink (2005) indicated that the intention and adoption of Internet banking system by Thai consumers is encouraged by attitudinal factors and impeded by a perceived behavioural control but not by subjective norms such as culture. The attitudinal factors that appear to encourage the adoption of Internet banking in Thailand most are features of the web site and perceived usefulness while the external environment is most impeding factor for Internet adoption. In Malaysia, people are reluctant to use Internet banking and shopping online due to the high risk of the system. However, Suganthi et al (2001) found that Internet accessibility, ease of use and convenience are the most determinant factors in Internet banking adoption, not the specifically Malaysian norms or culture. This also in line with a study conducted in Turkey, where Polatoglu and Ekin (2001) found that instant feedback, quick transaction, and access from everywhere and saving dimensions (time, cost, saving of self-service) were major determinant of Internet banking adoption. In other words, these studies found that issues of usability and perceived usefulness were more powerful in determining use than general cultural attitudes.

2.5 DIGITAL DIVIDE AND DEVELOPMENT ISSUES

The term *digital divide* is used when speaking of computers and related hardware and services, to distinguish between those who have ability to use this technology and those cannot, due to circumstances such as socioeconomic status, geographical location, educational and attitudinal and generational factors or physical/mental disabilities (Cullen, 2001; Salinas, 2003). The digital divide is the difference between the haves and have nots regarding access to the Internet or other technologies and services (Hargittai, 2002). It has been defined by OECD as the gap among individuals, households, business and geographic areas at different socioeconomic levels with regard to their opportunities to access information and communication technology (ICTs) and to their use of Internet for a wide variety of activities (Rao, 2003). According to Richard Chabran (2000), the director of the Centre for Virtual Research at University of California, ~~"t~~he digital divide is about people not computers". Although there is a wider expansion of the ICT in general and the Internet particularly, there are growing fears that some will find themselves marginalised. According to Cullen (2001) in the global digital information age, those who are unable or unwilling to access the Internet and the World Wide Web (WWW) are increasingly disadvantaged in their access to information. He adds that the digital divide has become a convenient metaphor to describe the perceived disadvantage of those who either are unable or do not choose to make use of these technologies in their daily life.

Access to ICT and the Internet is not evenly spread. According to Couldry and Markham (2007) Europe and North America (17 percent of the world's population)

have nearly half of the world‘s Internet users, whereas Asia (56 percent of the world‘s population) has just over a third. So far the benefits of the Internet have failed to reach most of the poorer nations in Sub-Saharan African, Asia and Middle East. This global divergence of Internet between industrialized and developing countries creates a huge gap between nations in sharing information and economic opportunities.

Studies have attributed the inequality in using and accessing the Internet to many factors such as education, gender, race, age, location (whether rural or urban) and income (Cullen, 2001; Hargittai, 2002; Alvarez, 2003). However, Gartner Group (2001) argued that _while it is absolutely true that minority groups are at a distinct disadvantage when it comes to having Internet access, the reason for this is not that they are minorities but they are at a socioeconomic disadvantage due to lower education level and poorer incomes… Being on the wrong side of the digital divide is only one symptom of being poor. Lower socioeconomic groups also have far lower household income, less access to educational opportunities….. one of the keys to increasing the socioeconomic status of this country‘s poorest citizens is to grant them fair and equal access to education and economic opportunities, and the Internet presents us with an exceptional opportunity to do just that‘ (p.122). Although this statement was reporting the situation of minority in US society (such as African American, Latinos, and Asian American) and how they were marginalized and left behind in term of educational privileges and economic opportunities, it also mirrors the situations in many under-developed and developing countries in Africa, Asia and Latin America. This inequality in ICT-oriented opportunity mirrors economic and education inequalities. The Gartner Group (2001) stresses that there is such a strong

correlation between socioeconomic status and participation in the digital economy that cause and effect are strongly suggested.

As Cullen (2001) points out, ICT alone cannot eradicate the poverty in under-developed countries and it is not a basic need for them. However, access to online information would enhance the possibility to eradicate poverty and make an environment conducive to learning and economic growth. To help under-developed and developing countries urgent actions much be taken in all aspects of life such as education, health, and technology, and Western monopolization of knowledge, and market must be lifted because according to Hoffman, Novak and Schlosser (2001) _…the Internet is expected to do no less than virtually transform society‘ (p. 2).

It worth mentioning that inequality in accessing the Internet in not limit to under-developed and developing countries, but even in developed countries there are a lot of inequalities as a result of marginalization and education and economic disadvantages as earlier emphasized by Gardner group. Despite the fast expansion of Internet, Internet access and usage in Western countries, a large gap still exists among citizens in ability to use ICT across their demographics especially in relation to race, income, educational background and gender. Hoffman and Novak (1998) examined racial differences in Internet access. The study found in 1997 that overall whites were significantly more likely than African Americans to have a home computer in their household and also slightly more likely to have computer access at work. Whites were also significantly more likely to have ever used the web at home, whereas African Americans were slightly more likely to have ever used the web at school. The study found that whites were still more likely to own a home computer and have used web

recently than were African Americans. Although home computer ownership amongst whites and African Americans students was comparable, among students without a computer in their home, whites were more likely to use web than their African American counterparts and were more likely to use the web in locations other than home, work place and school. The analysis suggested that income per capita significantly correlated to computer possession and web usage. Thus, socioeconomic factors are among the most salient factors that determine the ownership of computer and access to the Internet, especially at home.

In United Kingdom, the situation of the Internet expansion is similar to the situation in the United States but differences are less pronounced. Couldry & Markham (2007) found that around 60 percent of the adult population in United Kingdom were actively engaging in using the Internet for various reasons which include, but not are not limited to, communication, searching and sharing information, buying and selling products, chatting, sending memos, making appointment with lecturers, and submitting assignments. However, there are still 40 percent of United Kingdom population outside the scope of online citizenship. Age, educational qualifications and income are key indicators (Couldry & Markham, 2007). 85 percent of people over 65 age in United Kingdom and 78 percent of UK adults without educational qualifications do not use the Internet. This socioeconomic divide was also regionally distributed, with only 44 percent of houses in Northeast England having Internet access, compared to 58 percent in London. The situations of UK and US are echoed in many Western countries, where access to the Internet is largely dependent on age, income and education.

Table 2.4 World Internet Usage and Population Statistics

WORLD INTERNET USAGE AND POPULATION STATISTICS						
World Regions	**Population (2008 Est.)**	**Internet Users Dec. 31, 2000**	**Internet Users Latest Data**	**Penetration (% Population)**	**Users Growth 2000-2008**	**Users % of Table**
Africa	975,330,899	4,514,400	**54,171,500**	5.6 %	1,100.0 %	3.4 %
Asia	3,780,819,792	114,304,000	**657,170,816**	17.4 %	474.9 %	41.2 %
Europe	803,903,540	105,096,093	**393,373,398**	48.9 %	274.3 %	24.6 %
Middle East	196,767,614	3,284,800	**45,861,346**	23.3 %	1,296.2 %	2.9 %
North America	337,572,949	108,096,800	**251,290,489**	74.4 %	132.5 %	15.7 %
Latin America/Caribbean	581,249,892	18,068,919	**173,619,140**	29.9 %	860.9 %	10.9 %
Oceania / Australia	34,384,384	7,620,480	**20,783,419**	60.4 %	172.7 %	1.3 %
WORLD TOTAL	6,710,029,070	360,985,492	**1,596,270,108**	**23.8 %**	342.2 %	100.0%

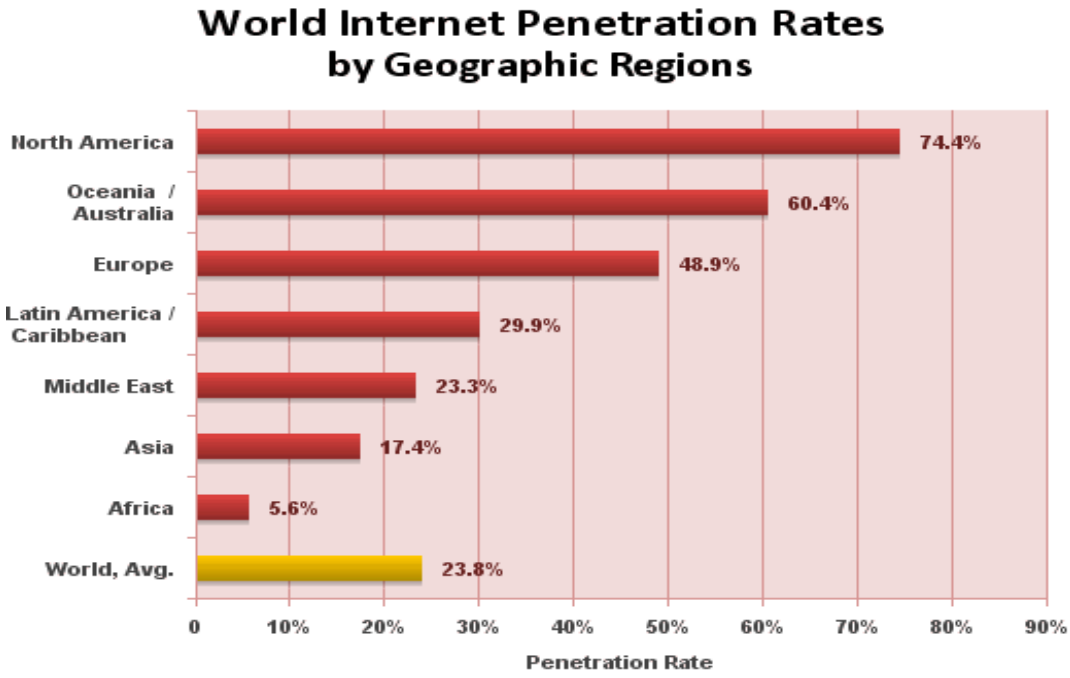
Internet Usage and World Population Statistics are for March 31, 2009. Demographic (Population) numbers are based on data from the US Census Bureau . Internet usage information comes from data published by Nielsen Online, by the International Telecommunications Union, by GfK, local Regulators and other reliable sources.

There is also other type of digital divide inequality that is the geographic distribution of ICT access. Kenney (2009) quotes the UNDP (2001) as reporting that 99.6 percent

of the population in South Asia and Africa did not use the Internet in 2000. Only 10 percent of Thailand's Internet users are rural, although rural areas contain 79 percent of the country population.

This inequality of opportunity in accessing digital telecommunication whether within a nation (social divergence) or between nations (global divergence) hinders development and becomes an obstacle for economic expansion, quality of education and administrative service. Further it thwarts democracy especially in developing countries. ―Unless the developing countries are able to halt the rapidly growing digital divide and enable their citizens to have their benefits of information age, the grand vision of building an equitable global village will remain an empty dream" (Rao, 2003, p.3).

Figure 2. World Internet Penetration Rates By Geographic Regions



Source: Internet World Stats - www.internetworldststs.com/stats.htm
Penetration Rates are based on a world population of 6,710,029,070 and 1,596,270,108 estimated Internet users for March, 2009.
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Internet access is strongly related to individual income in both developed and developing countries (Couldry & Markham, 2007; Van Dijk, 1999; Arendt, 2008). Couldry and Markham (2007) quote van Dijk (1999) as saying ~~–t~~he position of people in media networks will largely determine their position in society, then solving this divide must be an issue for social justice" (p. 251). In their study, Chen and Wellman (2004) found four important factors that affect people's usage of the Internet within eight countries: United States, United Kingdom, Germany, Italy, Japan, South Korea, China and Mexico. These factors are:

1- **Socioeconomic Status**: according to Chen and Wellman (2004) Internet users are more likely to be well-off and better educated than non-users in the all eight countries surveyed. It is the major determinant of Internet usage. Although the socioeconomic divide is to some extent declining in US and

Japan, the digital divide elsewhere seems to be increasing along lines of income and education. This is because even poorer and less educated people are accessing the Internet, the rate of increased access is higher among the more affluent and better educated segment of society in developing countries.

2- **Gender:** in line with many cited studies across the globe (Ford & Miller, 1996; Bimber, 2001; Shade, 1998; Heimrath & Goulding, 2001; Green, Owen & Pain, 1993; Ebben & Kramarae, 1988; Shermanet al, 1998; Durndell, 1991; Durndell & Lightbody, 1993), Chen and Wellman (2004) ascertained that men are more likely to access and use the Internet than women. With the exception of the US, the Internet share among women user is low compared to their population ration in each of the researched countries.

3- **Life stage:** Chen and Wellman's study found that the Internet penetration rate among younger people is substantially higher than among the older people. However, the study found that the life stage division is declining in most countries except Korea.

4- **Region:** geographic location also affects Internet across the countries, with urban areas showing more penetration than rural area. Except for Mexico, the overall trend across the eight surveyed countries indicates narrowing yet persist digital divide in term of geographic location.

Table 2.5 : Summary of Internet access in eight countries (*Source: Chen and Wellman (2004)*

Country	Socioeconomic status	Gender	Life Stage	Region
US	Declining yet persistent	No appreciable divide	Declining yet persistent	Declining yet persistent
UK	Increasing	Declining yet persistent	Declining yet persistent	Declining yet persistent
Germany	Increasing	Increasing	Declining yet persistent	Declining
Italy	Large Divide based on education	Increasing	Younger use the Internet more	Northern Italy leads the South
Japan	Declining yet persistent	Declining yet persistent (reserved digital divide in mobile Internet	Younger use Internet more	Major cities have higher Internet diffusion than smaller cities
Korea (REP)	Increasing	Persistent	Increasing	Declining. Seoul is still most wired area in the country
China	Huge yet slightly declining	Declining yet persistent	Slightly declining	Huge, yet slightly declining
Mexico	Huge	42 percent of Internet user are women	Younger make up the majority of Internet users	Very uneven. Users are concentrated in the centre, Guadalajara and Monterrey

There are many obstacles that prevent people from using digital telecommunication, and these barriers are in many cases interwoven and correlated. However, the most salient problem is the cost of the infrastructure, connectivity and use (Kenney, 2009). Lack of necessary telecommunication infrastructure or poor performance remains a big challenge to Internet usage especially in rural areas and many of developing countries. Although the computer prices have declined drastically, telecommunication is still expensive and of limited availability. Moreover, the telecommunication is more expensive in rural areas where there is no basic infrastructure for ICTs implementation. In countries where the telecommunication industry is privately owned, the industry is quite open about its reluctance to make a substantial investment in markets, which represents a tiny percentage of the revenue stream (Cullen, 2001). In Egypt, for example, as found by Tucker, Younis and Shallaby (2002), the average cost of Internet dialup access is around $20 per month in Cairo and access cost can be two or three times higher outside Cairo. This makes access very difficult for citizens, while is extremely expensive especially in rural areas of developing countries. Generally for a developed country like the US, Katz and Rice (2002) point out that the limits to Internet access are largely psychological and cultural rather than structural and technological though these barriers exist as well. However, in developing countries, users are unanimous in finding the price of Internet access to be a major constraint (ITU, 2001). Internet access prices for end users can be broken down into three components: hardware /software, Internet access provision and telephone service charges. In relative terms, the costs to get connected are much higher in developing countries. Katz and Aakhus (as quoted in Katz & Rice, 2002) also noted that cost is the key barrier to Internet access. However, their

data shows another two key barriers in Internet usage: access and complexity. Two of these barriers (cost and access) were more strongly felt by nonusers, perhaps reflecting their lower incomes (ability to pay for the Internet) and educational achievements (ability to navigate the Internet). A national study in the US of barriers to using the Internet found that the technical logistics of going online was a major obstacle for experienced Internet users as well as those who have never used the Internet before. Almost half (48 per cent) said that they had no idea how to use the Internet while 42 per cent said that the Internet was too complicated (Morohan-Martin, 1998).

Lack of appropriate skill to effectively use the Internet is considered another major impairment in accessing the Internet. Engagement in the Internet usage needs in many cases higher skills and experience, which might not be available for many people. According to Cullen (2001) people in many disadvantaged groups are often disengaged with the Internet because of lack of appropriate requirements and low levels of computing and technology skills. In Egypt, for instance, unlike Western countries where computer literacy is relatively high, outside the scientific and technical community in Egypt, there is a serious lack of computer literacy, with limited awareness of modern technology, few skilled professionals, and a scarcity of local information content, which all serve as barriers preventing the widespread acceptance of the Internet.

Language and literacy barriers can be significant factors in preventing certain groups from using the Internet. The content of information available on the Internet is predominantly English, which might not be understandable in many people especially in rural areas and of lower education level. Kenney (2002) found in a study conducted in Tokyo, Beijing, Seoul,

Bangkok, Singapore, and Jakarta that English speakers were two to four times more likely to use the Internet than non-English speaking population. Furthermore, the African Internet Forum (1999) reported that 98 percent of the Internet users in Ethiopia were degree holders, in a country that 64 percent of the total population are illiterate. Despite the advances in software, language and culture barriers are still important and provide one of the major obstacles in developing applications or technology. As reported by the Internet Society (2001), more than 80 per cent of web pages are in English, though only 54 per cent of Internet users have English as their mother tongue. This is a language barrier to users whose English is not their mother tongue or as a second language.

Attitudes can also be barriers to use of the Internet. People‘s negative beliefs, such as computers are for males, for the young, for brainy people, are difficult to use or belong to middle class or white culture, hinder participation and usage of the Internet. Cullen (2001) quoted Botha et al (2001) as finding that concern over the lack of security of personal information or the feeling that computers are unsafe for families because of the amount of unsuitable material are the major reason for New Zealanders in rural communities for not using the Internet. Additionally, Cullen (2001) claims that attitudinal barriers can also be culturally based. In many cultures that place high value on oral culture, personal communication and strong family and kinship networks, the use of computers for communication purposes will not be a high priority.

Content is also considered to be an obstacle for the Internet usage, especially when that the Internet content is found irrelevant or uninteresting to people. This according to Cullen (2001) may apply to specific groups of the society such as elderly or women but more significantly to cultural or ethnic groups outside the predominantly Western culture of the

Internet. After all if one cannot find interesting and relevant content in his / her language and do not read other languages, how and why should one use the Internet?

2.6 ORGANISATIONAL ISSUES

Many people who might have difficulty accessing the Internet as individuals, find that other organisations act as facilitators. The increase in Internet uptake among women is believed to be partly due to contributing factors such as education, computer training and workplace use. Saunders (2002), for instance, argues in a news report that the upsurge in women‘s Internet uptake is due to gaining access from the workplace as Internet currently becomes the chief medium used while at work.

In Asian regions, Parthajit (2006) reveals that affluent and upwardly mobile young women are a growing force in the Asia Pacific Internet landscape as more of them get connected and spend more time online. These females with higher than average disposable income comprise the fastest growing segment of female Internet users in the region. Over 74% of the female respondents between the ages of 25-34 now have access to the Internet; two thirds of them now have a broadband connection, representing an increase of 13% from last year. More women from this age group are going online both from home and from work.

A Nielsen//Net ratings (2000) study measuring the at-work audience found that the usage of the Internet at work increased 17 per cent from the year 1999, with nearly 46 million logging in last month. The study highlights that a large part of that growth is due to an increase in Internet connected women at the workplace. The figures suggest that the demographic grew 23

per cent from 1999, to 20.4 million. The study also found that women spent an average of 27 hours a month online while at work and women viewed on average of 1700 WWW pages. The use of the Internet at work generally sees its usage peak between 10 a.m. and 12 p.m., with a maximum of 86 per cent of Web traffic coming from the workplace. In the USA, Katz and Rice (2002) highlight the fact that women are leading American offices in surfing the web. NetRatings (as quoted in Saunders, 2002) found that women spend 27 hours online while at work in the month of August and viewed an average of about 1700 web pages. NetRatings also found that use of the Internet at work generally sees its usage peak between 10 a.m. and 12 p.m., with a maximum of 86 percent of Web traffic coming from the workplace. Another study by Nielsen//NetRatings (as quoted in Bumatay, 2000) discovered that nearly 46 million American office workers logged onto the Web. While men still outnumber women, female office workers were the primary drivers of traffic growth, as the group grew 23 percent year-over-year to 20.4 million, outpacing the growth rate for men. The number of men logging onto the Internet from work rose 12 percent since last August, increasing to nearly 25.3 million surfers. In addition, men spent more time, accessed more sessions and viewed more pages than women. Men averaged nearly 31 hours time spent in August, as compared to nearly 27 hours for female office workers. They initiated an average of 54 sessions a month, compared to 50 for women, while viewing more than 1900 pages. Women accessed fewer than 1700 page views last month.

Motivations for Internet uptake and usage much depend on many factors. Across many studies, the findings to the motives of Internet‘s uptake are in agreement. Interpersonal communication and information search are the two primary motives that underlie the Internet‘s uptake in work and non-work contexts. Studies by (Tasmania Ahmed, 2001; Itu, 2001; Savolainen, 2000;

Younis & Shallaby, 2002) have suggested that using Internet for interaction or communication (sending and receiving emails), socio personal development (finding information related to study, work, interest etc.) are the most common reasons cited for the Internet‘s uptake. Apart from these common reasons, Teo (2001) who conducted a study in Singapore, discovered that perceived ease of use, perceived enjoyment and perceived usefulness are the major reasons for the respondents‘ Internet‘s uptake.

However, the growing importance of the information highway‘ and the information society, mean that the utilization of the Internet will no longer be a question of free choice but rather that regular use becomes a necessity for a competitive organization (Savolainen, 2000). Savolainen points out that cultural and social factors motivate people to start using the Internet and conclude that the predominating values of society may also affect them, even though indirectly. However, business and commercial reasons (such as online banking and shopping) were less popular reasons cited as major reason for accessing the Internet.

The Internet is also very important for organisational communication. Communication is essential in any social context, especially in a workplace. Today, the communication systems in organisation have been categorized into three categories, namely formal, informal and mediated communication. Detailed discussion of these categories is beyond scope of this thesis. We will therefore give just a brief introduction to organisational communication in the context of email and computer mediated communication.

Theorists have long recognized that organizations make use of communication methods varying in formality that they deploy these different methods for tasks varying in uncertainty, and that matching the informality of the methods with the uncertainty of the tasks leads to better organizational outcomes (Kraut et al., 2002). Most of the work that people do in organizations requires some degree of active cooperation and communication with others. Individual members of groups need to communicate with each other to accomplish their production and social functions and within organizations; groups need to communicate with other groups. Distinctions on modes of communication as being either informal or formal communication undeniably have their usefulness. According to Daft and Lengel (as cited in Kraut et al., 2002) rich communication channels are ones that can overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner. In order of decreasing richness, they consider (1) face-to-face communication (2) telephone (3) personal documents such as letters (4) impersonal documents (5) numeric documents. The structural and functional characteristics of communication occasions that cause the communication to be more or less formal, include the nature of the relationship among the participants and their social role. Additionally, the nature of the communication setting also influences the formality of communication in it. Finally, the communication channel itself may partially determine the formality of a communication event. By their nature, for example, telephone and face to face discussion are more interactive and richer than computer mail systems and as a consequence, more informal. Kraut et al. (2002) sum up the fact that informal communication is particularly useful in supporting the social functions of groups. This is because organizations are less explicit in regulating social relationships than they are in regulating other aspects of work procedures. However, computer-mediated communication technologies have given visibility to

informal communication and validated its importance (Fry, 2003). This issue of computer mediated communication is pursued in the next section.

2.7 ELECTRONIC MAIL AND COMPUTER MEDIATED COMMUNICATION

Electronic mail, defined as a computer system for the exchange of messages and other information that may include text and numerical data, computer programs, video, graphics and sound, is one of the most powerful applications of the Internet. Use of email has exploded in the last two decades as a cheap and quick form of communication among people. It also has the ability not only to daily update friends, family, and co-workers of personal activities but also to form and maintain friendships.

In relation to email usage, Pew Internet and American Life Project (2000) claimed that women are more likely than men to feel that email has helped their relationship with their family members and friends and women are more appreciative of the qualities of email and hence email is viewed as the most popular and familiar channel for communicating through the Internet (Wood & Smith, 2001). This view proves right when 50 per cent of women who email family confirmed they find email very useful for communicating with family members (Pew Internet & American Life, 2000). The respondents find that email serves so many essential purposes for women that they are excited to get it. According to the research finding, 78 per cent of the women say they look forward to checking their email; 41 per cent say email has improved relations in their families, 43 per cent who email family, report that email has brought them closer to their families.

Pew Internet and American Life (2000) added that another appealing attribute of email to a surprisingly large cohort of Americans is that they feel they can be more honest online with loved ones and friends than they can be in a conversation. Both HomeNet and Pew Internet and American Life Project (as quoted in Boneva & Kraut, 2002) survey data show that women have more positive attitudes toward using email as tool to connect to others. Women find sending email to family and friends more useful and more enjoyable than men do. Other studies have arrived at a similar conclusion: email is more psychologically gratifying to women than to men. Maccoby and Jacklin (1974) (as cited in Boneva & Kraut, 2002, p. 400) suggest the reason could be that _women tend to express themselves better in words than men do'. McKenna & Bargh (1998) add (as quoted in Boneva and Kraut, 2002, p. 400) it is so because _…using text in an asynchronous mode provides the [email user] with more control over the conversation'.

Many studies indicate that email is the most common usage of Internet, and that it is used to keep in touch with friends and family. The Pew Study (2001) found that email made users feel closer to friends and family, an effect found more with women users than men. For example, 55 per cent of women Internet users say their email exchanges have improved their connections to family members, and 66 per cent say the same thing for significant friends. About 60 per cent of users say that because of email they communicate more with significant friends and family members. Hence, it seems email improves communication with long distance family members and friends. Boneva and Kraut (2002) adopt the triangulation method (qualitative and quantitative) of data collection in their study. They utilize three sets of secondary data: Pew Internet & American Life Project March 2001 survey data, Home Net Project 1998-1999 survey data and HomeNet Project 1996-1999 interview data. The study focused on how email use in

maintaining certain types of relationships is influenced by gender. The findings are found consistent with previous studies that are email is used to sustain relationships. The study also suggests that women use email more often than men to sustain or invigorate their personal relationships.

In another survey, Pew Internet & American Life Project (2000) in their study show that overall, women use email more than men in communicating with family and friends, and women use email more then men to start communicating regularly with a family member that they did not keep up with very much before. The plausible reason for these differences in email use is that the different role obligations men and women have in personal relationship maintenance and the different value they place on personal relationships. Their findings also indicated that, in fact, men and women have quite similar patterns of types of family or kin relationships that they maintain regularly by email, but they differ in frequency of communication with family and kin. Interestingly, this study derives at mixed results on the role of proximity in email use and how it is influenced by gender. The study shows that men and women do not differ in using email locally for personal relationship maintenance.

Email is used for setting up joint activities, and both men and women use it for coordinating social activities with local partners. Boneva and Kraut (2002) claim that these findings are consistent with recent reports on a tendency for women to become more instrumental in their relationships as found by Duck and Wright (1993), and also Spence and Buckner (2000) (as cited in Boneva & Kraut, 2002). In addition, women seem to use email to keep in touch with relatives and friends far more often than men. The study also shows that email

is appropriated by both men and women to enact already-existing patterns of relationship maintenance. They also found some indications that certain type of personal relationships may be changing as a consequence of computer-mediated communication (CMC). For instance, the study shows that women are using email to supplement telephone conversations with their parents, whereas they are substituting it for telephone calls with siblings.

Reasons for email use in the workplace

The closing years of the twentieth century saw the introduction and widespread adoption of email as a means of workplace communication. Waldvogel (2001) reveals that email has become a fact of life in many workplaces where it has largely replaced written memos, much telephone and face-to-face interaction; the role it has assumed very recently and very quickly of being an important means of communication is likely to be anything but ephemeral. Kraut et al., (2000) point out that over the last ten years, email has become ubiquitous whilst Sproull and Kiesler (as cited in Whitaker, Belloti & Moody, 2005) notice that it has changed the way that people work, and the ways that organizations operate: many types of collaborative work should be unthinkable without it.

However:

> …on an organizational level …the decision to use (or not to use) email has been shown to be influenced by group, organizational, social, and transactional structures.
> (Poole & DeSanctis (1987) as cited in Copher, Kanfer & Walker, 2002, p. 267)

In a review of information technologies, Culnan and Markus, 1987 (cited in Williams, not dated) suggested that the introduction of new technologies may alter communication activities in

organizations and have the potential to influence key aspects of organizational structure and process. In another study of how inter-organisational email systems are being used and what factors are related to usage, Kettinger and Grover (1995) found that email has become an important method of broadcasting task and social organizational communication (e.g broadcast use which includes public bulletin boards, list servers and discussion groups).

The University of Wollongong‘s Survey (1995) on the use of email by 333 women focused on work environment or workplace. The research gathered data on age, length, frequency of use and the services used. The study found that the 249 respondents (the highest) had email as the top feature used, and that communication rank highest on women‘s online agenda. The Australian women in the study who use the Internet (78.3 per cent) do so at least once a day and the most frequently performed job on the net is sending or receiving a message through email followed by education, business and social sites especially among 25-44 years age groups. The study highlighted its key findings which are: (1) communications rank the highest on women‘s online agenda and (2) email is the online service that women use the most.

Clayton et al‘s (1998) study on Australian academic use of the Internet found that email is the single most used Internet service. Surprisingly, it does not appear to be used as extensively by Australian academics as might be expected. A majority of respondents only used it on a daily basis to communicate with colleagues on the same university campus. The largest proportion consistently reported using it less than once a week for communicating with colleagues in the same university but on a different campus, with colleagues who worked in the same city, with colleagues who were interstate or overseas, or with students. Interestingly, a substantial

proportion reported never using it to communicate with colleagues in the city in which they worked (24 per cent), or to communicate with students (25.7 per cent). However, the most reported finding is that, email is found useful or very useful for various work-related activities. Apart from that, other studies have looked into the factors affecting email use by co-workers (Fulk, Steinfield & Schmitz, 1990); attitudes of supervisors toward email (Trevino et al, 1987); Internet use by supervisors (Fulk, Steinfield & Schmitz, 1990); managerial encouragement of email use studied (Shin et al, 1999) and Sullivan found email use to be related to job type, whether secretarial, analyst or director; or director versus manager (as cited in Copher, Kanfer & Walker, 2002).

Pew Internet and American Life Project (2002) reported that email is an integral part of American workers‘ lives and has become almost mandatory in most U.S workplaces. The number of U.S. workers with Internet access at their workplaces grew from under 30 million in March 2000 to over 57 million in October 2002. Almost all 98 per cent of these employed Americans have email accounts. Most American employers have provided Internet access with email accounts to employees hoping that this will help them become more collaborative with colleagues and customers, and thus more productive in their work. The findings of the survey conducted by Pew Internet and American Life Project (2002) is summarised in table 2.6 shown on below.

Table 2.6 Summary of emailers categories and their characteristics in the United States

Researcher	**Categories of emailers**	**Characteristics**

Pew Internet & American Life Project (2002)	Typical emailers	spend roughly a half an hour of the workday processing email, including up to about 10 incoming messages and 5 outgoing ones.
	Moderate emailers	The findings reveal that: 60 per cent of work emailers receive 10 or fewer messages on an average day; 23 per cent receive more than 20 messages whilst only 6 per cent receive more than 50 messages 78 per cent of work emailers send 10 or fewer messages on an average day; 11 per cent send more than 20. 73 per cent of work emailers spend an hour or less per day on their email which includes 23 per cent of all work emailers who spend fewer than 15 minutes per day handling email 46 per cent of work emailers say their work email volume has stayed the same over the past year. 48 per cent say their email volume has increased over the past year.

The findings also mention that those who use email at work contended that their electronic communications mostly contain content that is highly valuable to their work. Moreover, 52 per cent of them rate their email as being essential to their work; and 86 per cent rate their email as moderately important. Alongside with the content of the email received and sent; 53 per cent of work emailers claimed that almost all of their incoming email is work related and 58 per cent say that almost all the email they send is work-related. Interestingly, 75 per cent say that a little of the email they receive or send at work is personal and 71 per cent say that only a little of the work email that they receive is spam.

Computer mediated communication

Communication mediated by technology has become an object of study in its own right, particularly in organisational contexts where it can be a powerful support for collaboration. Employees who are not centrally located in the organization see significant benefits in increased communication due to CMC (Kraut & Atewell, 1997). The availability of CMC helps people with similar interests locate one another and develop relationships (Wellman, as cited Beckman & Stanko, 2003). Individuals who are isolated may be especially benefited by CMC. More generally, groups that are marginalised, isolated or otherwise distant from others in the organization should benefit from CMC. Following up these findings, Sproull and Kiesler (1992) introduced a two level framework for thinking about technology changes in organizations. They use the term _first level effects' for the anticipated technical changes email offers that is, the possibility for improved communications, greater efficiencies and productivity gains. The _second level effects' or social system effects are those that come about mainly because _new communications technology leads people to pay attention to different things, have contact with different people and depend on one another differently. Patterns of information exchange are changed; so are working and social relationships. Thus, social and organizational structure is changed (Sproull & Kiesler, 1992). By increasing organizational participation and personal ties, CMC can reduce the isolation of socially and physically peripheral workers lead to a greater commitment: but increase information exchange can pose problems of authority, control and influence. Other researchers have also addressed the social effects of email. Managers focusing only on productivity benefits of email may fail to anticipate the larger social consequences

(Weisband & Reining, 1995), which are unwanted or inappropriate forms of communication as well as worker stress from too much information, and being expected to reply quickly. Another stress creating factor identified in the literature is aggressive accountability with its documentation mania or the tendency for even simple verbal requests to have to be put in writing (Markus, 1994).

Studies at both the individual and group level are complicated by the fact that studies quickly become outdated given the rapid spread of these technologies, and the increasing familiarity with them. In line with this, Kraut et al (1999) disclosed that as people use the Internet more, they are more likely to view it more positively. Furthermore, Nie (2001) emphasized, that educated and wealthier young people are using the Internet, and these individuals are more sociable than those that do not use the Internet. The study too also highlighted that email is shifting and rearranging communication patterns among email users.

Email has been found to be a major impact on many aspects of workplace life and organization (Waldvogel, 2001). Social psychologists, communication scholars, and those working in the business, information and organizational science areas were among the first to undertake research on email and other forms of CMC. A study by Sarbaugh-Thompson and Feldman (1998) argued that the loss of face-to-face communication and informal greetings that comes with the adoption of email technology can result in individuals feeling less involved in the organization. However, Kraut and Attewell (1997) claimed that using email would motivate organizational members to be committed to the organization because email allows people to be better informed and increases information sharing. These findings have implications for

organizational outcomes. Indeed technology appears to increase communication across levels of the organization (Hinds & Kiesler (1995). Walsh and Maloney (2002) find that computer network use increases collaboration between individuals across organizations. However Zack and McKenny (1995) pointed out that the benefits of technology can be highly dependent on contextual factors such as leadership and local culture of organizations. They suggest that social contexts play a major role in influencing the use of technology as well as the group efficiency and task process.

In Garton and Wellman‘s (1995) research into how email shapes and is shaped by organizational structure and process, they concluded that email increases access to people and information in organizations. They also claimed that changes associated with email use are socially as well as technically determined and, when people communicate electronically, work groups become more fluid. Sproull and Kiesler (1992) raised the idea that email increased the number of connections in an organization and hence increased information and workload. Copher, Kanfer and Walker (2002) attempted to clarify the impact of email on communication and everyday life through 7-day, 24-hour-a day examination of communication behaviour. They analysed the communication diaries of 60 participants, 30 heavy email users (receiving 35 or more emails a week) and 30 light users (receiving 7 or fewer emails a week). Although previous investigations give insight into email use, this study crosses both communication contexts (work, home and community) and contents (work, personal and non work related business) and provides a unique opportunity for looking at the impact of email technology on everyday communication. The data was collected in three parts; a weeklong communication diary, a follow-up social network survey about the participants‘ communication partners and face-to-face interview to

collect demographic and other information. The data were analysed to compare heavy email users to light email users across all communications, all non-email communication and for each of six media (face-to-face, phone, phone messages, fax, paper and email) for five measures: (1) number of communications; (2) time spent communicating; (3) number of named and unnamed communication alters; (4) number of named communication alters and (5) number of unique named alters. The results of the study showed ~~a~~ll but one comparison of email use between heavy and light email users showed significant differences between the groups" (Copher, Kanfer & Walker, 2002, p.273). Heavy users had greater numbers and percentages of communications; time spent communicating and alters than light email users for all communication types except the total number of other business alters. Heavy email use had little impact on the use of other communication media, with the only difference between heavy and light users that approached significance being a slightly greater percentage of phone communication for light email users than for heavy email users. However, light email users had significantly greater percentages of face-to-face versus phone communications as well as greater percentage of fax communications. Light email users also had significantly greater percentages of total alters with whom they communicated via these three means of communication than did heavy email users. Heavy email users, as expected, had greater percentages of email communications, time spent communicating, and all three measures of alters. Comparing the means of media use for work, other business and personal communications, heavy email users spent more time in work communications than light email users and in comparing proportionate media use of heavy and light email users for personal communication showed a difference only in the number of communications (heavy email users had 128 personnel communications compared to 93 for light email users). Comparing communications style for work, other business and personal

communications, light email users had greater percentages for face-to-face, phone and fax communications as well as greater number of alters via these means. In a sense, this study attempts to find out whether email is a blessing or curse. Based on the results, Copher, Kanfer and Walker (2002) concluded that email enables participants to communicate more in less time, but it is also likely to increase stress levels, particularly for work communication. Moreover they find that heavy email use, perhaps begun through work obligations, can lead to a more general communication style that relies more on email and less on other media, extends beyond work to include personal communications and business outside of work, and possibly includes some substitution of email for phone for non-work communication.

Rice (1994) also found that it is not necessarily how much a person uses an email system but how the users are positioned in that systems structural context that affects individual performance. Herring (1993), in an early study of gender participation in academic electronic discussion lists, found that academic computer-mediated communication was power based and hierarchical, and that this finding cannot be attributed to the influence of technology but continues pre-existing patterns of hierarchy. Ku (1996) found younger organizational employees in lower-level jobs that had worked in an organization for a shorter period of time were more likely to communicate socio-emotional content via electronic messages. Furthermore, these examples suggest, as Markus (1994) found, that social processes can shape the adoption, use and consequences of communication media in organization and these processes can result in differences across the organizations and other social units in pattern of use.

Hearn, Mandeveille and Anthony (1998) conduct a case study on email usage in a business organization in Australia. The study adopted an in-depth interviews method of 50 large Queensland-based firms. It aimed to be sensitive to differences in email use across a number of industries, and therefore has examined both sophisticated and unsophisticated users of email. The key findings of this study reveal considerable cross-sectoral differences in the intensity, scope and critical mass of users, impacts on personal work practices and impacts on organizational characteristics through the use of email:

Level one - Little command over email. Manufacturing respondents were in this category

Level two - Basic command over email. Most services sector respondents were in this category

Level three - Strong command over email. ICT and some services respondents were at this category.

They found the ICT sector to be the most sophisticated email users and to have experienced the most organizational impacts of email use. This group is intense users, have a wide scope of uses for email and have achieved a critical mass of other users. At the other end of the spectrum are the manufacturers who were typically unsophisticated users with low intensity, narrow scope of use, no critical mass of users and experienced very little impact from their email use. Between these two levels of user-sophistication, generally are the service industries. Here, the use of email appears to be emerging as a significant organizational and personal work activity. This survey indicates that business people utilize email for a wide range of applications, with exchanging information the most common. Least common uses were resolving disagreement and negotiating. Compared with face-to-face or telephone communications, email is not synchronous, nor is it informational rich enough for these more complex aspects of human

communication‘ (Hearn, Mandeveille & Anthony, 1998, p. 100-101). The study too revealed undeniably positive outcomes in favour of email as a business tool. Apart from level one users, respondents clearly perceived email as helping to increase their personal productivity, job satisfaction, quality of work and rate of work.

In terms of the rate of work, fax and email seem to be speeding up the turnaround or pace of work. Precisely, –work is becoming more interactive communication intensive as it becomes more collaborative and co-operative” (Hearn, Mandeveille & Anthony, 1998, p. 101).

Respondents perceived some negative consequences of the increased pace of work: information overload, constant time consuming demand for prompt responses, dealing with email at home cuts into family time, and lack of personal contact in this medium. Results of the study suggest that the level three users are using the phone and the fax relatively less. Within ICT firms, the fax is not used much for internal communication as all the staffs is on email, but the fax is still important for external communication with organizations not using email. This suggests that, as email becomes more widespread across the economy, it may increasingly substitute for fax usage. Yet email is unlikely to replace fax, simply because so much that is faxed is not typed. The impact of email used on organization is also revealed in this study. _Organizations appear to be gaining substantial benefits from the use of email, with the clearest benefit being in overall efficiency…in terms of other benefits, there was also thought to be an increase in organizational capability, and product or service quality‘ (Hearn, Mandeveille & Anthony, 1998, p. 102). The study concluded that the overall impact of [ICTs innovation] on work and organizations parallel the email case. Although the communicative features that ICTs

offer may make it easier for organizations to adopt distributed and networked structures it certainly does not automatically ensure that this occurs. Similarly, employment and productivity are not simply linked to ICT innovation… However, extrapolating from three decades of information technology diffusion in Australia organisations, it is reasonable to argue that the communication superhighway will continue towards a transformation of the way in which business and government organizations function. In Africa, a survey on emails usage found that there was as yet little government use of the Internet [and] the average level of email use is one per day, sending and receiving. Email is used for general correspondence and document exchange, technical advice, managing projects, arranging meetings, and exchanging research ideas, although its use is still limited for finding and accessing formal information resources (Schware, 1992).

Researchers have also addressed the social effects of email and Internet use on networked organizations. Beckman and Stanko (2003) argued that the loss of face-to-face interactions and informal greetings that comes with the adoption of email technology can result in individuals feeling less involved in the organization (Sarbaugh-Thompson & Feldman, 1998*)*. Counteracting this, however, is the finding that organizational members feel more committed to the organization because email allows people to be better informed and increases information sharing (Kraut & Attewell, 1997*)*. These findings have implications for organizational outcomes. Indeed, technology appears to increase communications across level of the organization (Hinds & Kiesler, 1995). Computer networks also increase collaboration between individuals across organizations (Walsh & Maloney, 2002). However, Zack and McKenny (1995) found that the benefits of technology can be highly dependent on contextual factors such

as the leadership and local culture of organizations. They suggest that social context plays a major role in influencing the use of technology as well as the group efficiency and task success. Weisband and Reining (1995) emphasized that managers who focussed only on the productivity benefits of email may fail to anticipate the larger social consequences. This is because, unwanted or inappropriate forms of communication may occur or, worker gets stress from too much information, and being expected to reply quickly.

There are two stress-creating factors identified in the literature pertaining to the social effects of email. Markus (1994) points out that nearly half of those surveyed also felt that email had brought about a reduction in personal contact and another ‗documentation' mania, or the tendency for even simple verbal requests have to be put in writing (as cited in Waldvogel, 2001). Pew Internet and American Life Project (2000) noticed that some family communications now revolve more around email than other forms of communication. According to this survey, most emailers send an email everyday to their family members while 16 per cent say they phone their significant family member and only 8 per cent get together with the family member every day. A sizeable majority of those who email relatives claimed that email increasing the level of communication between family members. Six in ten family emailers say they communicate more often with their primary family contact and the same proportion of those who email friends reported about increased communication with their friends through email. The study too reveals that email is used by users at times as substitutes for conversation. It was discovered that, 65 per cent of women send email to relatives reported that email allows them to keep in touch with their family without having to spend so much time talking to them.

2.8 OTHER APPLICATIONS

One of the most striking pieces of evidence of how the Web has become woven into people‘s everyday lives is the amount of time spend and the variety of types of activities that they do on the Web. Kraut et al. (1998) report that WWW provides social entertainment that could compete with social contact as an alternative way for people to spend their time. Rickert and Sacharow (2000) recognized that later in life, women favour e-commerce and financial services site although not necessarily geared specifically toward women. And, over time, findings on WWW use result in diversified activities. The rapid switch of dial-up to broadband connections contributes to this diversity of online activities. Pew Internet and American Life Project (2005) asserted that no matter how fast or how slow the speed of Internet connection; different people still use the Internet in different ways and the longer the Internet is around, the more people expect of it.

Howard, Rainie and Jones (2001) proclaimed that young adults who use the Internet are more likely to do fun things like gaming and downloading music compared to older respondents. The most experienced online Americans are relatively heavy users of the Internet as an information utility and proportionally more of them do research for major life activities online than other groups. The gender differences in the daily online world are not very dramatic in some major activities such as using email and browsing for fun (more men do this than women on a typical day), searching for health information (more women do this than men), buying products and making travel reservations (online men and women are doing this in roughly similar proportions).

However, a gap is evident in some other Internet activities. More online men than women are consuming news online: on a typical day 26 per cent of men with Internet access are doing this, compared to 15 per cent of online women. A comparable pattern applies to the act of seeking product information: 16 per cent of online men are doing this on a typical day, compared to 9 per cent of online women. When it comes to seeking financial information such as stock quotes or mortgage interest rates, 18 per cent of online men are performing that during on a typical day, compared to 8 per cent of online women. Men with Internet access use the Internet for work related research more than women; 18 percent of men with access do this on a typical day, compared to 12 per cent of women. Similarly, many of those who seek hobby information on a typical day are men: 21 per cent of men with Internet access are seeking hobby information during the average day compared to 14 per cent of online women. Studies on WWW use recruiting solely women in university settings are sparse. However, dichotomy studies on WWW use between males and females in a university setting thus shed some understandings on the WWW usage patterns. Clayton et al (1998) conduct a study on Australian academic use of the Internet. The survey involved a random, stratified sample of 1,054 academics from all Australian universities. Thirty participants were chosen from each university, including the very smallest, in order to enable statistically meaningful comparisons between universities. The findings reveal that almost all the respondents (95.6 per cent) had access to a personal computer in their office at work which was connected to the Internet; almost all of these had all the software and hardware they needed to connect to the Internet. Fewer than 6 per cent (31 respondents) had to share access to a computer. The majority of Australian academics make use of the Web: 28 per cent reported using it at least daily, 39 per cent at least weekly and 25.9 per cent less than once a week. The Web was reported as being most useful for research, personal

use, and teaching, and least useful for administration, community service or contribution to a profession or industry and for entertainment. When it came to personal use and entertainment the largest proportion of respondents reported never using them for these purposes.

More recently, Yahoo! Media Relations (2004) released the results of a recent studies conducted by Yahoo!Inc and Starcom MediaVest Group which showed that the Internet is the leading media choice among women, trailing only work, sleep and spending time with family across all activities. The study also showed that one-third of working women are working more hours than in previous years and to help them manage their lives, working women spend an average of forty minutes online during the day for non-work activities, and going online has replaced the coffee or water-cooler break. Women's non-work related activities include banking, emails, instant messaging, planning travel and events, coordinating their personal lives and playing games. According to the women surveyed, most life tasks, such as paying bills, have become easier with the Internet. In terms of how women use the Internet, the study considered women as consummate _searchers' doing a hybrid of surfing and searching within a number of their favourite sites. While some of the content most sought by women online, including shopping, home/family and health/beauty, is found typical women's magazines, other areas such as news, financial services and games also top the list of online destinations. To defy stereotypes even further, the research found that a higher percentage of women visit sports sites than astrology sites. Finally, to date, Pew Internet and American Life Project (2005) reports that more than half of Americans who go online now have access to always-on connections at home or work, and they are different kind of users than those with dial up connections. They spend more

time online, they do more activities such as accessing streaming video, create content and share it with the rest of the online population.

Online information seeking behaviour

In seeking or browsing information online, literature cites some apparent distinctions on users' behaviour. Users seeking online information have been identified as either _browsers' or _searchers'. The work of Catledge and Pitkow (1995) hypothesized that users categorized as _browsers' spent less time on a Web page than _searchers'. Marchionini (1995*)* reviewed the research on browsing and observed that there seems to be agreement on three general types of browsing that may be differentiated by the object of search (the information needed) and by the systematically of tactics used. Directed browsing occurs when browsing is systematic, focused, and directed by a specific object or target. Semi-directed browsing occurs when browsing is predictive or generally purposeful: the target is less definite and browsing is less systematic. Finally undirected browsing occurs when there is no real goal and very little focus. In a similar vein, Wilson (1997) identifies four categories of information seeking and acquisition. Passive attention, where there may be no information-seeking intended, but information acquisition may take place nevertheless. Passive search, when one type of search results in the acquisition of information that happens to be relevant to the individual. An active search is where an individual actively seeks out information. Ongoing search, where active searching has already established the basic framework of ideas, beliefs, but occasional continuing search is carried out to update or expand one's framework. In an organization science, a comparable categorization

of modes of organizational browsing has been developed, based on both empirical and theoretical research.

The initial field work of Aguilar (1967) and the subsequent theoretical expansion by Weick and Daft (1983) suggest that people scan in four distinct modes: undirected viewing, conditioned viewing, informal search, formal search (Table 2.8). In undirected viewing, the individual is exposed to information with no specific informational need in mind. The overall purpose is to scan broadly in order to detect signals of change early. Many and varied sources of information are used, and large amount of information are browsed. In conditioned viewing, the individual directs viewing to information about selected topics or certain types of information. The individual has isolated a number of areas of potential concern from undirected viewing, and now is synthesized to assess the significance of developments in those areas. During informal search, the individual actively looks for information to deepen the knowledge and understanding of a specific issue. It is informal in that it involves a relatively limited and unstructured effort. During formal search, the individual makes a deliberate or planned effort to obtain specific information or types of information about a particular issue. Search is formal because it is structured according to some procedure or methodology.

Table 2.9 : Modes of Browsing

Browsing Mode	**Information need**	**Information seeking**	**Information Use**
Undirected Viewing	General ideas of interest, specific need to be revealed	Scan broadly a diversity of sources, taking advantage of what‘s easily accessible	Serendipitous discovery _Browsing‘
Conditioned Viewing	Able to recognize topics of interest	Browse in pre-selected sources on pre specified topics	Increase knowledge about topics of interest _Learning‘

		of interest	
Informal Search	Able to formulate simple queries	Search in a focused on area or topic, but a good enough search in satisfactory	Increased knowledge on area within narrow boundaries _Satisficing'
Formal Search	Able to specify targets in detail	Systematic gathering of information about an entity, following some method or procedure	Formal use of information for decision, policy making _Retrieving'

Source: Choo & Marton, 2000

Tauscher and Greenberg (1997) who focused on the history mechanisms of Web browsers, found that 58 per cent of the pages visited during a Web browsing session were revisits. Users not only accessed a few pages frequently (60 per cent once and 19 per cent twice), they also browsed in very small clusters of pages. Thus, Web browsing is a recurring system where users predominantly repeat activities they had invoked before, while still selecting new actions from many that are possible. On the other hand, the work of Holscher and Strube (2000) who investigated the effects of domain-knowledge and web-knowledge on searching behaviour and outcomes; found that the participants who could rely on both type of expertise were overall most successful in their searches. Participants strong in domain knowledge but lacking in Web searching knowledge relied heavily on terminology and avoided the use of search operators and modifiers. Participants with lower levels of knowledge were less flexible in their search strategies and tended to return to earlier stages of their searches rather than trying new approaches.

Cockburn and McKenzie (2001) analyzed four months of client-side log data that recorded user actions with Netscape navigator, including page title, URL and time of each page visit, how often they visited each page, how long they spend at each page, the growth and content of book mark collections, and other aspect of user interaction. The results showed that (1) re-visiting web pages is a much more prevalent activity than previously reported (approximately 81 per cent of pages have been previously visited by the user), (2) most pages are visited for a surprisingly short period of time, (3) users maintain large (and possibly overwhelming) book mark collection, and (4) there is a marked lack of commonality in the pages visited by different users. Cothey (2002) analyzed the real world Web information searching behaviour of 206 college students over a 10-month period. The study used a longitudinal transaction log analysis of the URLs accessed during 5,431 user days of Web information searching to detect changes in information searching behaviour associated with increased experience of using the Web. Contrary to expectations, the study found that as users became more experienced, they adopted a more passive or browsing approach to Web information searching, and grew more passive or browsing approach to Web information searching, and grew more eclectic in their selection of Web hosts.

Finally, Choo and Marton (2000) concluded that people use the Web as an information resource to support their daily work activities, engage in a range of complementary modes of information seeking, varying the undirected viewing that does not pursue a specific information need, to formal searching that retrieves focused in information for action or decision making. Each mode of information seeking on the Web is distinguished by the nature of information needs, information seeking tactics, and purpose of information use. The information seeking

tactics characterizing each mode are revealed by recurrent sequences of browser actions initiated by the information seeker. At an operational level, we may postulate ways of supporting and enhancing the information seeking.

Since looking for information is one of the first activities that people try as new users of Internet and also the most popular answer retrieved from many Internet users‘ studies, getting information is the most highly valued and most popular type of everyday activity done online (Pew Internet & American Life Project, 2004). It was pointed out that 92 per cent of Internet users claimed that the Internet is a good place to go for getting everyday information (Pew Internet & American Life Project, 2004). Additionally, it was also found that on a typical day, over 80 per cent of Internet users have looked for answers to specific questions about a broad variety of issues from health care to religion to news. They saw surges in information seeking in certain focused areas: looking for religious information, sports scores, health or medical information. The survey too listed five activities where people could easily turn to the Internet for answers: getting the weather report, getting news, looking up phone numbers, addresses or zip codes, checking sport scores, and getting a map or driving instructions (Pew Internet & American Life Project, 2004).

Pew Internet and American Life Project (2004) reported that information seeking activity stood out among all other activities. Of Internet users who look at maps or get direction in their everyday lives, 87 per cent contended that they do it online. This particular activity surpassed those of every other activity on every measure that Pew Internet and American Life Project (2004) polled. It is possible that the explanation lies in the difference between the online and the

traditional offline ways of doing this. Applications like Mapquest and Yahoo maps are quick, easy and effective. The two offline alternatives, asking someone for directions or locating a map, finding the destination, and plotting a route are both awkward and haphazard. Other activities that were done frequently online include; checking the weather, news and sport scores.

Online shopping behaviour

> The Internet is "…increasingly being used as a tool for purchasing goods and services [and] consumer behaviour is one key aspect of everyday life affected by the Internet"
> (Lunn & Suman, 2001, p. 549-550).

Online shopping, or the use of Internet to gather information on products and services, has already shown significant growth. Electronic commerce is notable for scholars because it is so firmly links the merchant and consumer through a blend of communication and technology. The development of online shopping has been facilitated in large part by the expansion of the WWW and its hyperlinked, interactive capacity. Esrock (1999) reported that Vanderbilt University's Donna Hoffman, who has observed the growth of Internet electric commerce believes the Web removes some barriers to interaction between buyer and seller. Lapham (1997) found that the real crux of what the Web can offer companies is the ability to be closer to their customers than ever before –through an effective communication. Because it fosters new and different forms of interaction between the customer and merchant, the Web is far different than traditional mass media channels those retailers have relied upon. However, part of the importance of the Web as a conduit for electronic commerce lies in its unique ability to empower users to control the pace and direction of the communication process (Kayany, 1998). To date there has not been much empirical research on predictors of online buying behaviour (Lunn & Suman, 2001). However, there has been conceptual work on factors influencing online shopping and there have been

efforts to classify different types of online shoppers and identifying predictors of online buying behaviour (Lohse, Bellman & Johnson, 1999).

Using the first panel data from the Wharton Virtual Test Market (WVTM1), Lohse, Bellman and Johnson reported that people who spent more money in e-commerce had a more _wired lifestyle', were on the net more hours per week, and received more email than other Internet users and a year later, using the second panel data from the Wharton Virtual Test Market (WVTM2) survey, they reported that, the sample associated net purchasing with less concern about online privacy, more years of online experience, more email messages received per day, more purchasing from catalogue, being male, and more frequent use of the net to search for product information, travel information, financial information, current events information, and news.

In another study, Swaminathan, Lepkowska-White and Roa (2000) investigated factors influencing electronic exchange using secondary data based on email survey. They found that perceived vendor reliability, convenience of placing orders and contacting vendors, price competitiveness, and access to information had a positive influence on the number of online purchases. Their results showed that among females, social interaction served as a shopping motivation, and that loss of social interaction deterred female consumers from frequent online shopping. Consumers who valued convenience tended to use the Internet to purchase more frequently, and they seemed to spend more money in their electronic transactions. These researchers conducted a stepwise regression to assess the relative contribution of their different independent variables. The results indicated, with both frequency of shopping and amount spent

online as dependent variables that customer characteristics, such as convenience as a shopping motive, dominated all other variables in terms of variance explained. Lunn and Suman (2001) studies differed from Swaminathan, Lepkowska-White and Roa's (2000) in that they extend the study from just examining the factors influencing online purchasing behaviour, because they also investigate the amount of money spent. The source of their data is 2001 UCLA Internet Study. In this study, interviews were conducted with 2,006 household throughout the 50 states and the District of Columbia. The results provide 14 different informational themes predicted online purchase frequency, which includes:

- Perception of the Internet
- Internet experience
- Privacy/security concerns
- Negative consequences of shopping on the Internet
- Perceived availability of goods and services on the Internet
- Connection speed
- Age
- Increased likelihood of buying brand name products while shopping on the Internet as opposed to in brick-and-mortar stores
- Perceived price advantage to shopping on the Internet
- Structural Internet shopping difficulties
- Income
- Shop on Internet / buy elsewhere
- Previous purchase by mail and phone
- Gender

There are several factors affecting the take-up of online shopping. Perception of the Internet such as: perceived ease of finding information on Internet, perceived amount of relevant information available on the Internet, how much of the information on the Internet one believes is reliable and accurate, and the extent to one believes that using the Internet saves time also determine the online shopping behaviour. These variables involve the extent to which one has positive perceptions of and experiences of the Internet. These types of positive feelings might be tied to higher levels of online shopping. Findings from Morgan and Hunt (1994) and Lueidi (1997) concurred with Lunn and Suman's (2001) first informational theme when they discovered the importance of perceived reliability of an exchange partner on purchase behaviour; connect online purchasing frequency with vendor reliability (Swaminathan et al., 2000). Although, Moorman, Deshpande & Zaltman (1992) relate the concept of vendor reliability with trust, it was concluded that the experience is the most pivotal variable predicting Internet shopping behaviours.

2.9 APPROACHES TO STUDYING TECHNOLOGY USE AND ADOPTION

In some ways the whole history of the Internet has been one of unanticipated use and adoption. Historically, the Internet was developed by the US during the Cold War as a communication device among military personnel. This was a period during which the nuclear conflict featured as potentially the most immediate and catastrophic of all universal dangers (Slevin, 2002b). In 1957, the USSR launched the first artificial earth satellite in response to the United States forming the Advanced Research Projects Agency (ARPA) to establish a US lead in

science and technology applicable to military ambitions. From this point, many networks projects were introduced. In 1969 the physical network was firstly constructed, followed by electronic mail in 1972. Jennings et al (1986) pointed out that ARPANET, the predecessor of the Internet, was initially a working tool for computer scientists and electrical engineers and was not designed for the academic community as a whole. This usage of computers for communication purposes was in itself an unanticipated usage since computers were not manufactured intentionally for communication but rather for data storage (Kiesler & Sproull, 1987).

The beginnings of Internet usage were really in 1968, when the US military‘s Arpanet was used to connect four sites via a computer link to share information (Garland, Anderson & Noyes, 1998). In 1980, Tim Berners-Lee designed a system to facilitate collaborative working within his organisation (CERN) and it was the expansion of this that led to the birth of the WWW. This has developed enormously and largely unchecked, essentially as a tool to share vast amounts of information between those connected to the Internet (Garland, Anderson & Noyes, 1998). Since that time, using Internet for information retrieval, communication, and learning activities has increased dramatically. The rate of take-up of the Internet has eclipsed all other technologies before it, such as radio and TV.

The rapid growth of the Internet has been spurred by many unintended applications: the opportunities it offers for electronic commerce, the integration of television, radio and entertainment systems and the communication opportunities that are provided by the email, audio and video-conferencing (Fulton, 2000). Berners-Lee, for instance, did not foresee any such use and did not even include use of images on his new WWW in the early 1990‘s.

The Internet is an essentially global network that can be used in various ways and for different objectives. In educational establishments, as a tool for communication it provides enormous opportunities for learners to interact effectively and efficiently with their learning activities, peers and their instructors. It also provides a conducive atmosphere for administrative officers to share information, and interact among themselves to effectively do their jobs. Academic and research staff also use the Internet for their academic work. Thus, although the Internet was established to maintain communication among peers in the scientific and military community, higher educational institutions are being now pressured to incorporate online technologies in their curriculum.

Models of Technology Adoption

There are many instances of what were seemingly good ideas, beneficial scientific advancements that despite their potential, failed to be adopted by large numbers of people. A number of approaches to studying this phenomenon of use or non-use have been advanced. Concerns Based Adoption Model (Hall, 1979), the Technology Acceptance Model (Davis, 1989) and Rogers' Diffusion of Innovation Theory (Rogers, 1962) have been among the most used frameworks in many studies. Concern Based Adoption Model (Hall, 1979) is a popular model that is used to study the process of adopting innovations, particularly in education. In this model, Hall described eight different levels of use of an innovation: non-use, orientation, preparation, mechanical use, routine, refinement, integration and renewal.

The rather simpler Technology Acceptance Model concentrates on the early perceptions of potential users and suggests that these perceptions are what guide them to acceptance or rejection

of new technologies. According to the TAM model, when users are presented with a new technology, a number of factors influence their decision about whether they will use it or not:

- **Perceived usefulness** (PU) - "the degree to which a person believes that using a particular system would enhance his or her job performance".
- **Perceived ease-of-use** (PEOU) - "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

While both the Concern Based Adoption Model and the Technology Acceptance Model focus more on the initial adoption process of an innovation, Rogers' Diffusion of Innovations Model looks at both the adoption and diffusion of an innovation. The current study emphasizes this theory when examining both women's use of Internet applications and also the issues that are experienced in the workplace during the continuing use of the technology.

Much research from a broad variety of disciplines has used Rogers' Diffusion of Innovation Theory as a framework. Rogers understands innovation in a broad sense: an innovation is an idea, practice or object perceived as new. According to Stuart (2002), a range of disciplines such as political science, communications, history, economics, technology, and education employ Rogers' theory as a theoretical framework in the area of technology diffusion and adoption. Through the latest work of Rogers (2003), diffusion research has now expanded to disciplines such as marketing management and public health and medical sociology. Others have also suggested that RDIT is the most appropriate for investigating the adoption of technology (Sahin et al., 2007). In fact, much diffusion research involves technological innovation, so Rogers (2003) usually uses the words _technology' and _innovation' as synonyms.

The theory was chosen because firstly the notion of Internet use by working women involves use of personal computers in the workplace for a wide range of activities (work and non-work tasks) but also the use of other communication media at work. Secondly, this theoretical framework emphasizes the diffusion of the Internet from adoption, to use, to effect or impact in an integrative way. Importantly, (Esrock, 1999) argues that the diffusion of innovation has most recently become an important and frequently used analytical framework for studies that focus on computer mediated communication and emerging technology. Thirdly, a theory driven approach is required to conceptually relate the aspects of contexts (workplace and country) to the aspects of diffusion, use and effect or impact. In a comparative study such as this, various aspects of usage patterns and contexts are contrasted and eventually it allows a better understanding of the precise nature of how and what influences the adoption, use and effect or impact into account (Lee & Zhu, 2002).

Roger's Diffusion of Innovation Theory (DIT)

Rogers' Diffusion of innovation Theory (henceforth DIT) offers a platform to discuss the distinctions between categories of adopters, whom Rogers identifies as:

- innovators,
- early adopters,
- early majority,
- late majority and
- laggards.

In this discussion, the focus will be on the adopter categories, how the innovation-decision process is conceptualized and how these concepts can be applied in an investigation of adoption patterns. At this stage it is worth noting the difference between diffusion and adoption of an innovation as viewed by Rogers (2003). To differentiate the adoption process from the diffusion process, Rogers (2003) points out that the *diffusion* process operates within society, as a group process; whereas the *adoption* process pertains to an individual. When discussing technology use in work settings, the issue of how free individual workers are to make a personal choice about adoption also needs to be borne in mind, however. Rogers addresses this in his work by referring not simply to individual users but also to other units of analysis, e.g. companies, universities and so on.

Adopter categorization

Rogers (2003) defines the diffusion of innovation process as the spread of a new idea from its source of invention or creation to its ultimate users or adopters. The adoption process, according to Rogers, is the mental process through which an individual passes from first hearing about an innovation to final adoption. He breaks the adoption process down into five stages: (1) Awareness (2) Interest (3) Evaluation (4) Trial (5) Adoption. Rogers (2003) views adoption of an innovation process by an individual or any other unit of analysis (e.g. organisations) is much dependent on innovativeness. Innovativeness is _…the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system‘ (Rogers, 2003, p. 280).

Rogers (2003) introduces an adopter categorization based on innovativeness as follows: (1) innovators (2) early adopters (3) early majority (4) late majority (5) laggards. The following summary descriptions provide a useful starting point to differentiate between adopters using Rogers' (2003) categories:

(1) Innovators: their salient value is "venturesomeness" - this is due to a desire for the rash, the daring and the risky. They are able to accept occasional setbacks when a new idea proves unsuccessful or able to cope with a high degree of uncertainty about an innovation at the time he or she adopts its use. Innovators have substantial financial resources and have the ability to understand and apply complex technical knowledge. Their interest in new ideas puts them into a more cosmopolitan social relationship than in their local circle or peer network.

(2) Early Adopters: they are more integrated into the local social system compared to innovators. They have the highest degree of opinion leadership in most systems. The early adopters are referred to for advice and information about an innovation and they serve as role models, respected by other members in the social system. Thus, to earn this esteem from colleagues, they maintain a central position in communication networks and make judicious innovation decisions. Early adopters "…put their stamp of approval on a new idea by adopting it' (Rogers, 2003, p. 283).

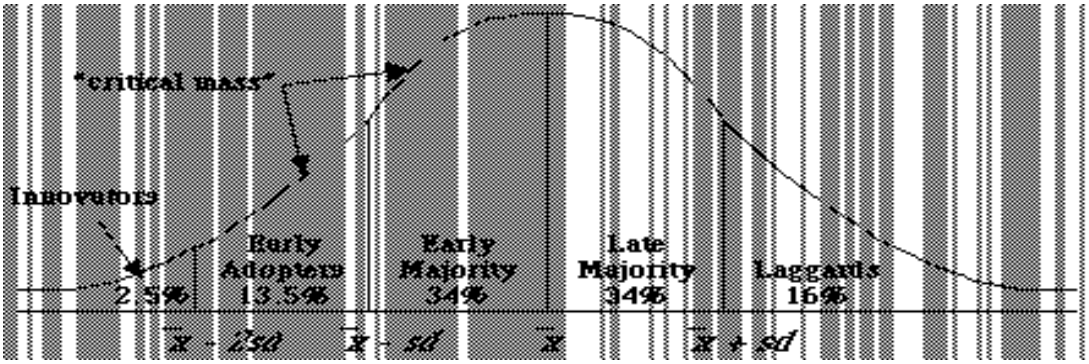
(3) Early Majority: This group of adopters interact frequently with their peers but seldom holds positions of opinion leadership in a system. They are the important link in the diffusion process basically because of their unique location between the very early and the relatively late to adopt

an innovation. They provide interconnectedness in the system's interpersonal network and make up one third of all members of a system. They may deliberate for some time before adopting a new idea completely but they seldom lead.

(4) Late Majority: Late majority adopters filled one third of the members of a system. They adopt an innovation because of economic necessity and / or peers pressures and motivations. They adopt a sceptical approach in adopting innovation and they only adopt after most others in the system have done so. "The weight of system norms must definitely favour an innovation before the late majority are convinced to adopt…[and] their relatively scare resources mean that most of the uncertainty about a new idea must be removed before the late majority feel that it is safe to adopt.' (Rogers, 2003, p.284).

(5) Laggards: This is the last group to adopt an innovation. They possess almost no opinion leadership and hold relatively traditional values. "Their innovation decision process is relatively lengthy, with adoption and use lagging behind awareness-knowledge of a new idea" (Rogers, 2003, p. 284). This is often due to limited resources: they must be certain that a new idea is a success before they can adopt. From the adopters' categorization descriptions, Rogers (2003) moves on to provide the variables affecting the rate of adoption of an innovation (see below Fig. 2.1)

Figure 2.1: Adopter categorization



Source: Rogers, 2003, p.281

Decision process

> Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system
>
> (Rogers, 2003, p. 5)

Rogers (2003) suggests that for any innovation to be adopted and later to be subject to widespread use by an individual, the critical mass of people or organizations depend on the attributes or characteristics of the innovations. He argues that the rate of adoption of innovations is explained by five attributes: (1) relative advantage (2) compatibility (3) complexity (4) trialability (5) observability. Rogers (2003) details the five attributes as follows:

(1) Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes. The degree of relative advantage is often expressed as economic profitability, as conveying social prestige, or in other ways. The nature of the innovations determines what specific type of relative advantage (economic, ergonomic, social, and the like) is important to adopters, although the characteristics of the potential adopters may also affect which specific sub-dimensions of relative advantage are most important (Rogers, 2003, p. 229).

In a nutshell, relative advantage refers to whether an innovation is perceived as being better than the innovation it supersedes and includes economic, social and other factors.

(2) Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experience, and needs of potential adopters. An idea that is more compatible is less uncertain to the potential adopter and fits more closely with the individual‘s situation. Such compatibility helps the individual give meaning to the new idea so that that it comes to be seen as more familiar. An innovation can be compatible or incompatible with (1) socio cultural values and beliefs (2) previously introduced ideas and/or (3) client‘s need for the innovation (Rogers, 2003, p.240). In brief, compatibility measures whether an innovation is believed to be consistent with the potential adopter‘s values, needs and past experiences.

(3) Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use. It is comparable to the TAM –perceived ease of use" criterion. Any new idea may be classified on the complexity-simplicity continuum. Some innovations are clear in their meaning to potential adopters while others are not (Rogers, 2003, p.257). In short, complexity refers to what extent the innovation is difficult to use and understand. Complexity has an inverse relationship with rate of adoption. Rogers (2003, p.257) reports that _the complexity of an innovation, as perceived by members of a social system, is negatively related to its rate of adoption‘.

(4) Observability is the degree to which the results of an innovation are visible to others. Some ideas are easily observed and communicated to other people, whereas other innovations

are difficult to observe or to describe (Rogers, 2003, p. 258). In other words, observability is the degree to which the results of the innovation are visible and apparent.

(5) Trialability gauges whether an innovation may be experimented with before an adoption decision is made. The more that an individual *perceives* an innovation possesses these four characteristics, the more the individual is likely to adopt the innovation. In Rogers's (2003, p. 258) words, _triability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the instalment plan are generally adopted more rapidly than innovations that are not divisible in this way. An example for the software domain would be a limited functionality free trial version of a new application. Some innovations are more difficult to divide for trial than are others'. Rogers views trialability as being able to give meaning to an innovation and thus dispel uncertainty about it.

Four of these five attributes (relative advantage, compatibility, triability and observability) have a positive relationship with adoption whereas one attribute (complexity) is negatively related to adoption. In addition to these five perceived attributes of an innovation, Rogers (2003) suggests that there are other additional variables that affect adoption of an innovation such as (1) the type of innovation decision (2) the nature of the communication channels diffusing the innovation at various states in the innovation-decision process (3) the nature of the social system in which the innovation is being diffused and (4) the extent of change agents' promotion efforts in diffusing the innovation, affect an innovation's rate of adoption (as illustrated in Figure 1.1 page 12).

Adoption decisions may be up to an individual, a group or an organization. When an innovation requires an *individual* optional innovation decision, generally the adoption rate takes

place more rapidly than when an innovation is adopted by an organization. In other words, the more people involved in making an innovation decision, the slower is the rate of adoption. One way to accelerate the rate of adoption of an innovation is to have fewer individuals involved in making the decision.

Communication channels, whether mass media or interpersonal channels, may also influence the innovation's rate of adoption. Rogers (2003, p. 222) explains: "...if interpersonal channels (rather than mass media channels) create awareness-knowledge, as often happens for late adopters, the rate of adoption is slowed". The other additional variables that may affect the diffusion of innovation are the nature of social system (i.e. the degree to which the communication network structure is highly interconnected) and the extent of change agents' promotion efforts. However, Rogers (2003, p. 222-223) emphasises that:

> … the greatest response to change effect occurs when opinion leaders adopt, which usually occurs at somewhere between 3 and 16 percent adoption in most systems. The innovation will then continue to spread with little promotional effort by change agents, after a critical mass of adopters is reached.

Digital differences due to rate of diffusion and adoption

Digital differences among individuals in an organizations or countries or between countries are mainly due to the adoption decision process adopted by them. Rogers (2003) has argued that the adoption of interactive communication technologies such as an organizational IT system is not comparable to older communication technologies such as television for several reasons. In general, communication technology innovations follow an S-curve of adoption, wherein each new technology is adopted by a very few at first, then much of the population as it reaches a high

rate of penetration, and slowly by the few remaining late adopters. However, newer forms of communication technology, such as IT and the Internet, may create a series of dependent S-curves due to their rapidly evolving nature and the cumulative digital skills required to put them to effective use. According to Rogers, the rapid evolution of technology may serve to increase existing information gaps. In essence, those who have been using the Internet are developing an increasingly sophisticated set of information seeking and processing skills, and gaps between these advanced users and the late adopters who possess only basic skill are likely to expand. Thus, instead of a single S-curve of adoption there are successive S-curves based upon skills, not just access to equipment.

Bazar and Boalch (1997) identified several factors pertinent to the diffusion of the Internet in developing countries, including the infrastructure, government policies and regulations, economic development, culture, language and IT penetration. Norris (2003) found that the faster an economy developed, the stronger the Internet growth was achieved in a given country. There is also a revealing trend that higher income groups tend to have greater access to the Internet and the number of web hosts in a country tends to be congruent with individual income.

As Chen and Crowston point out (2001) an organization may implement Internet facilities throughout the organization, but individuals may not choose to use the technology. This brings attention to cases where organizations with existing computer communications system may find the Internet to be an incremental innovation. Others may find the Internet to be a radical innovation that changes the organization‘s communication channels. They also noted

another dimension to communication technology innovations. Due to its complex nature, the Internet has affected by both technology push and business pull. The technology push came first. The technical development of the Internet has made an innovation accessible to a much wider circle of organizations and people. Once accessibility was achieved, the technology began to diffuse with increasing rapidity. The sort of technology push seems to have now been followed by business pull, as businesses race to establish a marketing presence on the Web.

It is important to note that the introduction of IT is qualitatively different from other media and communications innovations in areas such as TV and telephone. While the telephone facilitates interpersonal communication, and the television and radio facilitates mass communication, Internet usage has both mass and interpersonal communication benefits. Audience members can access select information that reflects their interests, network with others who share their interests, debate information, and even work as activists for social change through the Internet. Another unique aspect of IT is that while advances in telephones, radio and television simply fall along the lines of improved quality, advances in IT allow for increasingly complex interactive tasks, requiring a cumulative set of sophisticated digital skills. With personal computers, people were able to employ basic data applications, such as word processing. With the emergence of the Internet, there was an unlimited space to share information, exchange messages and store files**.** Email technologies allowed new forms of interpersonal communication and network formation. After the Internet, the WWW and hypertextual communication emerged and facilitated more networking, easier document viewing and retrieval, and vastly improved means of searching and providing for information. These new

communication technologies advanced rapidly and required computer and computer network resources, skills, experience and access that are hardly comparable to owning a radio or TV set.

Compaine (2001) argues that technologies are initially adopted by those with plentiful resources, gradually making access an increasingly viable option for those who cannot afford the initial investment. He draws upon the dramatic decreases in the cost of computers and Internet services in recent years, as well as the increases in the number of minority groups online, to support this argument.

Evidence of additional gaps beyond basic access, such as those in frequency of use, are also found in the literature. Van Dijk (1999) argues that advancements in technology create situations in which those who are limited to a very basic skill now will be outpaced by those who are ahead in the ability to select and process information. Van Dijk continues to argue that this inability to select and process information under current technological conditions will continue to impede the user as technology evolves. For example, those who are currently able to create and share content online will maintain a learning pace consistent with technological evolution (for instance, increasingly complex software), while those only now learning to search for and retrieve information on the Internet will forever be playing catch-up.

Van Dijk explained that since there are significant, nontrivial benefits of Internet usage those who use IT more frequently and with more intensity are likely to receive more benefits. He further indicated that Internet skill level affects level of usage. Hacker & Steiner (2001) found that those who have access to the Internet do not necessarily use it; rather, a combination

of skills, opportunities, and comfort indicates likelihood and frequency of use. Another study detects that quality of access is another factor in usage frequency. Horrigon & Rainie (2002) found that high-speed was the most significant factor determining intensity of Internet usage.

Although efforts are being made to increase opportunities for Internet access by making it available at locations such as public libraries, cyber cafes, and the decreasing cost of access may be responsible for narrowing the access gaps. However, skill and comfort gaps persist. This leads to the conclusion that the digital difference really is not a problem; rather it is a natural progression of the market and will resolve itself in a given time. Applying Roger‘s Diffusion of Innovations theory (2003) to digital difference helps an understanding of the consequences of current gaps.

Complementing Rogers' (2003) Theoretical Framework

Having addressed the various elements involved in the adoption-innovation decision process, including the adopter categories, it is worth noting that while these are useful for *simplifying* the complexity of adoption patterns in a social system by describing the central exemplar, these descriptions do not try to address the uniqueness of the innovation used by these categories of adopters. For instance, early adopters possess various and different traits, including levels of ability and skill, beliefs and visions about the value of technology, specific personality traits, levels of risk-taking behaviours, motivations to learn about technology (internal, external, environmental, opportunity), development patterns (self-taught, peer teaching, courses). On the other hand, the late majority and laggards groups are way behind in terms of innovation adoption and use due to their relatively lengthy in their innovation decision process. In addition, they adopt a sceptical approach in adopting innovation and they adopt only after most others in the

system has done so: they are likely to adopt an innovation when the economic necessity to do so emerges or when their peers or managers motivate or pressure them.

The integration of any innovation implies more than just whether or not an individual uses the innovation: it leads to a consideration of *how* and *why* this innovation is adopted. Motivations for adoption are a difficult issue to investigate (Rogers, 2003). Seldom are direct questions in a survey adequate for uncovering an adopter‘s reasons for using an innovation. However, diffusion research that attempts to see an innovation through the eyes of the early adopters and late adopters via qualitative data will result in a better understanding as to why an innovation was adopted or rejected, of the timing of adoption and experiences with the innovation, the motivations and barriers to integrating an innovation for work and non-work tasks into everyday life and it will yield descriptions of what is good and lacking about an adopted innovation. Indeed, an interesting question that arises is whether there are differences or similarities in terms of the different uses of an innovation adopted among the different categories of adopters. Hence, it is the goal of the present study to propose a complement to high level theories such as Rogers‘ by comparing the ―how‖ and ―why‖ of Internet use by working women in Malaysia and United Kingdom to better understand their commonalities and differences.

This chapter has reviewed a range of literature dealing with the take up and use of new technologies, the digital divide and gender differences in technology take up, itself an aspect of the digital divide. We have also examined the most popular applications of Internet technology, focussing on email and the issues in computer-mediated communication that it throws up. Finally

we have suggested that while high-level frameworks such as Rogers‘ are extremely useful for framing issues of technology adoption, these may usefully be complemented by detailed qualitative work such as that carried out in the present study. In the next chapter we outline the research design of the study and the methods used for data collection and analysis.

3 CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The purpose of this study is to explore the extent to which female academics and administrative staff in two different university settings have integrated email and WWW into their working and personal lives, and how this integration in turn shapes their online and offline activities and communication behaviour. As these objectives could only be achieved by looking closely at participants' words and actions, it was decided to adopt a qualitative approach for data gathering and data analysis. According to Strauss and Corbin (1990) qualitative research is:

> …any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. It can refer to research about persons' lives, stories or behaviour, but also about organisational functioning, social movements, or instructional relationships. Some of the data may be quantified as with census data but the analysis itself is a qualitative one.
>
> (Strauss & Corbin, 1990, p.17)

Why the qualitative approach using interviews?

Patton (1980, p. 22) points out that "[q]ualitative measures describe the experiences of people in depth". The data gathering tools used are open-ended in order to find out what people's lives, experiences and interactions mean to them in their own terms and in their natural settings.

Qualitative measures permit the researcher to record and understand people in their own terms. Depth and detail emerge through direct quotation and careful description. The extent of depth and detail will vary depending upon the nature and purpose of a particular study. I decided to adopt the interviewing method primarily because it aligned with the research purpose, which is to capture participants‘ own descriptions of their motivations and attitudes, as well as reported use.

The adequacy of a research method depends on the purpose of the research and the questions asked (Locke, 1989). If the researcher‘s goal is to understand the meaning of people‘s experience, then interviewing provides a necessary means of inquiry. At the most basic level, as Kvale points out, interviews are conversations that attempts to understand the world from the subjects‘ point of view, to unfold the meaning of peoples‘ experiences, to uncover their lived world prior to scientific explanations”. Qualitative interviewing has been referred to as a non-directive, unstructured, non-standardised, and open-ended interviewing. The purpose of interviewing is not to get answers to questions, nor to test hypotheses. Nor, indeed is to ―evaluate” (Patton, 1989). At the root of interviewing is an interest in understanding the experience of other people and the meaning they make of the experience (Seidman, 1991). Being interested in others is the key to some of the basic assumptions underlying interviewing technique. At the heart of conducting research by interview is an interest in other individuals‘ stories or experiences. This explains why people interviewed cannot be easily coded through the use of numbers. Patton (1987) points out that the data from interviews consist of direct quotations from people about their experiences, opinions, feelings, and knowledge. One of the major reasons for choosing interviewing over a questionnaire survey was the possibility of not getting adequate feedback from the study participants. I was aware of the very tight schedule of

the participants, but believed that the participants would be able to return the questionnaires on time. However, there was a case in which a respondent would prefer to respond to the interview questions in writing rather than face-to-face interview. This experience confirmed that a study using interviews was a well-judged research method for this study.

The choice of this research method was also based on the arguments presented by several authors such as Ferrarotti (1981) who emphasises that a social abstraction is best understood through the experiences of individuals, whose work and lives are stuff upon which the abstractions are built. The interaction between researcher and respondents is inherent in the nature of interviewing. Another convincing argument about using interviews was discussed by Seidman (1991) who asserts the primary way a researcher can investigate an organisation or process is through the experience of individual people, and the others‘ who make up the organisation or carry out the process.

Thus, in answer to the question of why interviews should be chosen, they are a powerful way to gain insight into area being studied by understanding the experience of individuals whose lives constitute education. As a method of inquiry, interviewing is most consistent with people‘s ability to make meaning through language. It was thought that the best possible way to elicit women‘s experience on Internet usage and perception was by talking to them and listening to what they had to say about it personally. In doing so, the researcher had a greater opportunity to probe essential follow-up questions, which could not easily be done using other research methods.

Carrying out interviews among women at the University of Brighton and at the researcher‘s home university in Malaysia was an excellent opportunity to gather different

viewpoints and assumptions held by women Internet users living at widely separated spots on the globe. During the interviews, it was found that the participants were generous in imparting their experience and sharing their views and opinions about Internet usage. It was also observed that face-to-face interviews allowed the interviewer and interviewee to communicate informally and to provide ample room for both to clear doubts pertaining to the issues discussed, more meaningfully. The rich information gathered (including some off-the-record statements) could not possibly have been collected if the study had been carried out through other methods.

Section structure

This chapter outlines the methodology adopted in this research. It is divided into eight sections. After this introductory section, section 3.2 focuses on the research design of the study. Sections 3.3 present the thinking behind the study‘s detailed research methods and strategies, while in Section 3.4 the practical details of the steps and procedures used to collect data are also identified and explained. Section 3.5 describes the pilot study conducted. Section 3.6 presents the researcher‘s personal reflections on the features of the methodology used and the problems encountered in the study. Section 3.7 summarises the research contributions and provides some concluding remarks.

3.2 RESEARCH DESIGN

There are many different opinions among scholars and research practitioners on what connotes a research design. According to Merriam (1988) it is a plan of assembling, organising and integrating information (data), and its result is a specific end product. The design depends on the research problem, research questions, and the desired end product, although in some

cases, research design can be cyclical (Wellington, 1996). Lindlof (1995) states that research design in qualitative methodology consists of a sense of purpose, some researchable questions, an understanding of the researcher‘s own resources and some idea of the overall features and dynamics of the setting to be entered. However, Creswell (2008) used the terms research design and research methodology interchangeably and synonymously. Research designs according to this concept in the qualitative paradigm are grounded theory, ethnography, phenomenological study, case study, survey, and narrative or biography study. Following Creswell‘s view, the research design for this study was to apply the grounded theory (GT) approach.

3.2.1 Grounded Theory

Grounded Theory (GT), developed by Glaser and Strauss (1967) is a method for the generation, development and testing of theory based on raising empirical data beyond simply description to a conceptual level. GT was developed in response to what Glaser and Strauss termed, ―arm chair research", which was becoming a dominant social science tradition at that time. GT is used to produce theoretical description and explanation.

The reason for choosing the GT approach was that although a phenomenological approach emphasises the meaning of an experience for a number of individuals, the intent of a grounded theory is to move beyond description to generate and discover a theory (Creswell, 2008). The key idea is that this theory-development does not come from what he called ―off the shelf" but rather generated or grounded in the data from participants who experienced the process. Thus, GT is a qualitative research design in which the inquirer generates a general explanation (a theory) of a process, action or interaction shaped by the views of a large number of participants (Creswell, 2008). GT was chosen for use in this study due to its ability to enable

researchers not only to explain the phenomenon/a under study but also to generate a theory underpinning these phenomena. Thus, I am not only presenting the raw data gathered from the interview but also tried to generate more generalisable findings. Specifically the analysis would generate explanations of the similarities and differences between how higher institutions staff interact with the internet across culturally diversified societies.

The three basic elements of grounded theory are concepts, categories and propositions. Concepts are the basic units of analysis since it is from conceptualisation of data, not the actual data per se, that theory is developed. Corbin and Strauss (1990, p. 7) state:

> Theories can't be built with actual incidents or activities as observed or reported; that is, from "raw data." The incidents, events, happenings are taken as, or analysed as, potential indicators of phenomena, which are thereby given conceptual labels. If a respondent says to the researcher, "Each day I spread my activities over the morning, resting between shaving and bathing," then the researcher might label this phenomenon as "pacing." As the researcher encounters other incidents, and when after comparison to the first, they appear to resemble the same phenomena, then these, too, can be labelled as "pacing." Only by comparing incidents and naming like phenomena with the same term can the theorist accumulate the basic units for theory.

The second element of grounded theory, categories, is defined by Corbin and Strauss (1990, p. 7) thus:

> Categories are higher in level and more abstract than the concepts they represent. They are generated through the same analytic process of making comparisons to highlight similarities and differences that is used to produce lower level concepts. Categories are the "cornerstones" of developing theory. They provide the means by which the theory can be integrated. We can show how the grouping of concepts forms categories by continuing with the example presented above. In addition to the concept of "pacing," the analyst might generate the concepts of "self-medicating," "resting," and "watching one's diet." While coding, the analyst may note that, although these concepts are different in form, they seem to represent activities directed toward a similar process: keeping an illness under control. They could be grouped under a more abstract heading, the category: "Self Strategies for Controlling Illness."

The third element of grounded theory is propositions, which indicate generalised relationships between a category and its concepts and between discrete categories. This third element was originally termed 'hypothesis' by Glaser and Strauss (1967). It was later felt that the term 'proposition' was more appropriate since, as Whetten (1989, p. 492) points out, propositions involve conceptual relationships whereas hypotheses require measured relationships. Since the grounded approach produces conceptual and not measured relationships, the former term is preferred. The generation and development of concepts, categories and propositions is an iterative process. A key aspect of Grounded Theory is not generated a priori and then subsequently tested. Rather, it is;

> ... inductively derived from the study of the phenomenon it represents. That is, discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon. Therefore, data collection, analysis, and theory should stand in reciprocal relationship with each other. One does not begin with a theory, and then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge.
>
> (Strauss & Corbin, 1990, p. 23)

Glaser and Strauss (1967) claim that the grounded theory method allows theory _to emerge' from empirical data. This claim has been construed in the research method literature as meaning that grounded theory is privileged over other approaches, because it is inherently free from the bias typically associated with positivist research methods and techniques, such as quantitative data gathering and analysis. Charmaz (1990) criticises this claim arguing that the presentation of grounded theory in this way implies essentialism in the data analysis, rather than recognising the role of the researcher who is responsible for constructing the data and theory. Charmaz does note that in later work Strauss (1987) acknowledges the role of the actively engaged researcher who is responsible for constructing categories and translating them into concepts. In this social

constructionist view of grounded theory, category development is seen as an active process on the part of the researcher and not the work of neutral observer (Charmaz, 1990). From this perspective, the research process is influenced by the disciplinary background and belief system of the researcher. Thus different researchers may interpret the same set of data in different ways producing different analytical renderings. It is therefore important that the researcher describes their data collection and interpretative processes with sufficient detail to facilitate external scrutiny, a technique referred by Geertz (2000) as "thick description". Qualitative research in the grounded theory method is characterised by an interpretative reframing of the data. This result is analytical and theoretical generations of concepts that are meaningful within the immediate context of the data gathering and potentially to a broader range of contexts.

3.2.2 THE GROUNDED THEORY PROTOCOL

The use of a grounded theory protocol as part of a carefully designed research project can provide the reliability that is required from all research. Based on the design suggested by Glaser and Strauss (1995), a preliminary research protocol was designed, based on previous research and a review of the literature. A GT study works through a number of, mostly overlapping, phases (Glaser & Strauss, 1995) as shown in Figure 3.1. These phases will be discussed further below.

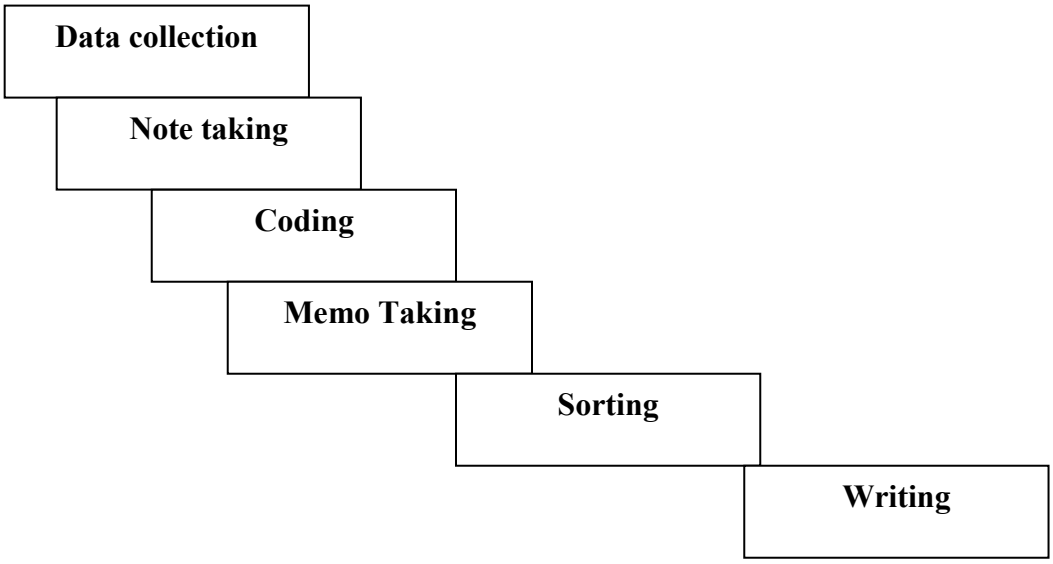


Figure 3.1 Phases in the Grounded Theory Protocol

3.3 SELECTING A METHOD

There were several considerations in developing the method. Section 3.3.1 outlines the methodological approach adopted in the study. Section 3.3.2 discusses the rationale behind the approach that was used.

3.3.1 Methodological approach

As discussed above, the qualitative approach was considered for this study as this would provide descriptive, subjective data that are rich and in-depth. For this study it appeared appropriate to adopt a qualitative study approach, using semi structured interviews, as opposed to a questionnaire survey, which would be the other main method used in a qualitative study. The data in this study was gathered through informal visits to the sites and individual semi-structured interviews. The qualitative method chosen was deemed appropriate in gaining and examining

responses, information and experiences of participants with the use of Internet at their workplace.

Heron (1981) points out that the original, or indeed archetypal paradigm of human enquiry involves two persons talking and asking each other. Interviewing then is a basic mode of inquiry. In the qualitative approach, interviews are frequently the main source of information where the role of the ~~"in~~strument", the human interviewer, is recognised and affirmed. Rather than decrying the fact that the instrument used to gather data affects this process, the human interviewer can be seen as an adaptable and flexible instrument, which can respond to situations with skills, tact and understanding (Lincoln & Guba, 1985). Asking questions is widely accepted as cost-efficient and sometimes the only way, of gathering information about past behaviour and experiences, private actions and motives, and beliefs, values and attitudes.

3.3.2 Sample Selection

The following section describes the study sites and the selecting study participants involved in the study (section 3.5.2) and its rationale.

3.3.2.1 SELECTING THE STUDY SITES

Choosing an appropriate study site and building a relationship with its participants is a key issue for all qualitative case studies. Berg (1989) (as cited in Fry, 2003) describes a study site as a method involving the gathering of information about a person, social setting, event or group, which enables the researcher to reach a detailed understanding of how the phenomenon being studied functions. Wainwright (1997) argues that it is the potential to access the authentic views of the informants that guide the researcher's selection of a site, rather than the largely

unattainable goal of being representative. As the design of the study requires working women who have access and use Internet at their workplace as a perquisite to become the participants, I have selected women working in the universities as the unit of analysis for this comparative case study. The sites selected for this study were KUTKM, Malacca, Malaysia and University of Brighton, England, UK. The rationale for selecting working women in culturally diverse parts of the globe was the anticipation that through this comparison an understanding would be attained on the social use of the Internet by working women across the continents.

3.3.2.2 SELECTING THE PARTICIPANTS

The research participants were identified by their working organisations. I had chosen working women at universities because university is one of the computer network organisations be it in any country. I had chosen working women (academicians and administrators) at University of Brighton, England, UK, to represent the working women in a developed country whilst their counterparts are working women at KUTKM, Malacca, Malaysia, to represent a developing country. The working women from University of Brighton are attached to School of Computing, Mathematical and Information Sciences (CMIS) while from KUTKM, Malacca, Malaysia, the working women are attached to Faculty of Information Communication Technology (FICT) and Academic Service Centre (ASC), therefore as similar in terms of their working situation as possible.

This technique of recruiting participants is referred to in the literature as _purposive sampling‘. Purposive sampling, in contrast to probabilistic sampling, is _selecting information-rich cases for study in depth‘ (Patton, 1990, p.169) when one wants to understand something about those phenomena without needing or desiring to generalise to all.

For the most part, initial contact with potential interviewees in University of Brighton was by sending emails explaining the purpose of my research, a request for participation, a request for the interview to be tape recorded (Appendix II) and an assurance that the interview data anonymous. Only one of the academics from the University of Brighton that I emailed did not respond to my request, however, she was replaced by another academic. In total, seven academics and seven administrators from the University of Brighton were interviewed.

There was a slight deviation in recruiting the participants from KUTKM, Malacca, Malaysia as compared to UB. Though initially an email was sent, eight potential interviewees need to be followed up with phone calls before the interview took place. (This proved to be prescient for the results of the study). In fact, it was necessary to see these subjects in person to set the interview date before I could interview them. There were two incidents when I was ready to run the interviews but two academicians could not proceed as scheduled because they needed to attend department meetings. Despite of that, the same total of participants – six academics and seven administrators were interviewed from KUTKM, Malacca, Malaysia.

3.4 THE RESEARCH PROCESS

This section describes the research process that took place during the main study; the duration (section 3.4.1) and the data gathering (section 3.4.2).

3.4.1 The duration of the study

The practical study began in April 2004 and ended in October 2004. The interview series were conducted in two phases. The first phase, which involved participants from University of Brighton, started in April 2004 and ended in June 2004, whilst the second phase took place in mid July 2004 until October 2004. The duration of the interview stretched for four months among participants in KUTKM, Malacca, Malaysia was due to the participants often had very tight schedules and ad hoc matters to attend to especially among academicians. Although I wish to complete the interviews within the first two months of the stipulated time, so that the remaining months could be utilised for participants' validation of their interview transcripts, it did not turn out to be so easy to set up appointments with them all. There was an instance when an interviewee had to reschedule the appointment four times before the interview could be held. A list of the interviews, giving the interviewees' code, position, the date, place and duration of the interview is presented in Appendix B.

3.4.2 Data gathering

The interview guide in Appendix l was used to retrieve participants' experience using the Internet. The participants were asked to describe their email and web use and the use of other communication media at workplace. The thematic interview guide addressed the following issues: (a) email use (b) web use (c) use of other communication media at workplace (d) the impact of email and web use on face-to-face communication and impact on other communication media. The first interview was very rigid as the interview questions were worded in a closed way such that encouraged only short answers: the interviewee only gave a word and sometimes a phrase answer. I felt quite upset but that did not hinder the next interview sessions. When after loosening the format of the questions, I completed the next three interviews, I gained confidence

in meeting more interviewees from the University of Brighton. The interview flow was very good after that and much more natural than the first interview experience.

Generally, the interviews were conducted in the interviewees‘ offices. All interviews were tape-recorded with interviewees‘ permission. Each interview was transcribed in full for analysis. The average interview length with the interviewees was an hour except for two cases whereby the first interview tended to be the shortest lasting around forty minutes and other two interviews lasted for two hours and ten minutes.

3.4.3 Managing the data

Dey (1993) uses the analogy of making jigsaw puzzle to describe the process of qualitative data analysis. The process involves coding the data, building categories from these codes and then linking those categories into a meaningful and logical story. It is from the work of Dey (1993) that I developed my own methods of managing and analysing the data that I gathered. To work with the material generated by the process of interviewing, I made it materials manageable by organising it. This organisation of work began well before the interviews were conducted, and would only end after the chapter on the analysis of the findings of the study was completed. It involved keeping track of the interviewees through the copies of letters that were be sent to them, labelling tapes of interviews accurately and accordingly, managing the files/drafts while working with the transcripts of interviews. It also entailed keeping track of decision and pertinent points in the entire process. Before arriving at the interview, I made sure that the tape was in place with the participant‘s code, a title and a date spoken labelled on it. While conducting the interviews, I made short notes of the main pieces of information that arise in the interviews. The main reason for this administrative work was to make it easier for me to

trace interview data to the original source on the interview tape at all stages of the research. Another reason was to enable me to contact an interviewee readily whenever there was a need. This took place while transcribing one of the tapes, when I had to email the interviewee to confirm what was recorded and clarify what had been said.

3.4.4 Transcribing interview tapes

I found transcribing my interview tapes was time-consuming particularly for those whose interview took up to two hours fifteen minutes. It took several days to transcribe the lengthy interviews, especially the ACSN UK 8 transcripts. However, I felt that by transcribing my own tapes, I came to know my interviews better. In transcribing the tapes, I began with the whole interview, rather than transcribing pre-selected parts of the tapes. Briggs (1986) suggests that in working with material, it is important that the researcher start with the whole. Although a transcript can be only a partial representation of the interview (Mishler, 1986), it reflects that the interview as fully as possible by being verbatim. At this point, notes taken during the interview played a very important role in confirming what was said by the interviewee and what I gathered from the tape while transcribing. Seidman (1991) stresses the importance of paying attention to the *words* of the participant, and using those words to report on the result as far as possible. He also stresses the importance of looking for both salient material within individual interviews and connections among interviews and participants. [Note: some of the transcribed interviews have been very lightly corrected for language to aid comprehensibility. For instance, if a participant said –~~c~~os" this was transcribed as –~~b~~ecause" and so on. The Malaysian injection –~~l~~ah" has been left in place.

3.4.5 Analysing qualitative interviews

This section describes my approach to the analytical stage of processing the interview data. The procedure for organising the interview data from a taped transcript was as follows. A range of themes emerged from the data, arising out of the researcher's increasing familiarity with the data, which was achieved by reading the taped transcripts a number of times, and _staying close to the data' at all times. All the taped transcripts were on computer but for the initial stage, I worked from a printout of the interview.

Firstly, I listed the emerging topics and themes when reading the whole text. At this stage, I drew out all the issues embedded implicitly in the responses, as well as ones that are explicitly mentioned by the participants. At the same time, I cross-checked those issues with the short notes which I took during the interview. The original questions often helped to give a basic structure of broad issues. The topics in the interviews included email usage, web usage, impact of email usage on face-to-face communication and other modes such as telephones, letters, fax machine and memos; and how they perceived Internet to their work and life in general. These issues were categorised under four main themes which were: pattern of email use, pattern of web use, impact of email use on face-to-face communication and other modes of communication at workplace and perception on Internet. Next, I read the transcripts again and wrote sub-headings for each theme category. Areas of interest and concerns discussed in the interviews generated the sub-headings. The next step was to code the content to issues by going through the text and marking the main quotes.

At this stage, I simply marked and coded the text, so that they could be found again. The category was written next to the text and the sub-heading that describes the text put next to it. For example, if the text concerned email usage, then the particular part of the text was underlined, and in the margin _EU/EC' was written – _EU' is the category, _EC' is the subheading. The

content of each transcript was coded in this way covering all issues identified. When the transcripts had been coded, the data chunks were placed under the appropriate topic. In doing so, I could gain a picture of the number of data chunks on each topic. I used the copy-and-paste function rather than the cut-and-paste function, so that I could also retain an intact copy of the whole interview in the computer.

Having assembled the quotes, an interpretative statement that supported the quotes was written. These statements summarised the findings within that issue, as I interpreted them. These interpretative statements were used as I continued to work with the data, to offer an explanation of the phenomena under study. Having explored all the categories, I then sought out relationships and patterns, making connections in order to come to a particular view or an abstract conceptualisation of the phenomena studied.

3.5 THE PILOT STUDY

3.5.1 Preparatory stage

A pilot study was run, from beginning to end, before the interviews began in earnest. This section describes the stages of this study and the lessons learned.

Some preparatory work was carried out before the pilot study. The purpose was to engage with the actual environment or work place settings of the selected sites. The following paragraphs outline the informal visits, observation and interviews. After this details on designing the semi-structured interview questions are addressed together with the role play that was carried out.

Informal visits to the selected sites namely the KUTKM, Malaysia and University of Brighton, England, UK were conducted with the aim of observing how working women

performed their work using the Internet at their disposal and the use of other communication media in their work settings. The visit to KUTKM included informal observation, which led to some note taking and informal group interviews with three administrative personnel on the use of Internet. This was carried out even before the registration of the study began on 6th January 2000. A series of discussions on Internet use and observation on the working practices of working women at the Human Resource Department KUTKM, an all-female environment, provided a close and intimate familiarity with a natural working environment. A similar informal visit was made to the school office of CMIS where some informal direct observation also provided an insight into how the women in the office (all staff were female except for one part time administrator) used the Internet and other communication media at their workplace. In comparing the notes made at the two sites during the informal visit, I gained an initial sense of the similarities and differences between the two sites, which were in part the inspiration for this study.

The next stage was designing the questions for the interview. An exploration of two important issues was required, those of self-understanding and self-change. The main aim was to gain a good feel for how people view and talk about self-understanding and self-change. To account for the first issue, it was decided to use the semi-structured interview to elicit participant‘s views on self-understanding and self-change, i.e., how each comes about, what limitations there are on each of them, and how they would interact. To account for the second issue, it was decided that the interview should elicit both event-based and belief-based knowledge. That is, to ask questions about events, opinions, attitudes, and etc.

Past studies on interview questions pertaining to Internet use were reviewed and adopted. Basically I referred to and adapted the interview questions by past researchers such as Tasmania

(2001) and Fallows (2005) on Internet use, before designing the semi-structured interview questions used for the study. The interview questions were constructed to last for an hour. The interview guide consists of four parts (see Appendix A). Part A addressed the research purpose and sought participants‘ consent for the interview to be taped. Part B entails the pattern of email use at workplace whilst Part C explores the web activities of the participants and finally, Part D looks at the use of other communication media at workplace, and moves on to the impact of Internet use on face-to-face communication and other communication media. Part E elicits participants‘ difficulties or barriers encountered in their event of Internet uptake and their perception about how the Internet has impacted their life. These steps would help to understand holistically and comprehensively the different patterns of the Internet usage and how culture and gender affect would it.

When the interview questions were drawn up, a role play session between myself and an academic from UB was carried out. The aim of the role play session was to gauge the duration of time involved in conducting the main study and to evaluate the interview questions that were designed. During the role play, some of the prepared questions had to be reconstructed to eliminate ambiguities as well as to facilitate on the part of the interviewee to answer the questions. After the role play session, I self evaluated on how well the questions were asked, my confidence in asking them, the length of questions and the responses received. After this, I had to check whether the questions asked were free of ambiguities and whether they were sequenced well so that the relationship between the answers and follow up questions were logical and natural. The role play was also to judge how comfortable the interviewee was with the interviewer and what was found to be difficult about the interviewing process.

3.5.2 Piloting the work

As any other research method, it is always recommended that researchers pilot their research instruments before carrying out the actual study. This exercise corresponds with the process outlined by Seidman (1991, p. 2):

> The best advice I ever received as a researcher was to do a pilot of my proposed study…Although it may not seem ahead of time that the world of interviewing research takes one along strange paths or through dangerous places, the unanticipated twists and turns of the interviewing process and complexities of the interviewing relationship deserve exploration before researchers plunge headlong into the thick of their projects.

Before conducting the main study, I had the opportunity of carrying out a pilot study with a small number of participants in UB and KUTKM. A series of pilot interviews were conducted with a number of females' academics and administrative staff from both institutions. The purpose of the pilot interview was to test and develop a set of theoretically informed themes that would be to the interview series, the areas and examples of related probe questions are shown in Table 3.1 on the next page.

Table 3.1: Piloted thematic topic guide

AREAS	PROBE
Pattern of email use	How long you have been using it? Do you use email for personal and work reasons? How do you use email for personal and work reasons? Thinking about last week: a) how much of your day is spent on emails and b) how much of your day is spent on using Web browser? Can you estimate how many emails do you received and send on an average day? How often do you log on to your email? How often do you log on to your email? Could you tell me whom you email to while you're at work? Do you tend to send non-work emails while you're at work? What sorts of things would they tend to be? Perhaps you can tell me why you use email at work? Perhaps you can tell me more why you use email?
WWW patterns and activities conducted online	Search engine? 5 – 6 Web sites that you usually visited (work/personal related)? The reasons for using web? What do you primarily use the web for? / What are the things that you look at? Can you tell me more about what kind of information that you look for? Why would you look for this on the Web? Do you carry out banking/business transactions online, for instance? What makes you use the Web for that? OR Why not. Do you use the web for entertainment, e.g. downloading music? Why? Why not?
Impact of Internet use on face to face communication and other communication media at workplace	What are other modes of communication used at workplace? How does it affect your face-to-face communication with your colleague/ superiors/ subordinates/students? Do you think the Internet usage has changed your time for communication with your colleagues? If so, how?
Factors affecting an enjoyment of Internet experience	Do you mind telling me, what are the barriers/impediments that you faced when accessing the Internet?
Perceptions of Internet	How do you look at Internet generally? Has it brought any advantages/disadvantages to you? Has the Internet

	influenced your life in a positive way? To your work/university? Financial? To your social life? If so, how? Has the usage of the Internet influenced your life in a negative way? If so, how?

I categorised my findings from the pilot interview into four broad categories: patterns of email use, patterns of WWW use, impact of Internet use on face-to-face communication and other communication media (telephone, letters, fax and memo) in the workplace. The findings are briefly described in Tables 3.2, 3.3, 3.4 and 3.5 below.

Table 3.2: The Differences in email usage patterns

UB	**KUTKM**
Usage pattern: • Regular use • Use at greater intensity • Use for varied purpose	**Usage pattern:** • Irregular Use
Reasons for using • Use of emails for maintaining personal and organisational networks • Facilitates work and even more work! • Responsible for own correspondences • Allows easy, rapid and convenient mode of communication	**Reasons for using** • Use emails to maintain personal relationship with distant friends or members of the family • Allows attachment of files and pictures. • Easy and convenient mode of communication

Table 3.3: The Differences in WWW usage patterns among participants

UB	**KUTKM**
• Information is more easily accessible thus allows academicians aware of current trend in their fields • Allows for collaboration • Allows for some research for instance	• Information at finger tips • As a source of useful information to do research

flight price, weather forecast etc • Enables users to conduct e-shopping, e-banking	

Table 3.4: Impact on face-to-face communication and other communication media

UB	**KUTKM**
• Face-to-face interaction lessen with colleagues and superiors • Telephone – less ringing, rarely used • Letters – keep it to very formal situation • Fax – use when it says _please fax' • Memo - had never used or seen one	• Face-to-face interaction is not affected by the use of emails. Face-to-face is still insisted by some middle management personnel • Letters – looked upon the main and formal correspondence • Telephone – still the main mode of communication; sometimes act to supplement emails use • Fax – still in use; some companies accepted the fax document as more valid than the attachments made in emails • Memo – still in use for internal correspondence or to be attached to documents when addressing to the receivers.

Table 3.5: Factors affecting enjoyment of Internet experience and Perceptions about Internet

UB	KUTKM
(A) Barriers faced in Internet uptake • Technically, none • Site not constructed properly • Change of URL	(A) Barriers faced in Internet uptake • Slow connection / Log on time is too long / Information queue • Site under constructions • Pornography – very embarrassing
(B) Perceptions on Internet ▪ Don't know how to behave ▪ Very essential – e-banking, e-	(B) Perceptions on Internet ▪ As a tool, not very important ▪ Important source of information

shopping, can do some research ▪ Help to maintain distant relationships ▪ Provide networking and collaboration	▪ Information is now at finger tips

The pilot interviews were useful in a number of ways. They revealed ambiguities in the questions, which were corrected before the main study. The pilot interviews highlighted some new issues that had not been included in my initial set of theoretically derived areas of questioning, as upon further analysis of the pilot interview data, another theme was identified for further investigation, the theme of work/organisational culture and technical support for the implementation of email and WWW use. It was a good practice in dealing with constructing qualitative description and conceptualising the data. The thematic guide evolved as the main data collection progresses. Despite the fact that I entered the field with interview protocol as a guide for the interviewing, I gave a chance during the interview execution for the issues to emerge through probing the subjects until question (s) reach saturation levels.

3.5.3 DATA COLLECTION

The interview series started in July 2004 and was completed in October 2004 A list of the interviewees‘ pseudonyms and the interview dates, places and duration of the interview, their academic and administrative position, is given in Appendix B. The participants were asked to describe their email and WWW usage for work and personal matters from their workplace. They were encouraged to describe how and why they used it. They were also asked to consider their responses in the context of how the use of email and WWW would enhance their work and personal life, the online and offline activities and how it would shape the communication behaviour in workplace. Interviewees described their opinions about the Internet and the

difficulties or barriers they faced in their Internet uptake. The interview guide (shown in Appendix A) addressed the following topics: (a) academic background; (b) email use; (c) WWW use; (d) factors affecting the enjoyable Internet experience; (e) use of other communication media at workplace (d) the impact of email and WWW use on face-to-face communication and impact on other communication media. The guide was designed to be broad in order to allow for flexibility in the interviews. Given that the interviews were open ended, once I had completed the guide this functioned mainly as a prompt for interviews where the conversation did not flow.

In conducting the interviews, there were some ethical issues to consider. Some ethical issues pertinent for this study were informed consent, confidentiality and research integrity. These ethical issues are very significant irrespective of the research approaches; however, they are fundamental in a qualitative study due to the nature of the approach. We were careful to abide by these ethical considerations during the data correction and data analysis. The consent letters were sent to the subjects and confidentiality integrity, transparency and honesty in the data analysis were guaranteed. In order to achieve data validity and reliability, the copies of the transcribed data were sent to the subjects for confirmation that they agreed with the contents of the interview, and they were not in any circumstances compelled to make the statement.

3.6 ASSUMPTIONS AND LIMITATIONS OF THE STUDY

3.6.1 REFLECTIONS ON THE METHOD

Having completed the processes of data collection and analysis, I began to reflect systematically on the existing experience and knowledge related to the case under examination, and adapted the data to the research questions being investigated. One powerful tool that I

employed during the reflection process was the continuous writing of short notes about each of the themes identified in the analysis. The interpretation of the interview responses was discussed informally with colleagues in the research student. I was given the opportunity to present the preliminary findings of the main study in Work in Progress Seminar held at University of Brighton. Apart from that, I also presented the findings of this research in The Second International Conference on Technology Knowledge and Society held from 12 till 15 December 2005 at Fortune Kathriya Hotel, Hydrebad, India. This was a very valuable experience to me and I found it valuable to receive feedback from the audience at my presentation.

The next stage was to compare the findings with the existing literature to reveal similarities and differences and explain possible causes and implications.

3.6.2 The methodological problems encountered

I was faced with a number of methodological challenges and difficulties. Firstly, there is a question of whether Internet researchers should possess intensive knowledge on Internet Networking and Software Engineering. As far as I am concerned, my lack of specialised technical knowledge is not a problem, since the focus of the research is on email and web *use* among working women rather than the technical aspects of the computer. Secondly, I was also concerned with the validity of the data collected, i.e., whether or not the data expressed the considered and authentic views of the interviewees, with minimum interference or distortion through the research process. Thirdly, the most challenging of all, during the data collection and data analysis process, one potential bias was my own beliefs, values and prior assumptions, which might have prevented adequate investigation data and unduly influenced the analysis of the case study. To avoid such bias, the interviewees were given the opportunity to ask questions

regarding the purpose of the study and were assured that their individual views would remain confidential. This was much faced during data collection in my home university, KUTKM, Malaysia.

An important question to ask at the end of this discussion of methodology is the extent to which the methods employed in the case study enabled research findings to be generalised to other organisations. Unlike a quantitative case study, generalisability is derived by gaining an in-depth understanding of the patterns of behaviour and interactions of organisational elements within a specific context. Therefore, the generalisability of the case study is limited. Furthermore in this study, findings are based on the women's personal experiences of using email and WWW for work and non-work reasons. It is the women's individual views and not the views of the organisation to which they belong.

Through the interviewees, the interviewer could listen to the participants themselves, and to gain an awareness of their perspectives on the use of email and web. It was thought that the best possible way to find out the women's views and perspectives on email and web use was by talking to them and listening to what they had to say about it personally. In doing so, I had a greater opportunity to probe essential follow-up questions that could be done using other research methods. Conducting interviews among the working women was an excellent opportunity for the researcher to gather different experience and viewpoints held by the women involved in the email and web usage. Identification of concerns and understanding issues related to the utilisation of email and web usage can only be sought through the interviews conducted.

During the interviews, it was found that the twenty seven participants were generous in sharing their views and opinions about the email and web usage. It was also observed that face to face interviews allowed the interviewer and interviewee to communicate informally, and to

provide ample room for both to clear doubts pertaining to the issues discussed, more meaningfully. The rich information gathered (including some off-the-record statements) could not possibly have been collected if the study had been carried out through other methods. Although the interview is considered to be the main method used to carry out this study, the qualitative research approach is holistic in nature. Informal observation is complementary to the interview. A qualitative grounded theory approach was undertaken as this seemed to be the most appropriate method, primarily because as this is a new study in a new context. Although Internet usage studies had been carried out in other developed and developing countries, very little was known about how the two groups of working women (academic and administrators) across the two countries shape their online and offline activities. Such a focus seemed to require an exploratory, probing and qualitative approach, in which the perspectives of working women would be uncovered through semi-structured qualitative interviewing.

3.6.3 The roles of the researcher as an outsider and insider

The role of a researcher as an insider and as an outsider is of course not new in social research. Kikimura (1986) sums up the issue: "[o]n the one hand, advocates for the outsider perspective generally argue that access to authentic knowledge is more obtainable because of the objectivity and scientific detachment with which one can approach one's investigation as a non-member of the group. On the other hand, proponents of the insider perspective claim that group membership provides special insight into matters (otherwise obscure to others) based on one's knowledge of the language and one's intuitive sensitivity and empathy and understanding of the culture and its peoples". However, Robert Merton (1972) agrees that "we no longer ask whether

it is the insider or the outsider who has the monopolistic or privileged access to social truth; instead, we begin to consider their distinctive and interactive roles in the process of truth seeking".

As suggested by Bogdon and Taylor (1984) the goals of qualitative investigation are to achieve in-depth understanding of the setting and the theoretical insights that transcend the particular type of setting and to experience reality as others do in order to understand how they see things. On a similar note, action research is described as a systematic study of attempts for practitioners to change and improve practice by means of its own practical actions and reflection upon the effects of those actions in their own settings (Ebbutt 1985). These authors suggest that a researcher with prior knowledge of the settings and the profession can achieve the goals of qualitative investigation more easily than one without it. It is true in my case, as an academic attached to KUTKM, Malacca, Malaysia, it eased the process of my study and furthermore enabled me to identify the most appropriate respondents for the study. However, even in my case there were some official letters that I needed to produce and address it to the respective deans of the faculty where my selected participants are based at before I could interview the participants. Being part of the organisation helped me to understand the people involved in the study and the organisation that I work for. It also speeded up the process of gaining access to the study sites and the respondents. Being an insider, I am also well aware of the culture of the organisation and the events that taking place.

The opportunity to step outside the organisation where I belong to investigate the work practices of women at the University of Brighton was a great pleasure. I brought with me my experiences as an insider. Ethnic background, age and bureaucratic obstacles are among the factors identified as affecting the conduct and success of research (Punch 1986). There is also no

doubt that a researcher from a completely different culture, without a thorough knowledge of the organisation, could not gain access to undertake this sort of study. I consider myself to be both outsider and insider. I am an insider in the sense that I am familiar with University contexts, particularly IT departments. There is a surprisingly high degree of similarity between such departments around the globe. On the other hand I am clearly an outsider in terms at least of national extraction, religion and language. This probably had an effect on the early development of the interview, when I was less willing to show curiosity about my interviewees because of my assumption about the required level of formality. Relationships tend to be more formal in university settings in Malaysia than apparently in the UK. The participants whom I interviewed were very supportive and shared their varied experiences of Internet use. I was overwhelmed by the support shown from the respondents in University of Brighton. Thus being an outsider ironically provides a big opportunity for me to learn the organisational culture under study. I believe that my own ethnic background did not have any significance in the process of carrying out this study.

3.7 CONCLUSION

The grounded theory method was chosen to frame this qualitative study, which used a series of semi-structured interviews to investigate Internet use by working women in universities in Malaysian and United Kingdom. Within this methodological approach qualitative data was gathered and analysed by identifying and relating concepts, categories and propositions to derive a conceptual framework. The framework, described in subsequent chapters, accounts for the patterns of email and web use, women's perception and barriers faced in the Internet's uptake and its impact on face-to-face communication and other communication media in the workplace.

The three chapters that follow describe the findings from the case study. Chapter Four gives an analysis and interpretation of the interview results. Chapter Five discusses the findings in relation to background questions raised in the literature review, while Chapter Six gives brief conclusions and recommendations.

4 CHAPTER FOUR: RESULTS AND ANALYSIS

4.1 INTRODUCTION

The immediate objective of this study is to uncover accounts of when, how, why and for what purpose the Internet is being used by two groups of women working in geographically and culturally diverse sites. A second objective is to study the effects of adoption of Internet technologies on other facets of the workplace communication and information use, e.g. face to face communication, written record keeping and so on. The ultimate aim is to interpret these reports in order to uncover patterns that may point to factors such as job status, age and especially cultural difference.

IN CHAPTER 3, THE RESEARCH DESIGN WAS OUTLINED AND THE METHODS FOR DATA COLLECTION WERE DESCRIBED. USING A SEMI-STRUCTURED INTERVIEW, TWENTY SEVEN PARTICIPANTS' RESPONSES FROM TWO OCCUPATIONAL GROUPS, ADMINISTRATORS AND ACADEMICS, WERE ELICITED FOR DATA ANALYSIS. THESE WILL BE DESCRIBED, ANALYSED, AND INTERPRETED IN DETAIL IN THE CURRENT CHAPTER.

After extensive reading and marking up of the raw data of the interview study (see Chapter 3), results are organised under five different themes pertaining to email and Web use, built up from the raw data according to their underlying similarities. The themes are as follows:

6. Differential email usage patterns;

7. Differential web usage patterns;
8. Affective issues around the use of email and Web;
9. Perceptions of the role of the Internet in everyday life;
10. Computer-Mediated and Non-Computer-Mediated communication

Apart from the five themes, other emergent issues mentioned several times by some participants, especially Malaysian participants, include issues at individual, organisational and technical levels. The individual/human-related issues concern peoples' attitudes towards Internet use. The management related issues concerned the commitment of the users within the organisation. The technical-related issues include the provision of basic facilities, connection speed, and training.

The chapter begins with an overview of the participants' profiles (section 4.1) which includes their age group, academic background, working context and email and Web use experience. What then follows is the analysis of:

- usage patterns of email among administrators (section 4.2)
- patterns of the email usage among academics (section 4.3)
- detailed Web usage patterns among administrators (section 4.4)
- detailed Web usage patterns among academics (section 4.5)
- factors affecting enjoyment of email and Web usage (section 4.6);
- perceptions of Internet in everyday life (section 4.7);
- mediated and non-mediated communication (section 4.8)

The chapter ends with some conclusions.

4.2 PARTICIPANT PROFILES

As mentioned in the methodology, the study required working women who have access and use Internet from their workplace. A total of twenty seven working women were recruited, thirteen from KUTKM and fourteen from UB.

The University of Brighton participants worked in the School of Computing, Mathematical and Information Sciences, which was then part of the Faculty of Management of Information

Sciences, one of the University‘s seven faculties. The School is further divided into three Divisions, together with a Research Student Division, all served by an administrative staff of approximately 15, under the leadership of a School Office Manager. All administrators are female, apart from one half time member of staff. The School‘s academic staff members number approximately 55, with around 20 female staff. The School runs approximately 20 undergraduate degree courses and six Masters level courses, as well as being home to a number of research students and staff.

Administrative staff are housed in an open plan office, with a reception desk and a partitioned section for the manager (Fig. 4.1).

Figure 4.1: CMIS School Office, UB

Academic staff are housed either in single offices (Professors and Course leaders) or in offices shared with one or two colleagues (Fig. 4.2). Academic offices are spread over the 4th and 6th floor of the building, with the administration on the 4th floor. The main activities of the administrative staff are to help students with their queries, process assignments, organize teaching and exam timetables and generally support the work of the School. They communicate very frequently with individual students and also classes and year groups. They also communicate each other and with academic staff and have ~~“u~~pward” communication with central

administrative departments such as Registry and Finance, housed in a separate building on the same site.

Figure 4.2: UB academic staff office

Other communication means are written notices (Fig. 4.3) and an online learning environment known as studentcentral (Fig. 4.4). Academic staff spend much of their time on teaching-related activities such as preparing teaching materials and assignments. They also work on research projects and are responsible on an individual basis for administrative tasks such as admissions, course leadership and so on.

Figure 4.3 UB Student Notice Board

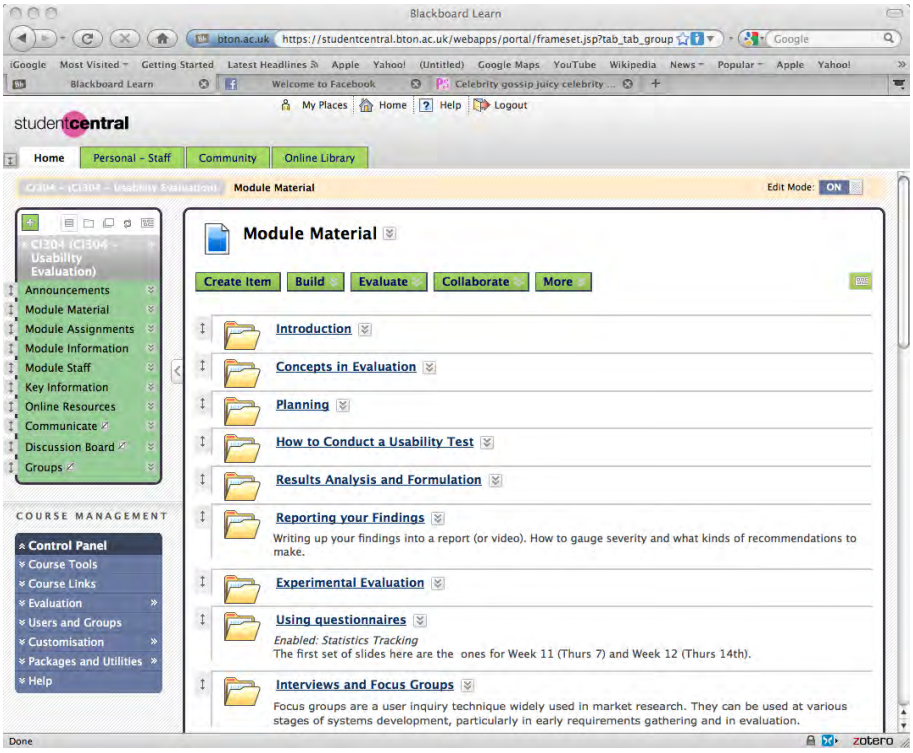


Figure 4.4: studentcentral learning environment

The department at KUTKM was the Centre for Languages and Human Development, which teaches both languages and soft skills. CLHD is headed by a Dean and assisted by a deputy dean, four heads of department and an assistant registrar. Overall, there are 58 academic and 16 non-academic staff who assist in the administration. Two of the administrators are male: among academic staff the proportion is approximately three male to seven female, across the departments. CLHD is the centre that manages and administers four departments and one academic unit, they are:

- Department of Languages
- Department of Human Development
- Department of Islamic Studies and Humanities
- Department of Co-curriculum Studies
- Soft Skills Unit

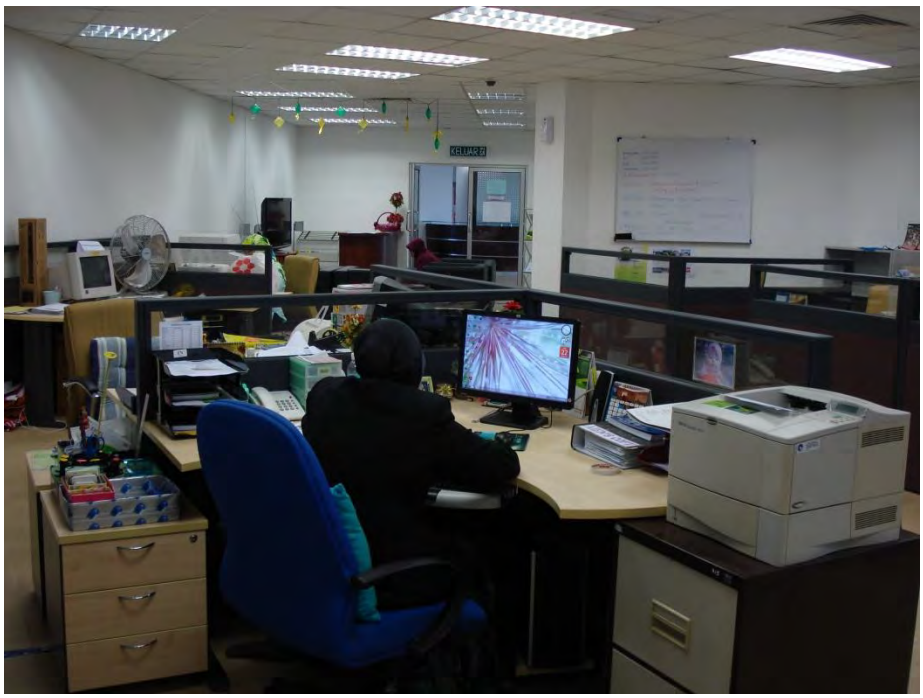


Fig. 4.5 KUTKM School of Communication office

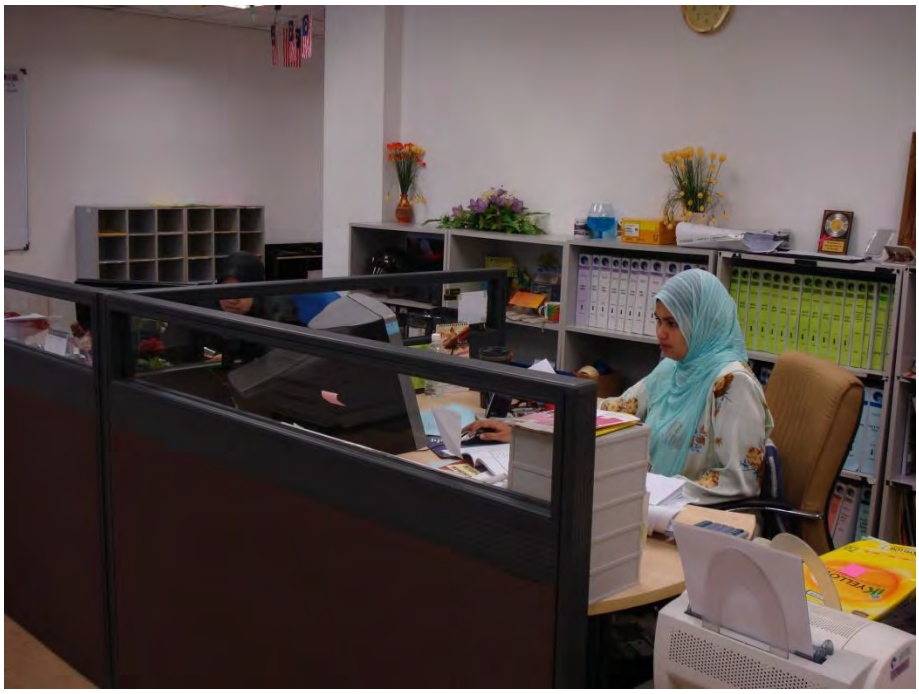


Fig 4.6 KUTKM School of Communication office

4.7 KUTKM School Office personal decorations

4.8 KUTKM shared academic staff office

4.9 Entrance to School

The age group of the participants who participated in the study ranges between 20 to 55 years old. The participants from KUTKM tended to be younger than UB participants for the two occupational groups. The age differences among the different participants across the group have effect on their experiences, and perhaps the ways both groups interacted with the Internet and what they are using Internet for.

In terms of educational background, the administrators from Malaysia were all educated at least to GCSE level, with four women having Bachelors‘ degrees, while the UK administrators had a mixture of GCSE, A levels and in one case a degree. The Malaysian academics had postgraduate qualifications, apart from three participants who had BA/BSC qualifications and are referred to as tutors. On the other hand all of the UB academics‘ group possess a postgraduate qualification (Masters and/or PhD).

The working experience of participants includes the working experience which participants had before they joined KUTKM and UB. Most Malaysian participants had between one to six years of working experience while most of the UK participants are had between fourteen to twenty one years of working experience. These differences of working experience between both groups might have an impact on the length and efficiency of their Internet usage.

In terms of the number of years or usage experience that the participants had, the majority of the UB participants clearly had longer experience using the Internet than KUTKM participants. Eleven years was reported as the longest term of Internet experience among the UB administrator participants, while among KUTKM, seven years was recorded as the longest period. Gillian, an administrator from UB explained that she has been using Internet for slightly more than a decade now:

> mmm… probably…let me think,…10 years…No…no…I think it is 11 years. I use it extensively for work matters…and I also use it for personal matters as well. I can‘t imagine how to behave without Internet…It helps a lot in my work.
>
> (Gillian, Senior Resource Assistant, UB)

Two KUTKM participants have as long as seven years of Internet experience. For example, Mahirah, an assistant registrar, started using the Internet at high school, and she now reported that her dependency on Internet at workplace is much higher than before.

> Since my school days, then continuing to undergraduate days… more than seven years. hmm email too...about the same time. But I didn't have a computer at that time. I made use of the school and university facilities.
>
> (Mahirah, Assistant Registrar, KUTKM)

This result indicates that the participants in the UK have had a longer Internet use experience than KUTKM participants. This longer experience of UB participants in working sectors seems to have some impact on the way they appropriate and interact with the Internet when compared to their KUTKM counterparts. Of course, the diffusion and adoption of the Internet began earlier in UK than in Malaysia.

In the next section we look at the results relating to email use. Results from both sets of administrators are presented as this makes it possible to provide a more systematic and holistic picture of the phenomenon under study.

4.3 EMAIL USAGE PATTERNS AMONG ADMINISTRATORS

4.3.1 Histories of use

The answers to questions about motivation for initial use of email showed both commonalities and contrasts. The common reasons cited by the KUTKM and UB administrators were that they first started using the Internet when they were at University, either as undergraduates or in work situations. Mary, for instance, started using email as a student:

> I started using it 7 years ago and the Web…yeah it has not been very long and yeah… it was during my undergraduate days. Yeah I got excited about it but I was not using it on regular basis not until I started working….
>
> (Mary; Programme Assistant, UB)

Mahirah in Malaysia tells a similar story:

> Let me see....hmmmm....I was in form five when I started using email and Web. Then after school, I went to university. At the university I began to use it more frequently. I couldn't afford a computer at that time because it was very expensive. So I went to the computer pool. Then after university, I applied for a job at KUTKM. I got the job and see. Now I have it [personal computer] right in front of me...
>
> (Mahirah, Assistant Registrar, KUTKM)

Gillian, who work as a Senior Resource Assistant (BU) became aware of this innovation during her student days, when every student was provided with an email account. Thus her motivation is not merely personal but is supplied with institutional backing:

> I think it started back in 1996 when I was a student when everybody was given an email account. In the first year or so we didn't use it very much, but then in became more and more prevalent.
>
> (Gillian, Senior Resource Assistant, UB)

Most BU participants also reported that their first Internet use was as a student. Most KUTKM administrators' mentioned that they first appropriated the Internet when they started working at the university. According to Habshah, whose designation is a personal assistant, she started using email and Web when she started working in the university and had no previous experience of Internet usage before.

> I've used it ever since I work here, almost three years already [referring to Web use], yes that goes the same with emails…At first I was quite scared and in fact shy to use it because I feared the information would be lost if I pressed the wrong key…But I overcome it by learning to use it bit by bit, by asking my colleagues and seriously going for computer class…I will be able to work more efficiently if I pick up the computer and Internet/computer skills…
>
> (Habshah, Personal Assistant, KUTKM)

Didi, an assistant administrator, reports a similar situation:

> Using email.. Internet right.., I feel it has been two years lah…This is my first job after leaving school. I see people using it...I started using it with least skill and knowledge but after two years…now OK lah…Now everything needs computer and Internet. I feel good lah because I have my own computer plus Internet connection at the office.
>
> (Didi, Assistant Administrator, KUTKM)

From these excerpts, it is clear that there is a close relationship between the context and technology use. The move to a new (and sometimes demanding) place, whether for education or work, either imposed technology use (in the case of work) or encouraged and supported it (in the case of study). This was recognised by both KUTKM and UB participants.

UB and KUTKM participants shared the same motivations for continuing use. Participants recognized multiple motivations at work here. For instance Ann used email frequently and for many purposes:

> I use the Internet and email a lot for my work. There's a lot of information going around by email. There's a lot of work coming via email from other departments and also from your line manager. It becomes one of these things you have to be on top of all the time: if you don't read your email you're going to miss out on a lot of information and you probably upset a lot of people.
>
> (Ann, Programme Assistant, UB)

Most of the KUTKM administrator participants also mentioned that they are motivated to learn and use of email due to work reasons:

> It was because of work reasons...work purpose... that I learn to use email. I learn by observing a friend doing it but I also ask help from colleagues from other departments…I find it very interesting…
>
> (Nadiah, Assistant Registrar, KUTKM)

4.3.2 Volume of emails for administrators

Volume of email use gives a good insight into email cultures at the two sites. None of UB administrator participants received fewer than 20 work related emails per day. Lucy, a research administrator, reports:

> I work via emails…much of my work is done via emails. They send me work related emails. They use that medium (referring to emails) …so I replied using the same medium…
>
> (Lucy, Research Administrator, UB)

The larger volume of emails received by the UB administrator participants is basically due to their practice of managing much of their workload via this tool. UB administrators rely heavily on email for their work: UB participants received email from every direction including superiors, colleagues and potential students on issues related to their work. According to Mary, a programme assistant:

> I receive a lot of emails -150 emails per day. These emails are from prospective students who want to study in Brighton University. Also, it comes from current students, colleagues, now … I work for two course leaders and one line-manager (my supervisor). I send out about as many emails as I receive it but sometimes I don‘t need to reply to them as they merely inform us about certain issues, like the university‘s email. [Mary is referring to Uni Info, the university-wide mail group for broadcasting general information]
>
> (Mary, Programme Assistant, UB)

The excerpts highlight the huge amount of email that UB administrator participants received per day and the many different sources of mail messages that in many cases need urgent attention and action. Although the volume of email might not be consistent across all UB administrators, however, it is still a larger volume than for their KUTKM counterparts in Malaysia. They were using email effectively for the purpose of the academic service and institutional organization.

The UB administrators‘ efficiency with email in delivering messages may contribute to the volume and intensity of email usage. Lucy indicated the reason of constantly using the email in this following statement:

> I use email because it is very convenient: it cuts out time, it‘s easier to write than to talk over the phone and they can pick up the email as soon as I send it or whenever they like. Besides that, it is like a document, which you can refer to and retain. Unlike the telephone where what is said is easily forgotten. I also don‘t want to disturb my colleagues with the noise of the phone.
>
> (Lucy, Research Administrator, UB, 2004,)

Lucy‘s comment encapsulates several interesting points about the UK administrators‘ perception of email. For the writer, there is the simplification of the communication process in that she has no need to consider whether her respondent is physically available, otherwise engaged or not ready to respond. She can simply send the email and the respondent reacts when she finds t

convenient. In this sense email is more polite than phoning, as it reduces the demands on the respondent (Pemberton, 1996). This is also more convenient for the sender. A further point raised by Lucy is the transience of spoken communication vs email: she clearly recognizes the value of the fact that email messages can be stored to serve as a ―paper trail" or record of a set of negotiations or other process.

The KUTKM administrators, on the other hand, received a lesser volume of emails. One KUTKM administrator participant received up to twenty emails per day, but the others were far below this number. The highest volume that they received was between five to ten emails per day. A low-volume user commented as follows:

> 2-3 emails only…because only certain people will have my email. I don't simply let people have my email, my cousins will have my email…No work related emails …
>
> (Hidayah, Assistant Registrar, KUTKM)

For a reader from a Western university, this will seem to be quite a remarkable comment. This assistant registrar is clearly indicating that email is definitely *not* a key part of her work practice.

Differences between the two countries continue in the nature of the content of the messages sent and received. The contents of the emails received by the KUTKM participants are of various in nature/function. If the emails are work related, they tend to be announcements, e.g. circular letters, marriage, death, appointments of staff, and social activities.

> I don't need to reply to any of the (work) emails received…it is merely informing on certain matters…like meetings, marriage, death announcements, changes of dates of an event…Apart from that, no lah….
>
> (Didi, Assistant Registrar, KUTKM)

When KUTKM administrator participants were asked how they tended to receive and disseminate work related information, they reported that this was done mostly through letters. More urgent or crucial matters are discussed by telephone or face-to-face communication. It appears that in terms of attitude, KUTKM participants would themselves choose telephone calls, short messages via mobile phone, memos or face-to-face communication in preference to email to disseminate information. The culture that pervades Malaysian higher education institutions is

that information ought to circulate though letters, telephone calls, or face-to-face communication. A motivation for this is that synchronous communication can be verified in a way that asynchronous email cannot. According to Aisyah, a Personal Assistant:

> No, I never do receive emails from superiors. Besides that, I also use the phone or sms to communicate with lecturers who are away from the office. I fear if I only resort to email the person might not get the message. My superiors resort to phone and face-to-face communication.
>
> (Aisyah, Personal Assistant, KUTKM)

Mahirah also echoed Aisyah's view. She reported that she rarely communicate with her boss through email but rather books an appointment with him for face-to-face communication. Culturally, Malaysians believe that sending email to a superior is morally incorrect. As leaders, they should be fully respected and to respect them the subordinates should directly have face-to-face communication or submit letters for any matter that wish to discuss. This is hinted at in Habshah's report of her superior's impatient attitude to emails:

> Ha … my dean I prefer face-to-face communication. I did send to my Dean, sometimes just informing him, but sometimes it exceeded his quota thus email bounced back. And most of the time he said'… no I didn't get your email. I have been away for meeting...too busy to read emails… Why don't you call me over the phone? Then I can get the message much quickly'… So you see, most of the time with boss, it is face-to-face (if he is around) or I sms him via mobile phone or call him in fact.
>
> (Habshah, Personal Assistant, KUTKM)

Although couched in terms of efficiency, there is a suggestion that looking through emails is not the way the Dean deems it appropriate to spend his time. Nadiah also said:

> From my superior … I don't receive any email...no email at all... the one I receive from my assistant registrar usually just to inform only. Most of the time this is done by phone or face-to-face communication, letters or sms [short messages via mobile phone]….
>
> (Nadiah, Assistant Registrar, KUTKM)

The fact that SMS is considered unproblematic is also noteworthy. This very personal technology seems to be used quite naturally in the Malaysian context, whereas it is not once mentioned in the Brighton data. In the UK, SMS and mobile phone calls are often seen as intrusive and inappropriate for formal communication. This is clearly not the case in UTKM.

These findings suggest that the culture shapes the way the technology is adopted i.e. cultural norms tend to dominate technical ones.

4.3.3 Management of email by administrators

The raw data obtained from the participants highlighted different style in managing incoming emails. This seems to have a relation to their belief, skills and experience. The results indicated two styles of managing incoming emails:

(a) by maintaining one email account and then creating folders for separate topics, projects and so on

(b) by maintaining two or more email accounts

UB and KUTKM administrator participants had different numbers of email accounts. All the UB administrators who were interviewed reported that they keep to only one email account and that this account is the one provided by the university. KUTKM administrators are not satisfied with one account but rather have two or more. Specifically, KUTKM administrators revealed during the interview that they have different accounts for different purposes and from different senders, as they believed that by structuring the way they do, email account is more systematic. They explained that apart from having the university email account they also had Yahoo, Google or Hotmail accounts, which they used at work. When asked why this was, KUTKM participants' explained that this allowed them to differentiate instantly between personal and work emails. The university email account is meant for work purpose and is circulated among colleagues and superiors, while the Yahoo, Hotmail or Google accounts are circulated to friends and family members. Nadiah, who maintains two email accounts, believes that by doing so her accounts are more systematic and structured.

> The university email is for colleagues, the bosses or students; the Yahoo account is for my friends and my sister who stays in Australia. It is easy to identify the group of senders in this way. I don't have to go through the list of incoming emails, then identifying it…. at a glance it is so quick to know that my Yahoo account is meant for my friends and family members….
>
> (Nadiah, Assistant Registrar, KUTKM)

Hidayah describes a similar set-up:

> I have three accounts, Yahoo, Gmail and the university‘s account. When I received an email in my university‘s account, it indicates an email from colleague at workplace: the Yahoo account is usually from my friends who are far away from Malacca and gmail is from my sisters, brothers and cousins.
>
> (Hidayah, Assistant Registrar, KUTKM)

The situation among UB participants was rather different. The administrators still received personal messages on their work computers. However, they only used a single account, their university email, the segregation between work and personal emails being accomplished by creating separate folders. Once the email is identified, the email is sent to the appropriate folder. Mary, a programme assistant, reported that she only has one email account which she uses for work-related assignment or personal issues such as getting in touch with friends or relatives. However, she constantly arranges the income message to reflect this distinction: she has a separate file for office related issues, another for friends and the third one is for relatives and so on:

> I have only one email account, which is the university account. I send emails from my workplace and I don‘t access it from anywhere else… and I don‘t have a computer at home. The emails that come into my box will be organized. I have special folders for these, for example personal folders where I keep email from my son and friends and work. I communicate via email with my 24 year-old son – my second son – but this does not happen with my eldest son who is thirty years old. I communicate with him via phone. Then I have this school office‘s folder where work related emails are kept. Later I will organize them and keep them in the right folder for records. Here we keep the records electronically - I do keep some hard copies for back up purposes.
>
> (Mary, Programme Assistant, UB)

Another UB administrator, Gillian, reported as follows:

> (I have) one account …the university email. How I manage…well…from the caption and the sender, I can recognise and am able to differentiate between personal and work emails. Usually, I attend to the work email by sending it to the set folders and reply either instantly or later in the day…it depends…No problem of having only one email account...It‘s not necessary to have more email accounts.
>
> (Gillian, Senior Resource Assistant, UB)

Although both group of participants segregated work related email and personal email, however, UB participants do this within one email account, whereas KUTKM administrator participants' do it by using emails account(s) such as Yahoo, Google, or Hotmail. Two points can be made here. Firstly, neither set of workers made any comment that suggested that receiving or sending personal messages at work was in any way problematic. This seems to suggest the tight interweaving of personal and work life that can be achieved via email. However, the fact that the Malaysian participants keep personal email separate may point to an underlying worry that their email might be accessed by unauthorized people (or indeed by University technical staff). The Brighton participants do not seem to share this worry. These attitudes may relate to the cultural underpinning of both societies. Malaysians, who are part of an uncertainty avoidance society, might like to be sure that their personal life is not in any circumstances violated, whereas the cultural norm in the UK is less risk averse.

4.3.4 Time spent on emails among administrators

Time spent on emails in this study refers to the average amount of time spent on reading, composing and replying the emails in a typical working day. The average amount of time spent on emails by UB and KUTKM participants showed a clear difference between the sites, with KUTKM participants spending less time than their counterparts in UB. Reported time spent by KUTKM administrator participants' spent between 30 minutes to an hour on emails per day. Habshah, who works as a personal assistant and is directly answerable to a dean reported:

> It depends on how much I receive and whether the emails need an immediate response. Hmm…half an hour a day… checking and replying emails. I receive an average of nine emails per day
>
> (Habshah, Personal Assistant, KUTKM)

Nadiah, who has no specific time checking on emails however admitted that she spends half an hour a day on emails. Reading emails to Nadiah only takes place when she has the free time.

> I don't have any definite time reading the emails but usually it takes me half an hour to one hour to read and reply emails… To be honest, I only check email whenever I feel like doing so....
>
> (Nadiah, Assistant Registrar, KUTKM)

The picture painted by UB administrator participants is different: they spent one to three hours. Lucy, a research administrator, finds that her work is done entirely via emails and takes up a large amount of time she spent on a typical working day:

> I spend two and half hours to read and reply email and spend two and a half hours browsing the Web per day. *My work is entirely working via email*. [KH's emphasis] I received 30-40 emails per day and send out 10-15 emails.
>
> (Lucy, Research Administrator, UB)

Gillian reported that she received a lot of emails and spent two to three hours on emails.

> I spent about two to three hours per day on emails. I receive a lot of emails - 150 emails per day. These emails are from the prospective students who want to study in Brighton University. Also, it comes from current students, colleagues, now…I work for two course leaders and one line manager (my superior).
>
> (Gillian, Senior Resource Assistant, UB)

The UB administrators, who spent more than three hours on a typical working day on emails, regard the phenomenon as normal:

> I spend three hours doing emails every day. That's quite normal and moreover most of my work is done through emails. If I don't attend to emails, they may be saying that I am not doing my work.
>
> (Lucy, Research Administrator, UB)

A simple inference from the findings is that UB participants receive a bigger volume of emails than the KUTKM participants. This volume requires more time to read, compose and reply. In other words the amount of time spent on reading and composing emails reflected the number emails coming into the inbox. The nature of the mails also has an impact on time spent: in KUTKM email is used to broadcast information, as we saw above, whereas many UB emails demand a response.

More interestingly though, the numbers suggest differing attitudes towards the place of email as a work tool. At KUTKM, mail is seen as something parallel to regular work communication, or

at least Nadiah‘s response suggests that this is a possible attitude for the workforce to take. At UB however, participants considered email as an essential tool for their job and they constantly use it to perform their daily duties,. It is very logical therefore that they would spend more time on the Internet in general and email specifically than their Malaysia counterparts.

4.3.5 Patterns of accessing email among administrators

Patterns of accessing emails, i.e. the timing and rhythm of checking for emails and acting on them, also differ between the sites. In some of the UB participants own words:

> I‘m monitoring it all the time… if it beeps – I‘ll check it immediately because I don‘t like to have a big queue. I prefer that everything be done on time. If I don‘t attend to the emails, they may think that I am not doing my work...
>
> (Lucy, Research Administrator, UB)

> No…no…I check my emails constantly and if I‘m working in the database or Word, there will be a sign that a new email has reached my inbox…yeah…yeah so I always check the email.
>
> (Gillian, Senior Recourse Assistant, UB)

On the other hand, KUTKM administrators reported a combination of regular and irregular patterns of checking their emails. The majority of KUTKM participants checked their emails in the morning whilst others reported that they did not have a regular pattern of accessing emails. KUTKM participants reported that they checked their email any time within 08.00 – 17.00 in a typical working day. It was also found that some also checked their emails in the specified situations, (a) whenever they are free (b) when they have nothing to do (c) when they are expecting an email (d) after they are told of an incoming email either by telephone (land line or short message via mobile phone) or face to face:

> The first thing I do in the morning is to check my email. No…during lunch hour and before I go back. But if I am *expecting an email* [KH emphasis], I will check frequently or else I don‘t.
>
> (Mahirah, Assistant Registrar, KUTKM)

> Usually I check twice a day (during office day) in the morning and in the evening; *unless somebody calls and asks me whether I have read the email* [KH emphasis]. If not only twice a day lah I check…
>
> (Nadiah, Assistant Registrar, KUTKM)

> It depends…when I have so much work…you know, typing some letters or documents, I don't have the time to read or reply emails…Sometimes I've left it for a week….I am busy…sometime the boss wants me to do this, to do that… and they want it fast…urgent....
>
> (Habshah, Personal Assistant, KUTKM)

From these excerpts, implicitly, those KUTKM administrators participants' who did not check their email at any time in a typical working day claimed that they are too busy, fully occupied with other tasks, committed to other priorities, not expecting an email, are not being informed or alerted of an incoming email.

The reasons associated to these irregular and infrequent patterns of accessing emails reported by many Malaysia participants are factors such as frequently attending meetings, attending seminars or workshops, having a heavy work load and being away from the office. What emerges very clearly again, particularly in Habshah's response, is that email is regarded not as constituting work, but as an adjunct to other activities (typing documents, for instance) that constitute *real* work. For the Brighton participants, it seems clear that email is in itself the work that they tackle.

This marginal status is also hinted at by the fact that emails are supported (see emphasized sections above) by other media. If a KUTKM has been altered to the existence of an email, it will be attended to. The UB data did not contain any examples of this kind where people phoned to see if an email had arrived, texted to warn of its coming or similar phenomena. At UB emails appear to be trusted to arrive and left to stand alone. This relationship between email and other media is also a factor in the next section.

4.3.6 Email and other media

Email can be used for a wide range of functions, e.g. to broadcast information, to contribute to an email discussion group, to send appended documents, to make practical arrangements and so on

(Connolly and Pemberton, 1996). The functions for which KUTKM participants use email appear to be quite restricted compared to use by their UB counterparts. As mentioned earlier, among the KUTKM administrator participants', basically, emails are used to inform, to provide or enquire about information. A particularly interesting aspect of this restriction in use is the relation between email and other media for different communication purposes. According to Didi, for instance:

> I sent email to the staff in this faculty only to inform them about the appointment of the new dean meeting... but *I still follow up with letters* [KH emphasis] because it is an official document. I received an email from my immediate superior the Assistant Registrar… instructing me to see her in person…to clarify on work matters… Mostly the emails that come into my mailbox are mere informing about events. Then sometimes I am requested to put in writing whatever is being discussed or transpired during the face-to-face communication
>
> (Didi, Assistant Administrator, KUTKM)

> I send Word attachments or forward an attachment to keep the staff abreast of a new circular letters. Yet, I still *counter with letters* [KH] on the same matters. Letters definitely reach the person because it is delivered by hand or sometimes placed in the personal letterbox.
>
> (Mahirah, Assistant Registrar, KUTKM)

The UB participants reported that emails are appropriated for many functions. These includes to inform, to enquire about work matters, to make arrangements about meetings or seminars, to provide information or updates, to give feedback, to make less crucial decisions, to send attachments (e.g. documents, files). It is clear from the excerpts below what UB administrators used email for:

> Ya…ya I use the phone but more emails yeah…yeah…hmm…people because many people send their queries using the email, so I reply by using email too. It is just the most favoured means of communication by lots of people. I like to talk to people, but can't usually get hold of them, so…I just answer people using the same medium yeah…yeah…
>
> (Lucy, Research Administrator, UB)

Several issues are raised here that will be treated more fully in Section 4.9 Mediated and Non-mediated Communication. In terms of media choice, at KUTKM the choice can still be between

emails is paper and email, with paper preferred as (symbolically) more official and (technically) more likely to be safely delivered. Face to face communication at KUTKM will be discussed later in the chapter. At UB the two competing media are email and telephone, with telephone seen as a personal preference allowing immediate contact, but email very often used for convenience and to create a kind of media choice mirroring.

4.3.7 Email networks among the administrator group

Email networks are composed of senders and recipients with whom the participants are connected via email. The networks of email usage among administrators (both Malaysia and UK) differ in that UB administrators have a larger group of emails receivers and senders than KUTKM administrators. UB administrators are in email contact with family members, friends, colleagues from different universities, current students, teaching colleagues, university administrators, superiors, conference/seminar organizers, firm/companies and mailing lists. Mary, a programme assistant, reports:

> I receive a lot of emails - 150 emails per day. I receive and send emails to my team, my line managers, Head of school, administrators and academics from other departments in this university… from outside organization, companies about queries about student‘s placements, students, course leaders…These emails are also from the prospective students who want to study in Brighton University. Also, it comes from current students, colleagues, now…
>
> (Mary, Program Assistant, UB)

Gillian echoes this:

> There‘s a lot of information going around by email, there‘s a lot of work coming via email from other departments and also from your line manager ahm… it becomes one of these things you have to be on top of all the time: if you don‘t read your email you‘re going to miss out on a lot of information and you probably upset a lot of people.
>
> (Gillian, Senior Resource Assistant, UB)

On the other hand, Malaysian administrators reported that they used email only to contact family members, friends and colleagues from the same university. These findings illustrate that the utilization of email among KUTKM administrators‘ of higher institutions are very limited and constrained: they have smaller circles of emails contacts then their UB counterparts For example, Didi, reported as follows

> Hmm very few people …Only certain people, I mean only the people whom I want to have my email address will have that email address of mine…They are my sister who

> stays in France and my cousins…I don't circulate to all the people whom I know. Only selected ones.
>
> (Didi, Assistant Administrator)

Mahirah reported that her email contacts are usually her colleagues and once in a while her immediate superior, who is the Registrar at the faculty.

> The email from the staff (from colleagues and superiors) … Hmm…friends within KUTKM; sometimes I get email I mean email to inform everyone in the university - a copy from the Registrar and the rest my members lah… Superiors – Dean no!! Deputy Dean yes…sometimes he tells what need to be done, how to be done. The highest (most superior) is the Deputy Dean who sends email to me.
>
> (Mahirah, Assistant Administrator, KUTKM)

As is clear from Mahirah's report, KUTKM administrators were only rarely in email contact with their superiors (for instance the Dean of the faculty). This relates to the issue of media choice, as discussed above.

> …I do send emails to my superiors like my dean but I do not receive email from him…after all to me it is rude to inform my superiors via email. If there is anything to be informed, I shall see him personally...ya ya… face-to face communication….
>
> (Nadiah, Assistant Registrar, KUTKM)

> Mostly among colleague in KUTKM; normally I don't receive emails from friends. Among friends I usually call or send them message via phone. And I never receive emails from superiors.
>
> (Habshah, Personal Assistant, KUTKM)

Other factors which contribute to the smaller group of email senders among KUTKM participants could possibly be explained by the typical mode of communication adopted at the workplace and the diffusion of other communication media such as the telephone (land line), mobile phone, memos, fax, and face-to-face communication.

The discussion so far shows that UB administrators not only used email more intensively and for more varied functions than the KUTKM administrators but also circulated within a larger

network of contacts. Some of the reason for this can be understood in terms of cultural differences between Malaysia and UK. It is (currently) socially unacceptable for Malaysians to send an email to their boss or superior: the convention is rather to meet the superior face-to-face and discuss the work-related issues with him/her directly.

In order to understand the phenomenon further, participants were encouraged to explain why they use email as they do.

4.3.8 Why do they appropriate email the way they do?

When asked about reasons for using email as they do, the UB administrators cited the relative advantages of the email medium itself, such as convenience and speed, the organizational work culture and the potential to avoid unnecessary face-to-face communication as the most common reasons. Some of the most representative excerpts cited below, best explained the reasons associated with the manner in which email is being used. Ann, who has worked for twenty years, with eleven years of computer and Internet experience said:

> It‘s convenient, cuts out time, easy: I can pick up the email as soon as I can…the recipients too pick the email during their convenient time…there isn‘t much interference….
>
> (Ann, Programme Assistant, UB)

Marilyn, who has 10 years of computer and Internet experience explained:

> It is just the most favoured means of communication for lots of people now… Many people send their queries using email, so I reply using email too, besides it is a good way of sharing information and…sharing photos with my son in Australia…
>
> (Marilyn, Senior Resource Assistant, UB)

Another UB administrator participant, Lucy, who possessed five years of working experience and four years of computer and Internet experience reported:

> …they use email to enquire…so I used the same medium [email] that they used and obviously the distance…email makes it easier and quicker, cheap…
>
> (Lucy, Research Administrator, UB)

Gillian, who has 11 years of computer and Internet experience said:

> It is like a document that you can refer and retain…there's a record…and you are responsible for your own correspondence…mmm…yeah…sometimes I don't really need to meet the person or someone whom I don't want to see…I just drop an email….
>
> (Gillian, Senior Resource Assistant)

Although reasons such as the convenience of emails have made KUTKM participants adopt email for work reasons, nevertheless they also report different contrasting reasons for use and non-use:

> I can't usually get hold of them via email…they don't read their email…I don't know…so resort to telephone or their hand phone… Even email is sent…there will be people coming to you and say…'how come I didn't know about this?'…see…attitude lah…
>
> (Didi, Assistant Administrator, KUTKM)

> It's back and forth exchanges…no….no…very troublesome and time consuming…I will pick up the phone and request them to come and seem me and explain on matters that I need to know… They need to come and see me personally,
>
> (Mahirah, Assistant Registrar, KUTKM)

MAHIRAH'S COMMENT PERHAPS MAY PERHAPS BE EXPLAINED IN TERMS OF IMMATURITY OF EMAIL USE IN THE ORGANIZATION. INDIVIDUALS ARE APPARENTLY NOT AS SKILLED AS IN THE WEST AT SHAPING THE CONTENT OF EMAIL FOR MAXIMUM EFFICIENCY. THE TELEPHONE SUMMONS AND EVEN FACE-TO FACE INTERVIEWS ARE STILL SEEN AS MORE EFFICIENT. DIDI'S POINT, HOWEVER, REMINDS US OF A BROADER ISSUE, WHICH IS THE PLACE OF DEPARTMENTAL EMAIL USE IN ITS WIDER CONTEXT AND MORE SPECIFICALLY ITS DEPENDENCE ON THIS CONTEXT. DIDI'S SUGGESTION IS THAT SINCE OTHER MEMBERS OF THE ORGANIZATION PAY NO ATTENTION TO EMAIL, SHE IS WASTING HER TIME IN COMPOSING AND SENDING THEM. THE ORGANIZATIONAL CULTURE MEANS THAT LETTERS, TELEPHONE CALLS, MEMO AND FACE-TO-

FACE COMMUNICATION HAVE BEEN GIVEN PRIORITY IN SOCIAL WORKING INTERACTION RATHER THAN EMAIL. THUS WIDE-SCALE ADOPTION IS NEEDED BEFORE SHE CAN BE MORE RELIANT ON THE MEDIUM.

SOME OF THE UB COMMENTS ALSO POINT TO THE BROADER CONTEXT. FOR INSTANCE, THERE ARE VARIOUS STATEMENTS TO THE EFFECT THAT AN EMAIL INQUIRY WILL TRIGGER AND EMAIL RESPONSE. THIS RECIPROCITY IS AN IMPORTANT PART OF EMAIL TAKE-UP. STUDENTS AND COLLEAGUES IN OTHER UNIVERSITIES USE EMAIL AND CREATE AN EXPECTATION THAT THE SAME MEDIUM WILL BE USED IN REPLY.

COMMUNICATING WITH SUPERIORS IS A SPECIAL CASE HERE. THERE SEEMS TO BE A MORE MARKED RELUCTANCE TO USE EMAIL TO CONTACT A SUPERIOR THAN IN OTHER SOCIAL SITUATIONS. HIGHER MANAGEMENT ALSO SEEM RELUCTANT TO SEND EMAILS THEMSELVES, PREFERRING TO COMMUNICATE WITH THEIR SUBORDINATES THROUGH PHONE CALLS AND FACE-TO-FACE COMMUNICATION. IT MAY BE THAT THIS IS A STAGE THAT IS EXPERIENCED AT AN EARLY STAGE OF EMAIL ADOPTION, WHERE MANAGERS ARE RELUCTANT TO TAKE ON WHAT SEEM TO BE LOW STATUS ACTIVITIES RELATED TO KEYBOARD USE. BY REFUSING TO ADOPT EMAIL, WHETHER FOR RECEIVING OR SENDING, MANAGERS RETAIN THEIR SUPERIORITY OVER THEIR SUBORDINATES.

4.4 PATTERNS OF EMAIL USAGE BY ACADEMICS

This section covers the same conceptual ground, this time for academic users in both countries.

4.4.1 Histories of use

The reasons cited by the academics from KUTKM and UB as to when they first started using email and Web also differ. The KUTKM academics tended to report that they first started to use email and Web about seven years ago. The UB academics, however, occasionally report that they began their usage as early as the year 1993.

One Malaysian academic participant started using email when she became aware of this new innovation. She started using email as early as her high school days and continues until today:

> Mmm...Actually it started when I was in school. Then when I did my degree, it is like 5 to 6 years ago, ya…including email. During my school days I was exposed to computers but it wasn't on regular basis – not until my undergraduate days and what's more now, I am working and the computer and Internet are available right in front of me…
>
> (Zana, Tutor, KUTKM)

Diana, reported that she had been using emails since her undergraduate days.

> Aaa… during my second year undergraduate days – 1999 ya the same with Web use. Almost seven years already. To be exact it is 1998, the use of emails to be exact is in the year 1999. Five years. I hardly used it while I was in school nevertheless as I started working in the university; I use it more frequently here in the university as the facilities are provided.
>
> (Diana, Lecturer cum Head of Department, KUTKM)

In both cases, the facilitation of email take-up provided by educational institutions has been vital.

UB academics have been engaging in using the email for longer time compared to their Malaysia academics participants. The majority of them reported clearly that they have spent more than eight years in using email. Catherine, a senior lecturer explained that:

> … I have been using emails for about 11 years that is ever since we have it here (university). Ahm.. using emails …ever since I started teaching and that is in 1992.
>
> (Catherine, Senior Lecturer, UB)

UK academics have a longer email experience as compared to Malaysia academics, simply because the Internet began to be used much earlier in the UK than in Malaysia. As for their motivations, in addition to the pressure from the organizational culture, email's characteristics had an impact:

> It so convenient, easy to use it and it has numerous advantages as compared to other media, say letters…its very useful….just a click, and it‘s done.
>
> (Susan, Senior Lecturer, UB)

> Email…it so easy to use…and very useful too…as in my case, I email to my supervisors [currently interviewee is doing her PhD research] the drafts that I have completed…..saves all the hassle of posting it…
>
> (Karen, Lecturer cum Subject Coordinator, UB)

We discuss media choice later in Section 4.4.6.

4.4.2 Volume of emails for academics

The volume of emails received by the participants in a typical working day varied across the sites. The Malaysia academics received fewer emails than their counterparts in the UK, typically six to ten emails per day.

> On average I receive 10 and above emails, I receive from the administrative staff. That‘s already a lot...but it is of no importance to me...
>
> (Diana, Lecturer cum Head of the Department, KUTKM)

> I receive 2 to 3 emails per day… These emails are work-related.
>
> (Atiqah, Tutor, KUTKM)

UB academics receive a much larger number of emails, ranging from 11 to 50 daily. This especially applies to the academics who hold an administrative post such as subject coordinator, programme leader or programme manager. Catherine, who is a senior lecturer cum the subject coordinator, received an average of 35 emails per day. Email arrives both during the week and at weekends:

> I receive a lot of emails - 35 emails per day… But, I do receive a lot more over the weekends. When I return to office the next Monday morning I have approximately over 50 – 55 emails…
>
> (Catherine, Senior Lecturer, UB)

Susan, another Senior Lecturer said:

> Number or emails that I received… I received lots of email from my students but because it is summer hols now I don‘t receive as many as I used to. It‘s a lot less. Probably I received about 24 emails [today]. If it‘s a normal working day I receive twice the number.
>
> (Susan, Senior Lecturer cum Subject Coordinator, UB)

Like their administrator colleagues, Malaysian academics typically receive broadcast information, e.g. circulars, announcements of marriage, death, staff appointments, social activities or events. When Malaysian academics were asked how they received and disseminated work related information, they reported that this was done mostly through letters. More urgent matters are discussed by telephone or face-to-face communication.

> We send out letters for all formal events and meetings. Letters are seen as very formal documents. Say, if someone tells us there‘s meeting today, the reply will sometimes be ‘Where‘s the letter...I didn‘t receive any letter...so I assume that I don‘t know...‘
>
> (Nadiah, Assistant Registrar, KUTKM)

However, the UK academics reported that work-related emails perform a variety of functions such as updates, giving information, making enquiries, attaching work related documents, exchanging ideas, making suggestions and proposing solutions to problems as long as they are not so complicated that synchronous discussion is needed. Alice, a senior lecturer reports:

> At the moment I email to prospective students because they might come and study here. I mail to colleagues from other universities: quite often it is about publications and presenting papers at conferences.
>
> (Alice, Senior Lecturer, KUTKM)

Nancy, a lecturer and Award Leader, reported the following:

> For my teaching, it will be emailing to my colleague teaching the same module, student enquires about students‘ course work or why they are not there…ahm…that‘s sorts of things and I mean I email to various people related to work, research…
>
> (Bella, Award Leader, UB)

Evidently, among the UK academics participants, it is seen that the work related emails covers a range of purposes. In Malaysia, there is limited usage of emails for work reasons among academics participants, because of letters being utilised and regarded as a very formal document.

4.4.3 Management of email by academics

While all KUTKUM academics declared that they have two and more email accounts, none of the UK academics had an account other than their institutional account. Like their administrator colleagues, KUKTM academics explained that by having more than one email they can instantly differentiate between personal and work emails. The university email account is meant for work purposes and circulated among their colleagues and superiors while the Yahoo, Hotmail or Google accounts are used by friends and family members. Some KUTKM academics go so far as to deliberately create an email account to store electronically their official documents such as letters and certificates.

> Probably I can share this with you. My Google email is meant to store electronically formal letters that relate to job matters such as an appointment letters and certificates. I will scan them and then kept them in Google email. This is for backups and easy to access regardless of my locations.
>
> (Mariam, Lecturer, KUTKM)

The UK academic participants, on the other hand, use only their university email, distinguishing between work and personal email is achieved by creating separate folders. Alice a senior lecturer, who involved in delivering lectures, presenting papers at conferences and seminars, and writing books, explained:

> [I have] only one account… the university account…. how I segregate between personal and work emails…well…I created various folders [showing the interviewer] for various group of peoples …work, friends, families, publishers….
>
> (Alice, Senior Lecturer, UB)

4.4.4 Time spent on emails among academics

Time spent on emails refers to the average amount of time spent on reading, composing and replying the emails in a typical working day. The average amount of time spent on emails by Malaysia and UK participants is unequal, mirroring the situation for administrators. The longest time spent on emails gathered from the findings was more than three hours, whilst the shortest time spent was between zeros to thirty minutes. KUTKM academics spent less time on emails than their counterparts in UB. The least time spent on emails by Malaysia participants was half an hour, whilst the longest time was one hour. Diana, head of the department, said:

> No special...hmmm...specific time. Half an hour I spend on email mmm…read, compose…. At home I don't have access to the Internet. On average day I receive 5-10 emails. I don't reply to all because it is just general knowledge…
>
> (Diana, Lecturer cum Head of Department, KUTKM)

Atiqah s time spent depends on the type and volume of the mail. She said:

> Basically before the lunch break and before I leave the office in the evening, I read my emails. Reading and sending time depends on how many emails I got. Sometimes it's just an acknowledgement and as such I don't need to respond. Sometimes I need to search for something then I reply to the email – basically it depends what types of email that I got. On average I receive 10 and above emails, I receive [them] from staff.
>
> (Atiqah, Tutor, KUTKM)

Since UB academics considered email as an essential tool to perform their daily duties, it seems more logical that they would spend more time during their office hours using the Internet compared with their Malaysia counterparts. Alice spent an average of two hours and more on emails:

> I spend a lot of time on emails...oh…per day at least two to two and a half hours a day… I receive lots of email from my students, prospective students who are coming here to study, colleagues from Brighton University and from other universities…from my family, my husband who is not working today….
>
> (Alice, Senior Lecturer, UB)

The three UB academics who spent more than three hours on emails regard the phenomenon as normal. Bella, an award leader, reported:

> I spent three hours doing emails every day. That's quite normal and moreover most of my work is done through emails.
>
> (Bella, Award Leader, UB)

These findings are not particularly surprising one we know that UK participants base much of their working day around email, while in the Malaysian context emails are more marginal: the amount of time spent on reading and composing emails depends more or less directly on the number of emails coming into the inbox.

4.4.5 Patterns of accessing emails among academics

Both participating groups were asked about the patterns they adopted for accessing email in a typical working day. Malaysian academics tended only to access their emails on their PC at the University. Their UK counterparts access their email in both the university and on their personal computers at home.

As for time of day, the KUTKM academics reported a combination of regular and irregular patterns of checking their emails. They reported that they checked their email any time between 08.00 until 17.00 in a typical working day. According to Diana:

> Whenever possible, I don't have any fixed time.… sometimes as I come to the university I need to attend to my classes early in the morning, then department meetings and sometimes unforeseen circumstances which are very crucial…no,…no fixed time…When I am away attending a workshop or course I don't check my email at all. I assume [that if there's] anything from the office, someone will alert me via phone.
>
> (Diana, Lecturer cum Head of Department, KUTKM)

> I check when someone alerts me via message (mobile phone) or rings me and says eh…did you read my email…Then only I check my email. Otherwise I don't. I prefer sending sms and making phone calls.
>
> (Mariam, Lecturer, KUTKM)

> I am not so interested in checking emails when there is no importance. [There is] no email that is addressed to me. Only informing on updates and events. I prefer phone calls. This is the culture here…letters and phone calls or even short message supersedes email. Furthermore…no time … too busy and the most irritating is that the connection is too slow…I can't tolerate it…..

(Zana, Tutor, KUTKM)

We see that Malaysian academics will not check their email under a varied set of circumstances: when they are: too busy, fully occupied with other tasks or priorities, not expecting an email and not alerted to an incoming email. The implication is clearly that emails are not important enough to dislodge these other priorities, nor is email a primary medium for communication, with each mail needing to be announced via another medium.

UB academics reported a regular checking habit on their emails as compared to their KUTKM academics. UK participants checked their emails in the morning, during coffee break, after lunch break, before returning home in the evening and some checked their emails throughout the day's work. For example, Alice says:

> …four times a day: early in the morning, before going for lunch, after returning from lunch and before returning home. I check my email regularly. Sometimes when I am not teaching and seated right in front of the computer I will check constantly.
>
> (Alice, Senior Lecturer, UB)

Karen gives a similar account:

> If I don't attend to emails, they will say that I am not doing my work. I check my email frequently especially when I am here right in front of the computer at my office. If I am teaching, I will check the emails soon after I am done with it. Never do I leave my email unattended.
>
> (Karen, Lecturer cum Subject Coordinator, UB)

Again we see that the organizational expectation that email is an essential part of an academic's work is reflected in their assiduous checking of the email accounts.

4.4.6 Email and other media

Further probing on motivations for choosing email for given tasks and functions sheds light on the real and perceived relationships between email and other media. As we saw for the KUTKM, email has been smoothly adopted for family and other social communication as well as work: administrators

> …to communicate… then to my friends, usually I will send photos...jokes…e-cards such as birthday, thinking of you and miss you cards…

(Diana, Lecturer cum Head of the Department, KUTKM)

This is perhaps surprising given the local emphasis on personal contact. It contrasts with at least one UK participants' view:

> I don't conduct my private correspondence using email because I don't particularly like communicating with friends by email
>
> (Bella, Award Leader, UB)

Again, as has already been observed, email is being used in KUTKM for work related tasks, but less exclusively than in Brighton. International communication appears to be a popular use where the properties of email are appreciated. Many of Malaysia academics are prospective students for postgraduate programmes at foreign universities (UK, United States of America, New Zealand, Germany, Australia), and email has enhanced their communication or correspondence process here. Implicitly, this is another factor that motivates the academics' adoption:

> I am finding a place in UK for my PhD studies…I contacted the personnel in charge…I got a very prompt reply …so now I register online and waiting for the next action…very fast, cheap…I scan my documents and then make attachments to my email…very quick…
>
> (Atiqah, Tutor, KUTKM)

Zeda gives a relatively full account of her media preferences:

> The senders are mostly from the staff in KUTKM and my thesis supervisors from UPM. From the non-academic circle – they are my friends. I receive emails from distant friend in UK. I still prefer to communicate via sms. Most of my work is done in face-to-face interaction: that is we meet, discuss and then I perform the work... Email, mmm I am using it to inform say like ...meeting will be held next Thursday.... hahaha like that. But I will choose to call over the phone first then I will resort to email.
>
> (Zeda, Lecturer, cum Subject Coordinator, KUTKM, 2004)

In addition, we have the comments already cited above that signal KUTKM participants preference for other modes of communication:

> … I prefer sending sms and making phone calls.
>
> (Mariam, Lecturer, KUTKM)

> I prefer phone calls. This is the culture here…letters and phone calls or even short message supersedes email. Furthermore…no time … too busy and the most irritating is that the connection is too slow…I can't tolerate it…..
>
> (Zana, Tutor, KUTKM)

Zana's last comment is worth bearing in mind as it points to a different set of reasons for non-adoption, i.e. technical infrastructure. This will be mentioned in more detail later in this chapter.

UB academics cited reasons such as ease of use, convenience and speed, together with the ability to avoid unnecessary face-to-face communication.

> I mail to colleague from other universities: quite often it is about publications and presenting papers at conferences. I email them and they email me back. Ehm…I obviously send email which is not work related like sending an email my to my husband who is not working today because it is a lot easier to mail to people than to make phone calls.
>
> (Susan, Senior Lecturer cum Subject Coordinator, UB)

> I do find it very convenient to communicate via email because lots of people will be involved in teaching or meetings, so emails get hold of people and also they can pick up when they are free. In addition I can avoid unnecessary face-to-face communication...You know...it can be done via email.
>
> (Alice, Senior Lecturer, UB)

Bella, an Award Leader, reported several relative advantages of email, and expands on the use of email for communicating with friends:

> …that it has no noise, merely a click. I am not disturbing my colleagues…mmm yeah…honestly, I don't conduct my private correspondence using email because I don't particularly like communicating with friends by email but there are some occasions where friends are far away like in Taiwan, Brazil … I usually deal with them at home because I can write longer message… because the way I use it here [referring to office] it is usually general, and short and I don't intend to elaborate
>
> (Bella, Award Leader, UB)

UB participants had no complaints about technical infrastructure or performance.

4.4.7 Email networks among academics

UB academics have a wide range of email contacts including relatives, friends, students, colleagues, research partners, conference/seminar organizers and publishers, while their KUTKM counterparts have fewer. For example, KUTKM academics claimed that they do not receive email from publishers or writers, conferences or seminars organizers, academics from other university, university administrators, prospective students and sometimes even family members. Susan reported as follows:

> Yeah I do receive emails from teaching colleagues, the Head of School…John, Peter [superiors] ……I receive emails from publishers, or people whom I work with…the mailing list…Updating me on work matters, conferences…
>
> (Susan, Senior Lecturer cum Subject Coordinator, UB)

Karen paints a similar picture:

> Among teaching colleagues…setting meeting dates, exchange documents, administrative work, and sometimes general sort of things… To my head of school, I send emails to find out about modules taught…the scope of lectures covered…. Explaining the nature of modules to the students, attaching the format of their dissertation…
>
> (Karen, Lecturer cum Subject Coordinator, UB)

Zeda, in contrast, reported that her email circles were limited and the senders were people whom she communicated with for work reasons only:

> The senders in my official account (university email account) are my superiors..... not my dean..no...no, superior here is my immediate superior that is my head of department...colleagues; students…students only sent email during industry training…
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

Another Malaysian academic reported that her email senders are just her colleagues. Atiqah reported:

> Mostly, from management, head of department and colleagues… I receive emails from my colleagues...My friends will call me if they want me to join them for lunch.... they don‘t resort to email...
>
> (Atiqah, Tutor, KUTKM)

Diana gives a middle manager‘s view. She is not so elevated as to delegate email use to a secretary, but still betrays a jaundiced attitude towards her workers‘ reaction to any email she sends:

> I use email to supplement my communication, especially with my colleagues. I am head of the Department; there is lots of work to be done and delegated. I send an sms via mobile telephone, call them up and as a *last resort* [KH emphasis] will be via email. Even so, there are still coming up to me and say _oh I was away or I don‘t read the email‘...no serious stuff will be transpired in email merely the outline. I still insist that they come and see me in person, face-to-face communication. Then I will deliver the details...
>
> (Diana, Head of the Department, KUTKM)

Diana‘s rather resigned view points to the immaturity of email use for academic communication at KUTKM between individual academics/administrators and immediate superiors. None of the Malaysian academics received any emails directly from their more distant superiors, for instance the dean of the faculty. The following excerpts explain the situation:

> Usually, anything from the dean will be put in letters or the dean‘s personal assistant will send us an email to inform on work matters… informing us of updates or meetings to attend…apart from that no.. here, I will be called to meet face-to-face with the superiors or sometimes over the phone...but mostly it will be face-to-face encounter…
>
> (Diana, Lecturer cum Head of Department, KUTKM)

Zana describes the situation for sending emails:

> I send emails to my colleagues…superiors ha???.... no lah…To me…sending emails to superiors on work matters is considered rude. I usually make an appointment to meet him…or I write a letter to him…. Never emails...
>
> (Zana, Tutor, KUTKM)

So, while colleague to (peer) colleague email is used to some extent, direct email up and down the hierarchy seems to be almost out of the question for Malaysian academics, with a subordinate being used as a substitute, or else a different medium used.

4.4.8 Why do they appropriate email the way they do?

In brief, Malaysia academics basically use emails at work to communicate with peers, to provide information, to forward attachments and to instruct subordinates to meet up and clarify work matters in person. UB academics use email more intensively and for more varied functions and reasons.

The different organizational and social cultures seem to be the key to explaining this phenomenon. The UB academics, like the administrators, find themselves in an organization, the University, where the greater part of the work is facilitated via email. Moreover, the University is part of an even broader context, to which academic, even more than the UB administrators, orient their use. Both groups respond to outside respondents such as prospective students. Academics, however, are part of a broader research culture, which involves communication with colleagues in other universities, conference organizer, publishers and so on. Malaysian academics at KUTKM seem to engage in less of this externally oriented academic activity and hence less related email communication. The exception here is the popularity of email for communicating with research supervisors in countries such as the UK, the USA and Australia. In addition, it appears to be acceptable for UB staff to approach individuals at other strata in the organization by email in a way that is not countenanced in Malaysia.

At the University level, it seems clear that email is not embedded in day-to-day work as in Brighton. Particularly revealing are the various comments above to the effect that email was used as a last resort, that it was typically preceded or followed by an alert via some other medium and that colleagues simply don‘t take it seriously, as in Dinah‘s despairing comment:

> I send an sms via mobile telephone, call them up and as a last resort [KH emphasis] will be via email. Even so, there are still coming up to me and say _oh I was away or I don‘t read the email‘
>
> (Diana, Head of the Department, KUTKM)

At a social level, it seems clear that the advantages of email in terms of speed and efficiency have been accepted by the UK academics. They see face-to -ace communication as involving a waster of time and avoid it for tasks other than those involving complex discussion. Among Malaysian academics, on the other hand, email is exploited to broadcast information but for discussion and negotiation, phone or face-to-face contact is preferred.

4.5 WEB USAGE PATTERNS AMONG ADMINISTRATORS

In the next two sections we move to the findings on Web usage patterns among administrators and academics at both sites. After some brief background on history of use and favourite sites,

we document the choices they make in accomplishing a range of tasks online or off line in different areas.

4.5.1 Background

UB administrators have longer experience of using the Web that the KUTKM participants: UB administrator report between seven to ten years of using the Web while their KUTKM counterparts have only three to four years experience.

We tried to find out what search engines and sites were most frequently used in each setting. As far as search engines are concerned, Yahoo and Google take precedence over other search engines. However they are not equally popular: the KUTKM administrators are inclined to use Yahoo, while the UB group use Google. It is not clear why this might be, though Yahoo tends to be more commercial in orientation than Google, which may explain why the less work-oriented use in Malaysia includes this search engine choice.

The Malaysian administrators frequently visited the Yahoo search engine to visit work-related and personal use suites. In terms of personal sites, game sites, newspaper sites and music sites are popular, while work tasks include visits to their own university site (to check the names, addresses and phone numbers of students or staff), equipment suppliers and government sites.

> I visit government sites…to look up information say...the treasury rulings…and also to establish rapport so that in future to deal with them…or perhaps to seek some support or cooperation when we organise courses
>
> (Hidayah, Assistant Registrar, KUTKM)

UB administrators reported similar usage:

> I visit the government and companies sites as later I need to arrange for student placements….
>
> (Mary, Programme Assistant, UB)

UB administrators frequently used Google to visit university and supplier sites, but also news sites, the BBC in particular, as well as Amazon.com.

4.5.2 Information seeking

Primarily the online activities carried out by the administrator's participants are clustered into three sub-themes: information seeking, fun/entertainment activities and carrying out business transactions.

Looking for information or getting information is one of the first activities that people try as new users of the Internet. It is the most highly valued and popular type of online activity among the participants in this study, taking precedence over other online activities.

It appears that KUTKM administrators rarely go online to retrieve information for work reasons. Although some respondents reported using the web to retrieve straightforward factual information such as contact details and prices from office suppliers, Nadiah's response is more representative:

> The only thing I do with Web… I go online only to read news. … because I like it…It is so easy to read and I can select the segments that I want to read…I can scroll up and down…I don't have to wait anymore for someone to place back the hard copies of the newspapers on the table…Many of my friends are doing the same. Our job doesn't require us so much to retrieve information. We are only executing orders!!!!
>
> (Nadiah, Assistant Administrator, KUTKM,)

This is an interesting perception of the role of the KUTKM administrators, which suggested a correlation between use of the WWW for information retrieval and level of responsibility or perhaps better, autonomy, in the office. The UB administrators do use information seeking job related research work:

> I look up phone numbers, addresses or postcodes…it's easier to search online. I use a lot of databases in my work. I also visit British Airways to select travelling times and purchase online tickets [for academics travelling to conferences KH].

(Mary, Programme Assistant, UB)

Here the interesting point is not that UB administrators use the Web for work and other purposes but that the Malaysian administrators do not. If we put faith in Nadiah's comment about the mechanical nature for their work, we can put this difference down to that lack of managerial expectations of autonomous research work from this part of the work force.

Both sets of workers use the Web for information that is of personal use. For instance, Nadiah's comment tells us that news sites are of interest. In the UB context, administrators reported referring to a very wide range of sites to find information for themselves. These included news, weather, services (e.g. looking for a plumber), products (e.g. Amazon), health, places to stay, spiritual/religious information and government sites. Gillian's report demonstrates how this information search is tightly integrated into personal lives:

> …I check the weather before I start travelling…get the directions and maps online…
>
> (Gillian, Senior Resource Assistant, UB)

The findings suggest that a greater number of UK participants do more online information seeking and on more diverse sites than the Malaysia participants, although information use for personal use is common in both sites. The key difference here is not in personal use but in the lack of exploitation of Web based resources to support work in the KUTKM context.

4.5.3 Fun and entertainment

Fun and entertainment activities are defined here to include listening to and downloading music, seeking information on hobbies, viewing or downloading video clip or movies, downloading ring tones, listening to audio clips, playing or downloading games and reading or downloading jokes or short stories. One distinct and strong result reported by the participants lies in this fun/entertainment dimension. UK administrators reported that they seldom went online for seeking information on hobbies, while none downloaded any fun/ entertainment online activities.

> No…I don't download music, songs or movie: it's just a waste of time…
>
> (Marilyn, Senior Resource Assistant, UB)

> No…I bring along CDs and use my headphones…In doing so I will not disturb my colleagues. No, no, I don't download music
>
> (Jill, Programme Assistant. UB)

> If I want to listen to songs…I want to have a good sound system not from the pc…no, no…I don't download songs or music…
>
> (Ann, Programme Assistant, UB)

While it is just possible that these were fallacious reports, produced as socially acceptable responses, the unanimity of the responses argues for their correctness.

The situation in KUTKM is different. Malaysia administrators reported that they usually tuned into music while working. They said that music helped to enliven their working momentum. They viewed video clips or movies during morning breaks, lunch breaks or after 16.15 pm, when work ends. However they also played songs or music at a low volume in the midst of their work, mainly to avoid boredom and to break the silence. In the participants own words:

> …download songs and listening to songs while working, mmm…yes I do… I usually log onto mesra.net, and MP3…this boosts up my spirits to work. I download games, play online games …just to pass the time or when I feel bored doing my work…
>
> (Didi, Assistant Registrar, KUTKM)

The Malaysian administrators seem inclined to a hedonistic culture, finding nothing untoward in this, which is contrast to the more serious atmosphere of the UB office. One reason could be the age group of the participants. The majority of the KUTKM participants are between 25 to 30 years old, compared to the wider age range of the UB administrators, from the early twenties to 50 years of age. Only two UK administrators were aged 25 and below. A more general explanation of the reasons why none of the UB administrators is engaged in online fun or entertainment types of activities in the workplace, while the KUTKM participants flocked to fun or entertainment online activities, is in the kind of work done in each office. KUTKM participants do not seem to be disturbed by music in the office hours, as their activities are often mundane. Participants speak of livening up the atmosphere and relieving boredom. These concepts are not found in the UB data, where participants are perhaps more personally engaged in their work. This links to the comments on worker autonomy made in the previous section.

4.5.4 Online transactions

Participants from both sites reported that they used the Web to carry out transactions such as purchasing goods or product, conducting online banking and auction purchases and making travel reservations. The Malaysian administrative staff tend, however, to be wary and infrequent

users of such facilities. The one KUTKM administrator who did carry out online banking in fact found it easy and convenient:

> Banking transactions…yes but it only involves transfer of money from my account. For instance, once my pay is in, I pay my car loan online and transfer some money into my brother's account. It is so easy… I also bought a camera and a video cam … they were online auction items. The payment of the items does not involve a credit card; only transfer of certain amount of money from my account to their account- safer that way. The items were then sent to me by post! I can save a lot of time…
>
> (Nadiah, Assistant Administrator, KUTKM)

Nevertheless, Nadiah's enthusiasm was not widely shared by her colleagues. One reason for non-use is simply personal preference for the authenticity of the traditional shopping experience. KUTKM participants prefer the traditional ways of doing things for instance like banking, purchasing goods and making travel and hotel reservations. Farah reports as follows:

> Shopping is always done the traditional ways – go to the shop, witness the things, decide and buy. Suppose I'm looking for shoes. I still have to see the shoes first, try them out, and then I will buy. Then I feel satisfied. Ordering online is not sufficient that I will be satisfied. In the picture it looks suitable but in reality the shoes might not be like the one described in the pamphlets …Holidays …yes, I have made booking online – room/ hotels reservations but air ticket no! Hotels reservation...I still need to back up with the phone.
>
> (Farah, Assistant Administrator, KUTKM)

Farah's comment speaks not simply of dissatisfaction with the representational power of the Web but also of the medium itself. The reassurance of the human voice, in this case over the telephone seems still to be essential.

Nadiah echoes Farah's comments:

> Travel or Hotels reservation- no! Not online. I tried once but it wasn't successful.
> Booking tickets online – No! I still find time to do it in person. Banking online – never! Mainly I have no confidence. Some I don't trust. I still prefer going to the shops, see it for myself: no doubt it takes a lot of time but I am satisfied.
>
> (Nadiah, Assistant Registrar, KUTKM)

Four out of five KUTKM administrator's participants in the study have never conducted any online shopping. They cited their reasons as lack of trust and security fears. Some had had bad experiences of previous attempts and also felt insecure about bank and credit cards details. Two participants did not even own credit cards. For example:

> I don't want to reveal to a total stranger my bank account and furthermore I don't feel secure about all the details being exposed!
>
> (Hidayah, Assistant Administrator, KUTKM)

> I don't have complete trust yet. I am afraid of the details of my account or credit cards details being exposed to computer hackers…
>
> (Habshah, Personal Assistant, KUTKM)

> I fear for my credit card number…I have a bad experience using a credit card. I received my credit card statement, which registered an item that I did not purchase at all! It costs RM 100.00. I clarified this with the bank and they kept saying that nothing much could be done…so I had to pay for it…No…no…not anymore… no online transactions…
>
> (Nadiah, Assistant Registrar, KUTKM)

Most of KUTKM's administrator participants were afraid of credit card frauds and computer hackers as reasons for not conducting online shopping. When probed further, participants were generally not speaking from their own experience about the two issues; rather they had built up the fear from other people's experience and the reports in the newspaper and television.

As far carrying out transactions for work purposes, e.g. to book journeys for staff members, unlike the UK administrative participants who frequently booked tickets via the Internet, this is not a function carried out by KUTKM participants. They expressed their preference of purchasing the ticket in person. Even when arranging their own travel, they prefer personal interaction:

> No… the system is complicated. MAS (Malaysian Airline System) online ticketing…I'm lost. I rather purchase the tickets through travel agents. Moreover I seldom use the public transport. I have my own transport and I like to drive…and furthermore I don't have a credit card....
>
> (Habshah, Personal Assistant, KUTKM)

However, UB administrator's participants are actively engaging in online transactions as opposed to offline activities, with efficiency cited as the main motivation. Although there are also concerns about security, the participants felt their working lives were so busy that they still preferred to carry out personal transactions such as shopping, buying tickets and travel reservations online:

> I often purchase coach, train or air tickets online. It saves a lot of time and I don't need to queue. It only takes a couple of minutes to do that. However, sometimes I still conduct offline transactions like going to TESCO or ASDA to buy groceries but once a week...over the weekends.
>
> (Lucy, Research Administrator, UB)

UB administrators reported that carrying out such tasks online was efficient and convenient. There was no time pressure, making the process relaxing, and allowing participants to make comparisons/survey/research before purchasing. Lucy's comments are typical:

> Online banking…mmm… I find it more of a push than a pull…The banking system is very reliable here so…yeah…I am using it; more convenient…I always check my bank statement and so far there isn't any discrepancy…Buying online is so much convenient and saves a lot of time. Furthermore when I am working and not able to go to shop, shopping and getting it on the Web is so much quicker. I save all the trouble of catching the bus or queuing up at cashier to pay for the goods.
>
> (Lucy, Research Administrator, UB)

Gillian emphasizes the ability to carry out preliminary research:

> From the Web, I can make comparisons on a product that I want to buy; I can do some research before I make my decision to buy…I can engage with what other users say about the product, which I seldom get when I go to the store...Moreover it is very convenient, armchair shopping!!! No worries about car park…Yeah, very convenient. I can do it over a few minutes...
>
> (Gillian, Senior Resource Assistant, UB)

Ann agrees:

> It is so much easier to go to the sites than going to the travel agent and you can see the results, besides doing a bit of research; you can see what other people say about it; now if you go to travel agent they only tell you what they want you to know… and you can't really make up your mind.
>
> (Ann, Programme Assistant, UB)

When asked about security concerns, UB participants reported that they tended to use respected sites and have had no bad experience in online purchasing so far.

Both KUTKM and UB engaged in online activities driven by both their work and personal purposes. The Malaysian administrators actively perform fun and entertainment activities but rarely have recourse to information utilities (such as weather, travel information, research, health information and so on). In addition, due to what they considered as security reasons, only one of the KUTKM administrators performed activities such as buying online, making travel reservations and online banking. The situation with UB administrator is just the opposite: the UK administrators are very engaged in information retrieval and online financial transactions. However, they are hardly involved at all in fun and entertainment activities.

There appear to be various factors at work here. The longer experience of the UB participants seems to have made it possible for them to embrace Internet commerce with few qualms. This has also led to the Internet becoming more firmly embedded in day-to-day practice than in Malaysia, where the Internet appears still to be seen as an adjunct to serious work channels. The personal use of the Web, however, has been embraced by the KUTKM administrators, even in the workplace, where UB culture would find its use inappropriate.

4.6 WEB USAGE PATTERNS AMONG ACADEMICS

In this section we turn to academics‘ use of the WWW. After a background section covering history of use and favourite sites, we discuss the choices they make in accomplishing a range of tasks online or off line in the different areas covered above in Section 4.5, i.e. information searching, fun and entertainment and online transactions.

4.6.1 Background

UB academics had longer experience in using the Web compared to their KUTKM counterparts: where UB participants reported eight to ten years of use (essentially since the earliest beginnings of WWW use), KUTKM academics reported three to four years of use. Some of this can be pt down to the different age and work history profiles of the participants at the two sites, but other factors may also be at play, besides the earlier rate of diffusion and adoption.

As far as search engines are concerned, Yahoo and Google take precedence over other search engines. As was the case with administrators, generally, the KUTKM academics are inclined to use Yahoo when browsing the Web whilst the UB academics are keen on Google as their selected search engine. Zeda's response to the question of search engine preference was interesting. Unlike her colleagues, she is not quite satisfied with Yahoo and Google:

> Copernic...yes Copernic is my favourite search engine for work reasons. Copernic.com – is a combination of some search engines; so it will display the address that we want to find. For example from the search, it shows what Google has got, what Yahoo has got…At the moment I am using it, searching for teaching materials. I do two things at the same time like, browse the web and mark my students' papers. This search engine can be downloaded from the Internet and then its life span is only for a month. When it disappears, I have to download again lah…I think this is easy and I always use it.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

There are two particularly interesting points here. Firstly, Zeda shows that she is technologically aware enough to prefer a metasearch engine, in this case Copernicus, which compiles the results from a set of other single search engines. She is also confident and knowledgeable enough to know how to download the application from the Internet. On the other hand, however, her response points to a lack of technological support for staff: she has to download a (free?) time limited version, which she then has to reinstall herself every month. There does not appear to be a well-established infrastucture to support her Web use.

In the UK, individuals are well supported by technical staff and a common infrastructure is used. Academics are able to use their choice of browsers and search engines, but all UB academics made extensive use of Google as their ~~"e~~veryday" search engine. Catherine elaborates on her most specialist use:

> I make a lot of the sites...ah…part of my research has got lot to do with social background of early 1920 and late 1930 century librarians so I used a lot of census materials online. The British Census is now online for 1901 and 1991 so I used those sites a lot...Since I teach information retrieval I tend to use the advanced interface so if I know the websites I put it in and if I don't, I tend to search the organization as a phrase in inverted commas. I sometimes use gateways as a way to get into the subjects, I used BUBL [An Internet-based information service for the UK higher education community - KH] or HERO [a now defunct gateway to universities, colleges and research organizations - KH]: those are the academic gateways to find my way.
>
> (Catherine, Senior Lecturer cum Subject Coordinator, UB)

The use of the metasearch engine and the academic portals are indications that academic use at both sites is more demanding of the technology than administrators' use.

Academics were also asked about their most frequently visited sites. Three common sites that are being visited by most KUTKM and UB academics are news sites, Amazon and government Web sites. However, news takes precedence over other sites. Amazon.com is another top site visited by the academics in both Malaysia and the UK. Amazon.com is of interest to some of the academics as it contains information about various ranges of books, to buy and to recommend to students:

> The web sites that I visit are a mixture of work and non-work related. For work reasons I usually visit amazon.com. There I can purchase books online. Usually I go for second hand books because it is much cheaper...
>
> (Mariam, Lecturer, KUTKM)

4.6.2 Information seeking

Like the administrators, the academics from both sites use the Web to find information they need in both personal and work roles. Weather, news an future purchases are explored via the Web:

> If it is a sunny day, I choose to walk to the university…besides weather…yeah a couple of things that I seek information on: computer hardware and software… before I purchase them…mmm yeah…
>
> (Alison, Senior Lecturer, UB)

The Web is also well integrated into work life at both sites, though to different extents. Zeda gives a revealing view of her way of browsing for information:

> I do two things at the same time, like browse the web and mark my students‘ papers.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

This portrait of a half-engaged browser is at one with the more explicit responses of KUTKM academics when asked about the place of online information search in their own academic teaching and research work:

> I would always look at Internet as an *alternative* [emphasis KH] way of getting information…Honestly my primary concern is to retrieve information from books… journals…I am more satisfied in that way.
>
> (Zana, Tutor, KUTKM)

And Zeda herself explains her rather halfhearted use of the Internet:

> I have more trust in hard copies…I prefer looking at books and going to the library…I still enjoy going to the library.

(Zeda, Lecturer cum Subject Coordinator, KUTKM)

Zeda's preference is not simply for the printed medium but also for the sociability of the Library itself:

> I can meet friends and even at times have tea together. I do feel bored locked in my own office.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

Thus the Web is seen as an isolating activity, whereas the Library is a different physical contact that is actively enjoyable to visit.

No UB academic mentioned any enjoyment in visiting the Library: their focus was on the Web as a means of providing speed, coverage and overall efficiency:

> The search results hits list many related sites; you can look at what others have done…it is so much easier than going to the shelves and pick the related books…
>
> (Karen, Subject Coordinator, UB)

Bella, however, points to the emergence of a different type of social communication via the Web itself:

> I participate in the communal chat, seek information on politics…I even sent an email to Tony Blair…
>
> (Bella, Award Leader, UB)

The findings suggest that a greater number of UB academics do more online information seeking and on more diverse sites than their Malaysian counterparts. The UB academics seems to have tightly integrated the Web into their work, while in KUTKM it is seen as an auxiliary medium for information seeking. The lack of sociability involved in most WWW use also seems to weigh more on KUTKM participants than UB academics, who prize efficiency and speed.

4.6.3 Fun and entertainment

Like the administrative respondents, UK and Malaysian academics diverged strongly in their use of the Web for entertainment. The Malaysian academics stated that they constantly looked to the Web for fun and entertainments, downloading and listening to music, playing games, reading jokes, cartoons and short stories and downloading and viewing videos. Although they had time

constraints that limited their Internet browsing for fun and music, but they tended to do this as time permitted. Diana reports:

> Ahh…other than that I browse sites related to software, books and otherleisure things like listening to songs, downloading music. I do this past my working hours like Saturday and Sunday. During working days I don‘t have the time to do this. But sometimes while doing some work in the office, I play some music which I have downloaded. Some piped in music. I need to have some music while working. Music gives me energy to work.
>
> (Diana, Lecturer cum Head of the Department, KUTKM)

According to Atiqah, who is a tutor in KUTKM:

> The songs that I download from the Internet I keep in a special file and I do this all in the office. When I do some work, I need some music to boost my spirits up.
>
> (Atiqah, Tutor, KUTKM)

According to Zana, another academic tutor:

> I download music…songs, video clips and save it in a special folder because the facilities available here in this office are a kind of attraction. Usually I do it after working hours…
>
> (Zana, Tutor, KUTKM)

Here the technological infrastructure of the University is clearly superior to that found in the participants‘ homes, leading them to make use of it for their own leisure activities. Apart from that, the findings show that Malaysia academics, like the administrators, are inclined to adopt a slightly hedonistic culture even at work. The reason could be the national culture, but it may also be connected to the age group of the Malaysia academics participants. The academic participants are all in their twenties and thirties, an age when music is very important to most people.

Malaysia academics reported that they usually tuned in to music while working. They reported that the music helped to lighten their working mood. They also reported using breaks at work, e.g. morning break, lunch break or after 4.15 pm, to view video clips or movies. They also tuned

in to songs or music at a low volume in the midst of their work mainly to avoid boredom and to break the silence. In the participants' own words:

> Ya…I do download from MP3…I run it from the server; I am so used to working with background music…without music I can't concentrate on my work. In one machine I can do numerous things...and I don't need to have a radio, or television in my office.....
>
> (Zana, Tutor, KUTKM)

The situation for the UK academics could not be more different:

> No…I don't even know how to do it [download]…I am not really interested… No…nothing of the sort…never and nothing at all…I usually like quite atmosphere…
>
> (Bella, Award Leader, UB)

Working in a quiet atmosphere was mentioned as a preference by the UB academics participants, pointing to the different expectations of the ambient atmosphere at work. However, there is a sense also of the Malaysian participants being more adept at activities such as downloading and streaming video than their Western counterparts.

4.6.4 Online transactions

There were also some differences between Malaysian and UK academics in relation to online transactions. KUTKM Malaysia academics rarely reported engaging in any online transactions such as making purchases online, making travel reservations or conducting their banking online. They reported that prefer the traditional ways of doing things. In fact they place more trust in going to business premises and conducting in store shopping.

> Shopping online…no. I don't believe in shopping online because I have to put in my credit cards details you know. I don't believe in that! No trust, no trust in the transaction. Normally the items shown on the sites – commercial sites are not my choice.
>
> (Mariam, Lecturer, KUTKM)

A greater number of UB academics engage in online transactions as opposed to offline or in store transactions as compared to Malaysia academics. All UK academics interviewed asserted that

they regularly conducted online purchasing, making online travel reservations and conducting online banking.

> I bought coach, train and air tickets online… Actually I have no fear in conducting online purchasing. I get the purchased item safely sent to my home. I bought flowers for my sister's birthday, CDs for my son, a printer and lots and lots of things.... If I am working, I prefer online purchasing rather than driving to town and yeah, lots more hassle.
>
> (Alice, Senior Lecturer, UB)

Probed as to why they shop online as opposed to offline UB academics explained that they go online because (1) it saves a lot of time (2) it is fast (3) convenient (4) easy (5) more relaxed (6) as they can make comparisons and do research before purchasing. They also mentioned numerous items that had been bought online, including handbags, shoes, greeting cards, flowers, CDs, computer hardware and printers, air/coach/train/concert tickets, books, medicine and many more. UB academics were then asked whether they are not bothered by any issues of risk, trust and security. They reported that they went to respected sites and had had no bad experience in online purchasing.

Security, however, was a key concern for KUTKM academics. Their reasons for not indulging in online shopping were reported as:

- fear
- distrust
- previous bad experienced
- perceived insecurity of the system
- feeling insecure about bank and credit cards details
- prefer in store shopping
- having no credit cards.

According to Diana:

> Well…I don't want to put in my credit cards details…and everyone potentially knows them…the less the better really. I still prefer the physical experience of going out to buy something than just sitting here…
>
> (Diana, Lecturer cum Head of the Department, KUTKM)

> Shopping online…mmm…no never because from what I know, if someone wants to shop online they must have a credit card: I don't have a credit card
>
> (Atiqah, Tutor, KUTKM)

> Buying things online…no, I don't do anything of that sort. I don't believe in online shopping. I want to go to the store and shop…Ebanking, no, no…I prefer to go to the bank and do it myself…less trust…ya… precisely… No…I still purchase say tickets at the booth or counter…I don't know…I don't trust the system yet…perhaps later…when more people are using it that way…haha…
>
> (Zana, Tutor, KUTKM, 2004)

> I don't have a credit card…I can't do any shopping online…Furthermore I don't trust putting in all the account details: maybe there are hackers out there who are going to steal the money…no! no!..
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM, 2004)

Most Malaysia academics reported fear of credit card fraud and computer hackers as reasons for not conducting online shopping. Strangely, when probed further, participants were not speaking from their own experience: they built the fear from other people's experience and media reports. This mistrust extended to using online travel facilities:

> I usually go to the ticketing office to buy train or air tickets. Mmm…No…I have not tried booking any travel tickets online becasue…it involves transfer of money, which I don't trust. I prefer to pay personally.
>
> (Zana, Tutor, KUTKM)

All the UB academics found otherwise. Karen reported that:

> I often purchase coach, train or air tickets online. It saves a lot of time and I don't need to queue. It only takes couple of minutes to do that.
>
> (Karen, Lecturer cum Subject Coordinator, UB)

> It's fast and very convenient…mmm…yeah…With the amount of time I have on working days, I prefer to do it online...So far no problem: I visit trusted sites, like British Airways.
>
> (Bella, Award Leader, UB)

Efficiency and time saving are the keys here, overriding any issues of trust. In addition, successful personal experience works to confirm the participants' confidence in online transactions.

As far as online banking is concerned, we might predict the same relative attitudes, and this is indeed so. Only a minority of Malaysia academic participants engaged in online banking:

> Currently I have a MayBank account and I do my banking transactions on-line. Like now, I send money to my parents every month, so I just conduct the transfer of cash from my account to my father's account on-line.
>
> (Diana, Lecturer cum Head of the Department, KUTKM)

However, Atiqah and Zeda made it known that they were not yet ready to do online banking.

> Banking no…because here only the MayBank does on-line banking. I don't have an account in MayBank. In Malaysia only Maybank provides these facilities, other banks no. Maybank extensively… the others [bank] just for their corporate or company Web site.
>
> (Atiqah, Tutor, KUTKM)

> Booking tickets no, hotel reservation no, I just call…but to check the room rates I normally check online. Banking transactions, no…I am a little conventional. Some people they explore but I use the PC just for basic things…to type and access the Internet.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

On the other hand, a UB academic reported:

> With the time that I have, I find online banking very convenient…saves a lot of time. I only key in the password and it is done.
>
> (Karen, Lecturer cum Subject Coordinator)

Again, timesaving proves a stronger motivation to use than any worries about fraud and lack of security.

4.7 AFFECTIVE ISSUES IN EMAIL AND WEB USE

The study investigates the factors that may affect the participants‘ emotional responses to email and Web experience. Section 4.6.1 addresses the affective factors in administrators‘ use while section 4.6.2 addresses academics‘ subjective feelings.

4.7.1 The administrators' group

From the administrators at KUTKM, the Internet aroused strong feelings of frustration. Some of these frustrations originated from other recipients‘ attitudes towards email, and others are Internet technical problems such as connection problems. Didi, an assistant registrar revealed her frustration:

> I sent emails to all the staff …a few will come to me and said that nobody informed me that there‘s a meeting‘ or I don‘t receive any letters telling me about the meetings…I strongly feel it‘s about attitude…
>
> (Didi, Assistant Registrar, KUTKM)

Nadiah, an Assistant Registrar, also described her annoyance with the attitudes of others:

> Some claimed that they are too busy, don‘t even have the time to access email, or they are away from their office and as such they are not informed or updated on work matters. They are merely defending themselves…
>
> (Nadiah, Assistant Registrar, KUTKM)

Habshah‘s comment is more pointed, describing the lame excuses made by those who hadn‘t responded to her emails:

> The emails that I sent were bounced!! What does it mean??...this person‘s attitude ....they leave their email box unattended… When I sent email, I got a very late reply.
>
> (Habshah, Personal Assistant, KUTKM)

What seems to be happening here is that individual administrators are adopting email at different rates so that some individuals rely on email more than others do. The later adopters still haven‘t integrated email into their daily routines, so that they frustrate the expectations of their more efficient colleagues by not bothering to check their mail. In the case of Habshah‘s correspondent, the person had allowed their mailbox to become full, so that Habshah‘s email was bounced.

The other source of KUTKM administrators‘ frustration was related to technological concerns. Apart from that, the KUTKM administrators also complained of the speed of Internet connection and the blocking of certain services and functions such as Internet Messenger or other chat programs. These present real obstacles to use:

> The faculty has one server so if they detect the staff chatting on unimportant matters – they will block this facility. Chatting is necessary: it helps my work.
>
> (Hidayah, Assistant Registrar, KUTKM)

> KUTKM blocks chatting facilities like Yahoo Messenger because they felt that it deviates one‘s concentration on his/her work. To me this is unwise, It doesn‘t mean the work is not done you know….
>
> (Nadiah, Assistant Registrar, KUTKM)

This is an interesting comment in that it points to chat as a function that is valued by the Malaysian administrators. Chat, which supports near-synchronous communication, is recognized as the Internet application that comes closest to face to face or telephone conversation, with its turn by turn structure and close-to-instantaneous communication. We can hypothesise that this is why it is seen as useful by KUTKM admin staff, while it is never mentioned by Brighton administrators.

More general problems are also mentioned:

> Not much problem… only when we can‘t access the Internet. The server is down usually like once or twice a month and sometimes it hangs.
>
> (Habshah, Personal Assistant, KUTKM)

> Internet, aaa…no, it didn‘t disconnect me, in fact I am connected virtually! Problems – net working problem, server down; this is a real problem, electricity slip…the frequency is about twice a month.
>
> (Nadiah, Assistant Registrar, KUTKM)

UB administrators did not encounter any technical problems that might lead to frustration during their Internet usage.

The only frustration they encountered with email is when receiving spam emails:

> It‘s so annoying to get all those adverts and spam mail. You have to open them just in case they‘re from students.
>
> (Ann, Programme Assistant, UB)

From these findings is not apparent at the moment that Malaysia participants have integrated email in the working practices as compared to UK participants work practices. Their frustrations come from the slow pace of adoption by their colleagues, as well as technical issues. The UB problems come, on the other hand, from over-use of email, i.e. spam.

4.7.2 The academics' group

The situation amongst the academics is very similar. KUTKM academics reported frustration with the technology, for instance speed of Internet connection:

> I don‘t have much time…with the time that I have, I log in to my email…oh God…it takes too long to be able to access…and finally I give up. As for substitution, I shall knock on my colleague door or pick up the telephone to find out about updates.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

> I don‘t have the patience…sorry…I would rather pick up the telephone or find out from colleagues anything that I wish to know…the connection speed is too long…
>
> (Zana, Tutor)

These reports add another facet to our understanding of the Malaysian reluctance to embrace email and the Web: it may not be a positive preference for a more personal experience but also a reaction to slow connections.

UB academics had not encountered any major frustration in their dealing with the Internet (email and Web). The minor frustration articulated by all the participants is that they expressed they received spam emails:

> No…no difficulties faced. Before, I did sometimes struggle to log in the previous version of the operating system but the combination of OSX and broadband connection I actually have no problems…The system here is very reliable…it hardly ever crashes.
>
> (Alice, Senior Lecturer, UB)

> Spam emails…these emails sometimes could be easily recognized by the caption _SPAM" and in my case, the unrecognizable or unfamiliar email address will be deleted… Emails… mmm…yeah….it means…work, work, work……
>
> (Alice, Senior Lecturer, UB)

As far as the Web goes, UB academics were very comfortable using the Web but got frustrated if the sites that they visited were under construction. Apart from that another UB academic participant expressed greater and deeper frustrations when using Web. She described the Web as dry, boring, time consuming and discovered that the offline ways of doing things had increased her personal reference. She reported:

> I am happy to acknowledge that I find the web desperately boring and dry and frustrating and I hate to be sent around on a wild goose chase for sites that don't work or you know
>
> (Susan, Senior Lecturer cum Subject Coordinator, UB)

4.8 PERCEPTIONS OF THE INTERNET IN EVERYDAY LIFE

Having looked in detail at participants' use of email and the web, we now consider their views on the Internet as part of their everyday lives. The following sub sections address the administrators and academics together as there were no significant differences found.

Most KUTKM administrators reported very positive views about email in their private lives. It is a cheaper medium to use than a telephone call when communicating with their friends and family members who live outside the country:

> I have a sister in France, communicating via email is very easy and cheap…Imagine if I have to make a trunk call …it will be very costly and I just can't afford it…but with emails…we exchange stories very frequently and updates about other family members can easily be informed.
>
> (Habshah, Personal Assistant, KUTKM)

Email for work was less vital:

> No doubt it is important but not very …very important because…I can still resort to another medium like I used to do in the past, what I mean to say is I can still do without…use fax, letters…telephone…… important but not so crucial…it's just

> doing old things in a new way…Please don‘t take me wrong…this is my personal views…
>
> (Zana, Tutor, KUTKM)

> To me…it is not very important…but I don‘t do much with email. Sometimes for a week I don‘t even access to my email. Among staff, I used to phone them up or send messages via handphone which is faster in getting the respond…
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

As we saw above (4.3.8) UB administrators also appreciate the ease of use of email in their private lives:

> It is just the most favoured means of communication for lots of people now… Many people send their queries using email, so I reply using email too, besides it is a good way of sharing information and…sharing photos with my son in Australia…
>
> (Marilyn, Senior Resource Assistant, UB)

However, unlike their Malaysian counterparts, the UB participants were adamant that email was also a crucial and integral element in their work life.

> Emails… gosh…it‘s very vital and integral in my work and personal lives…
>
> (Bella, Award Leader, UB)

> I can‘t work without emails…very crucial… oh… beyond words… I can‘t imagine working without emails…Most of my work and personal are done through emails… I can‘t imagine how to behave if email is not there... It‘s so important. It facilitates lots of my work and personal tasks.
>
> (Jenny, School Administrator, UB)

4.9 MEDIATED AND NON-MEDIATED COMMUNICATION

These comments lead us naturally to the final topic among the findings, the relationship between Internet based communication and information seeking and their non-computer mediated counterparts. Increased use of a new medium, the Internet in this case, will tend to displace other established media and affect their use, though without necessarily making them redundant. In addition, asking participants about their use of non-Internet media is a natural and effective way of inviting them to reflect on the Internet use too. In this section we report on the overall picture of media use that emerges from first the administrators and then the academics at both sites.

4.9.1 The administrators' group

Administrators were asked about the ways in which they interacted with various colleagues, including face-to-face and telephone conversations and written messages. (letters, fax and memo) in the workplace. The results from the participants at the two sites revealed some differences.

At KUTKM, the administrators' responses suggested that face-to-face communication was not seriously affected by the availability of email. As we have already seen, email is used but is sometimes seen as a last resort, to be used after other means of communication have failed, or as a non-essential (in the cases where colleagues don't check their email independently but expect to be reminded by telephone or otherwise pursued). The preference for face to face communication, especially for negotiation and particularly with superiors, was shown in Habshah's report of her superior's impatient attitude to emails:

> Ha … my dean I prefer face-to-face communication. I did send to my Dean, sometimes just informing him, but sometimes it exceeded his quota thus email bounced back. And most of the time he said'… no I didn't get your email. I have been away for meeting...too busy to read emails… Why don't you call me over the phone? Then I can get the message much quickly'… So you see, most of the time with boss, it is face-to-face (if he is around) or I sms him via mobile phone or call him in fact.
>
> (Habshah, Personal Assistant, KUTKM)

Other participants explained the circumstances in which the telephone is preferred:

> ..telephone…very useful, always ringing……telephone is sometime used to remind someone to read the email sent……telephone, the most important mode of communication over here because it is so easy… just pick it up…
>
> (Didi, Assistant Administrator, KUTKM)

> in fact I use all the communication media, telephone is the most frequent lah…no telephone…handicapped!!! Sometimes, I do my work just on the phone….very important lah….
>
> (Mahirah, Assistant Administrator,KUTKM)

Of course the telephone does have disadvantages, the most obvious being the need for the other person to be present and willing to speak, but these disadvantages appear to be outweighed in KUTKM by the immediacy and flexibility of synchronous voice communication.

The other medium that is clearly valued at KUTKM is the letter or memo. Letters take precedence over other communication media in more formal situations. They are described by the Malaysian participants as carrying authority and are seen as more permanent and reliable than other communication media at the workplace:

> Letters are highly regarded as being the most reliable and trusted documents. At the moment, anyone can put anything on email, but is it reliable? Letters...you can hold. There's signature and a letterhead there....
>
> (Didi, Assistant Administrator, KUTKM)

As we saw above, letters carry more weight at KUTKM than at email. Didi, for instance, reported:

> I sent email to the staff in this faculty only to inform them about the appointment of the new dean meeting... but *I still follow up with letters* [KH emphasis] because it is an official document. I received an email from my immediate superior the Assistant Registrar… instructing me to see her in person…to clarify on work matters… Mostly the emails that come into my mailbox are merely informing about events. Then sometimes I am requested to put in writing whatever is being discussed or what transpired during the face-to-face communication
>
> (Didi, Assistant Administrator, KUTKM)

This was backed up by Mahirah's comment:

> I send Word attachments or forward an attachment to keep the staff abreast of a new circular letters. Yet, I still *counter with letters* [KH] on the same matters. Letters definitely reach the person because it is delivered by hand or sometimes placed in the personal letterbox.
>
> (Mahirah, Assistant Registrar, KUTKM)

Habsha's evidence is indirect but just as revealing: she is so busy typing letters that she has no time to deal with email:

> It depends…when I have so much work…you know, typing some letters or documents, I don't have the time to read or reply emails…Sometimes I've left it for a week….I am busy…sometime the boss wants me to do this, to do that… and they want it fast…urgent....
>
> (Habshah, Personal Assistant, KUTKM)

The UK participants reported a rather different picture, where both face to face and particularly letter-based communication had changed as a result of the intensity of email use. As can be seen in the photographs of the administrators open plan workspaces in both sites, casual face to face communication among administrators of both Schools themselves is straightforward, but communication outside the physical office at UB is mediated by email:

> I have little face-to-face communication with my colleague and academics, since most of my work are done via email.
>
> (Lucy, Research Administrator, UB)

> With my superiors…I speak less to my superiors and I prefer to do alone it over the emails! Among my colleagues, it has been the same... Superiors....yeah...yeah via emails.
>
> (Mary, Programme Assistant, UB)

The extent of mail usage seems to have had other impacts on the frequency of use of other communication media (such as letters, telephone, fax, and memo) in the workplace:

> There‘s less ringing now, it‘s quieter… …fax is only used when a hard copy needs to be enclosed……I used memos occasionally…more for internal type of communication or when I attach some hard copies, I usually fix a memo [acknowledgement slip KH]on it…yeah…
>
> (Gillian, Senior Resource Assistant, UB)

The high level of email use the UB office has made an impact on the use of other media. The use of other communication media is diminishing as email takes precedence and to a large degree substitutes for paper-based communication. This does not seem to be imposed explicitly by any management decision but appears to align with participants‘ own preferences (see Mary‘s response above). However, in Malaysia, letters and telephones are the two top or preferred communication media at workplace especially among the administrative staff. Some of this may be a result of management insistence on the written word and face to face communication, but again it seems to align with local preferences: no Malaysian participant expressed a wish for more widespread email communication, only for a higher level of cooperation from colleagues.

4.9.2 The academics' group

Academics were also asked to reflect on whether engagement in the Internet (email and Web) usage had had an impact on their face-to-face communication with their colleagues and superiors at their workplace. The academic participants at the two sites reported different degrees of impact.

According to some KUTKM Malaysia academics Internet usage has enormous effect on interactions among colleagues within a campus, across different campuses and even within society.

> I admit that my face-to-face communication had lessened with colleagues because it is very convenient and comfortable to do with emails…Just figure out, I am here…other colleagues are one kilometre away…so email is convenient…But I must also send a message to them to their mobile phone to make read the email sent!! But with my superiors…hahaha…no…no…no…it is always face-to-face communication.
>
> (Zana, Tutor, KUTKM)

> Yes…I am seeing less of my colleagues and friends as I make more use of the email correspondence. Moreover by nature, I am the type who prefers mediated communication…ha...ha not because you are doing the research…mmm unless it's urgent and important, then I will see the person in person…but with my boss it has always been face-to-face communication!
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

Other media are also used in specific circumstances. The telephone is important for urgent negotiations, and SMS is also used, which is not the case in UB:

> …the telephone is used to counter very urgent matters…and …I usually send messages… (SMS) via hand phone [mobile KH] to my colleagues in the other building…
>
> (Zeda, Lecturer, KUTKM)

> …in fact I use all the communication media, telephone is the most frequent lah…no telephone…handicapped!!! Sometimes, I do my work just on the phone….very important lah….
>
> (Atiqah, Tutor, KUTKM)

The fax is occasionally used at UB but seems more frequently used at KUTKM:

> ..fax…yes I do; for example I send [faxes] to the companies where the students do their practical lessons…; the companies insist on fax, they don‘t take email as an official correspondence…
>
> (Zaleha, Tutor, KUTKM)

Again, we see the authority of the paper-based message, even though here the paper support is transformed via the fax machine. The authenticity of the original is regarded as having been preserved. As with the administrator group, letters had high status among the academic staff and their respondents:

> No letters, no evidence… My superior used to say…show me the letter…where‘s the letter…hold on to black and white…
>
> (Mariam, Lecturer, KUTKM)

The UB academics reported that their face-to-face communication among colleagues and superiors was affected to some extent, with certain group of people:

> …it does affect my face-to-face communication with my teaching colleagues: email does it very quickly and it saves me from seeing someone that I don‘t really want to communicate with…… mmm…yeah…I am seeing less of my teaching colleagues as I can do it over the emails…moreover I like computer mediated communication…
>
> (Susan, Senior Lecturer, UB)

This is an interesting insight into the kinds of practical uses that users fashion for themselves out of email choice: here an unwanted meeting is avoided. It is clearly important in the UK context not to assume that face to face communication is necessarily desirable: there seems to be a degree of gratitude to email for delivering individuals from the necessity of speaking to colleagues. Alice confirms this situation:

> …with the use of email…mmm with some teaching colleagues…yes, it does affect…my face-to-face communication has lessened… because I am the type who doesn‘t like to meet people and have in-person interactions…
>
> (Alice, Senior Lecturer, UB)

On the other hand, other UB academics claimed that Internet (email and Web) usage had not had any kind of impact on their face-to-face communication with people they liked to communicate with face to face:

> I don‘t think it makes any difference with my friends…err…with teaching colleagues…I spent less time seeing going out with them…perhaps a small impact not a very serious one…
>
> (Karen, Lecturer cum Subject Coordinator, UB)

> No, it hasn‘t changed the communication pattern; I still knock on my colleague‘s door and exchange a few words…mmm…no it hasn‘t changed… I don‘t think email is replacing or shuts the face-to-face communication…it is just another medium; as far as I am concerned, it doesn‘t have serious impact…I still walk down to meet colleagues and administrative staff…
>
> (Alice, Senior Lecturer, UB)

These comments indicate that the degree of impact on face-to-face communication at UB is associated with many reasons, not least the participant‘s personality and the quality of their personal relationships.

Other media have seen very diminished use:

> …fax is used when a signature is required on the document or when it is stated _please fax‘ or when someone hasn‘t got an email…and Memo; never use it. Never seen a memo…
>
> (Susan, Senior Lecturer cum Subject Coordinator , UB)

The situation among academics tended to replicate that of the administrators. The high level of email use in UB UK workplace environment had made an impact on the use of other media, whose use was diminishing as email takes precedence. Academics, more autonomous than the administrators, chose who they talked to directly and who they avoided by judicious use of email. In Malaysia letters and telephones were still very popular means of communication, although email use if widespread. No Malaysian lecturers reported using mediated communication as an avoidance technique, possibly due to the slightly different discipline cultures of the two sites (Computing vs Communication), possibly due to wider national cultural differences or possibly due to under-reporting of this perhaps socially unacceptable response.

SMS, on the other hand, is widely used, sometimes as a reminder or notification of an email message. This was never mentioned by UB participants.

4.10 CONCLUSIONS

The results reported in this chapter have shown that there are a large number of similarities between academics and administrators, and between the two sites, when it comes to using email and the Internet. In both sites, Internet use is being integrated into University life for communication and information seeking. At the same time, employees are integrating the Internet into their own personal communications and day to day transactions, sometimes using the facilities made available in the workplace, e.g. downloading music via the office PC, and sometimes using their own facilities to support their work, e.g. Malaysian use of SMS to contact work colleagues.

There appear to be few significant or generalisable differences between the two *work-types*, administrators and academics, at either site when it comes to Internet-related behaviour and attitudes. The academics tend to make more extensive use of the Internet for information seeking, at both sites, but this is not surprising given the nature of their jobs.

There are, however, discernible differences between the usage and attitudes found in the two *countries*. Volume and intensity of Internet and email use was much lower at KUTKM than at UB. While KUTKM has adopted email use, at the time of the study it was still not regarded as central to work communication and had to be supplemented by ~~"n~~udges" delivered by telephone or SMS. Some ranks, e.g. Deans and Deputy Deans, did not appear to use email and preferred face to face communication. Email was seen very much as a medium for broadcasting information rather than for negotiation and there was therefore less urgency about checking one's mailbox. On the other hand, the Malaysian participants had embraced the Internet for leisure purposes even more than their UK counterparts, downloading music and video and confidently using email to communicate with friends and family abroad.

Both administrative and academic participants at UB evinced strong satisfaction with email and the Web as work tools. Efficiency and speed were highly prized, together with the potential to

use email to avoid human contact, whether this was purely in order not to waste time via the ~~"~~telephone tag" situation caused by the need for both participants to be available at the same time, or through personal preference for solitary work. Email was widely adopted in the institution, meaning that the UK participants did not experience the frustration of having to use multiple channels to inform the other person that an email had been sent. Nor did they have to alter their media choice according to the status of the person with whom they were communicating.

In Chapter Five we explore the possible reasons for these findings and explore them further in light of the models discussed in Chapter Two.

5 CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The main purpose of this chapter is to explore the findings reported in Chapter Four in relation to the background literature presented in Chapter Two and any other explanatory models that the findings may suggest. We explore the findings from three perspectives. Firstly, in 5.2, accepting that the current study is simply a snapshot of the situation at a given stage in the development of the technological infrastructure of the Internet at both sites, we consider the extent to which practical issues need to be taken into account when commenting on adoption and non-adoption patterns. Secondly, in 5.3, we discuss the aptness of Roger's model of innovation and diffusion to a situation such as that found in a University, where issues of adoption are complex and multi-layered. Thirdly, in 5.4 we consider the extent to which differences in national culture may have influence the behaviours and attitudes described in Chapter Four.

5.2 PRACTICAL ISSUES

It is important to take into account a) the current states of the technological infrastructures of both sites at the time of the study and b) the comparative length of experience on each site to avoid over-interpretation. Usage and adoption patterns that might have been interpreted as evidence of underlying social or cultural differences may simply arise from these very practical and transient sources, and it is important to bear these in mind.

As far as technology is concerned, we have noted several Malaysian participants expressing their frustration with features of the current set-up. Zana complains about the slow connections to the Internet:

> I am not so interested in checking emails when there is no importance. Furthermore…no time … too busy and the most irritating is that the connection is too slow…I can't tolerate it…..

(Zana, Tutor, KUTKM)

> I don‘t have the patience…sorry…I would rather pick up the telephone or find out from colleagues anything that I wish to know…the connection speed is too long…
>
> (Zana, Tutor)

Zeda too is frustrated by the time it takes to connect to her email:

> I don‘t have much time…with the time that I have, I log in to my email…oh God…it takes too long to be able to access…and finally I give up.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

More subtly, the mere *likelihood* of problems such as slow connections, spam detectors, bounced mail and overfull mailboxes means that correspondents have access to a range of excuses for not responding to email. Habshah is scathing of her boss‘s mail management practices, as he allows his mailbox to overflow:

> I did send [email] to my Dean, sometimes just informing him, but sometimes it exceeded his quota thus email bounced back. And most of the time he said —. no I didn‘t get your email. I have been away for meeting...too busy to read emails… Why don‘t you call me over the phone? Then I can get the message much more quickly”
>
> (Habshah, Personal Assistant, KUTKM)

She also suspects her colleagues of lax practices, using the system‘s failures as an excuse for their own laziness:

> The emails that I sent were bounced!! What does it mean??...this person‘s attitude ....they leave their email box unattended… When I sent email, I got a very late reply.
>
> (Habshah, Personal Assistant, KUTKM)

UB academics, on the other hand, did not currently have technical problems in their dealing with the Internet (email and Web):

> No…no difficulties faced. Before, I did sometimes struggle to log in the previous version of the operating system but the combination of OSX and broadband connection I actually have no problems… The system here is very reliable…it hardly ever crashes.

(Alice, Senior Lecturer, UB)

This leads to more confidence in the medium: if an email is sent at UB there is every chance that it will be opened and read. It seems reasonable to assume that the reported technical difficulties could easily have been solved over the intervening years and that usage and attitude may have changed as a direct result of this increased confidence in the system not to let users down. This might mean that these aspects of the two sites became even more similar to each other.

Similarly, all the Malaysian participants explained that they personally, and the University as a body, had fewer years' experience of using email and the Internet than the UK counterparts. Essentially, Internet facilities had been rolled out across the KUTKM campus, as at Brighton, but the level of integration into everyday work practice was not as far along as in the UK. The empirical work of (Leem, Kim, Yu & Paek, 2008) points to a five part level of IT maturity for organisations such as universities, consisting of: initiation, recognition, diffusion, control, and integration. Although this business oriented approach is not the one taken in this study, we could hypothesise that KUTKM was, in 2004, at the diffusion or control stage of the process, and is very likely, all other things being equal, to have developed since then to reach the integration stage. Alternatively, as we shall see in the next two sections, we may need to develop other hypotheses about obstacles to use.

5.3 ROGERS MODEL OF ADOPTION AND DIFFUSION

In this section we explore the extent to which Rogers' theory of diffusion of innovation applies in the situation we find in the two universities.

Rogers' model essentially suggests that an innovative technology, such as the Internet, is communicated through some channel(s) to members of a social system, who adopt it over a period of time. Rogers' theory

suggests that the *diffusion* process occurs within society, as a group process, whereas the *adoption* process pertains to an individual. One issue here is what we choose to see as the social group within which diffusion has taken place. It would appear that the relevant level of analysis is not society in general, the country or even the international academic community but rather the national HE sector and even the individual university. Almost every individual staff member in the Malaysian higher education institutions (whether academics or administrators) has been provided with a computer system connected to the Internet. The Internet has been the object of a policy decision to roll out Internet facilities across the country's Universities. However the adoption process at the level of individual workers and by extension the groups that they form, is uneven, as we have seen in the preceding chapter. We therefore have a two level model of innovation diffusion, with the organisation "trickling down" the Internet to departments and schools, where a second level adoption process has to take place. The first level of adoption is unproblematic: the rollout of the technological infrastructure is mandated. The second level of adoption decision-making is more uncertain. In the UK on the other hand, both individuals and the organization appear to have reached the integration stage.

According to Rogers' theory, adoption decisions are based primarily on an individual's assessment of technology usefulness, i.e. whether or not fulfils his/her desires and needs (similar to perceived usefulness in the Technology Acceptance Model). A more nuanced account involves a number of perceived attributes of the innovation itself: trialability, complexity, observability, its relative advantages and compatibility. These are also the significant characteristics that Rogers considered might motivate individuals to adopt an innovation or to reject it. The traits were described in Chapter Two but the descriptions are repeated here for convenience:

- *Trialability* is the perceived degree to which an innovation may be tried on a limited basis. This allows the potential adopter to take part in small-scale trials or pilot use, reducing risk. Trialability is positively related to acceptance
- *Observability* is the perceived degree to which results of adopting the innovation are visible to others. It is positively related to acceptance
- *Complexity* (similar to perceived ease of use in the TAM model) is the degree to which an innovation appears difficult to understand and us. Complexity is negatively related to acceptance.

- *Relative advantage* is the degree to which an innovation is seen by the potential adopter as superior to prior technologies or tools that fulfill the same needs. It is positively related to acceptance.
- *Compatibility* is the degree to which a potential adopter perceives an innovation to be consistent with their existing values, past experiences, habits and needs. Compatibility is also positively related to acceptance.

We can only speculate on the *institutional* process of adoption, but it is interesting to consider how these five characteristics in Rogers' model apply to the results reported in Chapter Four, i.e. at the level of individual potential adopters and the groups they are part of.

Trialability is probably the least interesting of these characteristics for this study, since the decision to buy and install was not with the individuals we talked to. At a more local level, it was not their decision to use the technology in the School or Department.

Observability is interpreted here to be the effect that a potential user thinks that her use will have on observers, in other words, the importance of *being seen* to be an adopter. In these sites, these observers could be peers, subordinates, students or managers. It seems clear that the use of email is expected or even mandated in the UB context, so this is an important aspect of Internet use for both administrators and academic there. A refusal to use the Internet, particularly email, would be a serious disadvantage in terms of communicating with the rest of the School. For administrators, in particular, it might be a breach of employment contract. At KUTKM, there seems little sense that use will be noted and rewarded or that non-use will be punished. Managers do not appear to require subordinates to use email, and in the case of those at the top of the hierarchy, they appear to actively discourage it, by insisting on face-to-face communication in some situations and letters in others. Aisyah's comment is given here as an example of several already given in Chapter Four, to illustrate this point:

> No, I never do receive emails from superiors. Besides that, I also use the phone or SMS to communicate with lecturers who are away from the office. I fear if I only resort to email the person might not get the message. My superiors resort to phone and face-to-face communication.
>
> (Aisyah, Personal Assistant, KUTKM)

A direct example of a clash of attitudes on this point can be discerned in Habshah's point, quoted above. Habshah assumes that others will use the email facilities in the same way that she does and she is indignant when others (the Dean, the colleagues who don't check their mailboxes) pay so little attention to the observability of their mail use. As high observability is positively correlated to acceptance, the model would predict that the UB situation would lead to higher levels of adoption than KTKM, which is indeed the case.

Complexity did not appear to be an issue at either site. Both sets of participants appeared well able to use search engines, browsers and online applications such as banking and auction sites. Even though KUTKM participants made limited use of email and the Web for work, they were skilled at appropriating these tools for personal use. However, technical issues can create perceived complexity or at least frustration, and as we saw, there was some frustration at KUTKM with technical issues such as speed of connection and startup, compared to Brighton, where there were few perceived technical difficulties. The model would predict lower usage at KUTKM, as a high perception of complexity is negatively correlated with adoption.

Relative advantage is the perception that the innovation is superior to existing facilities. In this case, these can be defined as the other media that can be used as alternatives to email and the Internet. This was a particularly rich section of the findings in terms of the interplay or computer mediated and non-mediated communication. At Brighton, the perceived advantages of email over both paper-based media (letters, fax, memos) and synchronous speech based communication (conversation, telephone) seem to be fully accepted. Characteristics such as speed and efficiency were quoted by every UB participant. For instance, Alice explains the advantages of the asynchronous nature of email:

> I do find it very convenient to communicate via email because lots of people will be involved in teaching or meetings, so emails get hold of people and also they can pick up when they are free. In addition I can avoid unnecessary face-to-face communication...You know...it can be done via email.
>
> (Alice, Senior Lecturer, UB)

Letters are used only for formal communication with students and the fax machine sits in a dusty corner, mostly ignored. There is face to face and telephone communication: the open plan office layout facilitates talk among administrators. However, communication that would mean going to a different office or floor is commonly carried out by email instead. Similarly, information searching in the physical Library, a separate building, is rare, with Web search widely used as an alternative.

Some KUTM participants also mentioned the perceived advantages of email, though only in relation to international communication:

> I am finding a place in UK for my PhD studies…I contacted the personnel in charge…I got a very prompt reply …so now I register online and waiting for the next action…very fast, cheap…I scan my documents and then make attachments to my email…very quick…
>
> (Atiqah, Tutor, KUTKM)

However, many KUTKM participants were vociferous in their appreciation of non-Internet communication. Face to face conversation is one of the media mentioned by Zeda:

> Most of my work is done in face-to-face interaction: that is we meet, discuss and then I perform the work... Email, mmm I am using it to inform say like ...meeting will be held next Thursday.... hahaha like that. But I will choose to call over the phone first then I will resort to email.
>
> (Zeda, Lecturer, cum Subject Coordinator, KUTKM, 2004)

Mariam‘s comment was typical of many at KUTKM:

> … I prefer sending sms and making phone calls.
>
> (Mariam, Lecturer, KUTKM)

UB participants, on the other hand, rarely prized synchronous communication and often considered it involved serious waste of time. Alice’s comment (above) displays this attitude, as does Lucy’s report:

> I use email because it is very convenient: it cuts out time, it's easier to write than to talk over the phone and they can pick up the email as soon as I send it or whenever they like. Besides that, it is like a document, which you can refer to and retain. Unlike the telephone where what is said is easily forgotten. I also don't want to disturb my colleagues with the noise of the phone.
>
> (Lucy, Research Administrator, UB, 2004,)

When it comes to Web use, the relative advantages of the Web are accepted by the UB participants, in the domains of ebanking, online shopping and so forth. Gillian's response is given here as an example:

> From the Web, I can make comparisons on a product that I want to buy; I can do some research before I make my decision to buy…I can engage with what other users say about the product, which I seldom get when I go to the store...Moreover it is very convenient, armchair shopping!!!
>
> (Gillian, Senior Resource Assistant, UB)

Some KUTKM participants enthusiastically reported making Web transactions in their personal lives in this way, but their enthusiasm was balanced by major concerns about both security and the quality of the online shopping experience:

> Shopping is always done the traditional ways – go to the shop, witness the things, decide and buy. Suppose I'm looking for shoes. I still have to see the shoes first, try them out, and then I will buy. Then I feel satisfied. Ordering online is not sufficient that I will be satisfied. In the picture it looks suitable but in reality the shoes might not be like the one described in the pamphlets …Holidays …yes, I have made booking online – room/ hotels reservations but air ticket no! Hotels reservation...I still need to back up with the phone.
>
> (Farah, Assistant Administrator, KUTKM)

Nadiah echoes Farah's comments:

> Travel or Hotels reservation- no! Not online. I tried once but it wasn't successful. Booking tickets online – No! I still find time to do it in person. Banking online – never! Mainly I have no confidence. Some I don't trust. I still prefer going to the shops, see it for myself: no doubt it takes a lot of time but I am satisfied.
>
> (Nadiah, Assistant Registrar, KUTKM)

At UB, then, the collective judgment of the relative advantages of Internet technologies appears to be overwhelmingly positive, while at KUTKM, the perceived advantages are countered by

serious perceived disadvantages in the shape of fraud and other trust-related issues. The model would predict higher usage at UB, as a perception of relative advantage is positively correlated with adoption.

Compatibility is another key characteristic, and is positively associated with acceptance and adoption. This is the degree to which a potential adopter perceives an innovation to be consistent with their existing values, past experiences, habits and needs. It is with this characteristic that it becomes clear that the issue of accepting and rejecting use of an innovation is not simply based on usefulness of the technology per se, but by external contextual factors such as the cultural underpinnings of the society or organisation into which it is introduced. Rogers (2003) emphasises the role of social structure, writing that "individual innovativeness is affected both by an individual's characteristics and by the nature of the social system in which individual is a member" (2003, p.26). Of course a context such as a University department has many dimensions: those that seem most pertinent to this discussion, as evidenced in Chapter Four, seem to be what we might call "media reciprocity" and personal relationships in the organisations studied. At a rather mechanical level, we can see examples of an orientation to compatibility in the UB participants' use of email. A clear example is Marilyn's report:

> It [email] is just the most favoured means of communication for lots of people now…
> Many people send their queries using email, so I reply using email too…
> (Marilyn, Senior Resource Assistant, UB)

This and several other similar examples show that using email is essential if UB is not to be out of step with those who correspond with it: in this way, email use is compatible with the expectations of its stakeholders. At KUTKM, however, communication is carried out via a mixture of channels, and there seems no imperative to answer in the same medium.

At a less superficial level, email usage at UB is compatible with the general ethos of the organization, which implicitly values efficiency above all. As we saw above, the efficiency of email and Web has been noted and valued by many UB participants. This has had a number of effects. Implicit in the participants' responses was the notion of a flat structure, in which any one individual may be contacted via email by any other. For instance, a junior member of staff could email a Dean and expect a response, as opposed to having to negotiate a passage through

secretaries and closed doors. This is not regarded as problematic or inappropriate by participants but rather as a further efficiency measure (although Deans were not part of the study and may privately have other views). Internet use has also led to a diminution in the need for people to be in spoken contact, either face to face or by telephone, although the effects should not be exaggerated. Again these effects are not seen as problematic at UB. On the contrary, several participants have explicitly welcomed them, for example Susan:

> …it does affect my face-to-face communication with my teaching colleagues: email does it very quickly and it saves me from seeing someone that I don't really want to communicate with…… mmm…yeah…I am seeing less of my teaching colleagues as I can do it over the emails…moreover I like computer mediated communication…
>
> (Susan, Senior Lecturer, UB)

Internet use therefore appears to be consistent with the "ethos" of the UB site and this perceived compatibility has led to a high level of adoption and use.

At KUTKM, it could be argued that there is a very different situation. While UK participants were strongly committed to fully engagement with the Internet in the workplace, finding it convenient, easy, fast, and appropriate for them to use, this state was not mirrored at KUTKM. Although Malaysians also believed in the usefulness of the Internet, their utilisation was based mainly on personal use, not for work-related goals as was the case in UK and Western countries. This suggests that other factors are at play at KUTKM. Several issues that need explanation emerge from the data. The first of these is evidenced by comments on media choice. The Malaysian participants clearly prefer other media to email. On the one hand, many administrators expressed a preference for telephone calls and face-to-face communication when working with colleagues, with email used as a last resort or as a non-essential. The preference for face to face communication, especially for negotiation and particularly with superiors, was shown in Habshah's report of her superior's impatient attitude to emails:

> Ha … my dean I prefer face-to-face communication. I did send to my Dean, sometimes just informing him, but sometimes it exceeded his quota thus email bounced back. And most of the time he said'… no I didn't get your email. I have been away for meeting...too busy to read emails… Why don't you call me over the phone? Then I can get the message much quickly'… So you see, most of the time with boss, it is face-to-face (if he is around) or I SMS him via mobile phone or call him in fact.
>
> (Habshah, Personal Assistant, KUTKM)

Other participants explained the circumstances in which the telephone is preferred:

> in fact I use all the communication media, telephone is the most frequent lah…no telephone…handicapped!!! Sometimes, I do my work just on the phone….very important lah….
>
> (Mahirah, Assistant Administrator, KUTKM)

As we saw in the previous chapter, the disadvantages of synchronous communication appear to be outweighed in KUTKM by its immediacy and flexibility. What we see here is a preference for face to face communication that overrides the potential for increasing efficiency via email.

On the other hand, letters have a place at KUTKM that they do not have at UB. Letters take precedence over other communication media in more formal situations. They are described by the Malaysian participants as carrying authority and are seen as more permanent and reliable than other communication media at the workplace:

> Letters are highly regarded as being the most reliable and trusted documents. At the moment, anyone can put anything on email, but is it reliable? Letters...you can hold. There's signature and a letterhead there....
>
> (Didi, Assistant Administrator, KUTKM)

This can be seen as a need to insist on the formality of certain messages (many more than at UB).

In addition to the insistence on synchronous communication and the need for the formality of letters, we have a third factor, the fact that certain people are seen as inappropriate email receivers and senders. KUTKM administrators and academics reported that their superiors rarely communicated with their subordinates through e-mail with the implicit reason that by doing so superiors would downgrade their status.

> Mostly among colleague in KUTKM; normally I don't receive emails from friends. Among friends I usually call or send them message via phone. And I never receive emails from superiors.
>
> (Habshah, Personal Assistant, KUTKM)

> From my superior … I don't receive any email...no email at all... the one I receive from my assistant registrar usually just to inform only. Most of the time this is done by phone or face-to-face communication, letters or SMS [short messages via mobile phone]….

(Nadiah, Assistant Registrar, KUTKM)

Subordinates also believed that sending e-mail to their superiors would mean rude and culturally unacceptable.

> …I do send emails to my superiors like my dean but I do not receive email from him…after all to me it is rude to inform my superiors via email. If there is anything to be informed, I shall see him personally...ya ya… face-to face communication….
>
> (Nadiah, Assistant Registrar, KUTKM)

This relates to the issue of media choice, as discussed above, but because of the roles of the people involved, it also appears to be a question of power.

As far as compatibility is concerned, email clearly fits with the local culture of UB in a way that it does not quite with KUTKM. At UB its efficiency is perceived as powerful enough to make any negative side effects acceptable, whereas at KUTKM aspects of the local culture relating to personal communication and power relations mean that full adoption is avoided. In the following section we look to Hofstede's study of cultural dimension for an explanation of these different cultural values that lead to differing perceptions of compatibility and hence to different levels and rates of technology adoption.

5.4 ORGANISATIONAL AND NATIONAL CULTURE

We have seen that in the domains of ~~–p~~erceived relative advantage" and ~~–c~~ompatibility" there are differences between the two sites that cannot simply be explained by the technical advantages of the Western setting. They can be categorised in different ways, but a convenient listing is as follows:

1. New technology is fully integrated into work life at UB but not to the same extent at KUTKM. Here the opportunities for leisure-related use are to the fore.
2. UK participants welcome the opportunity to avoid face-to-face or synchronous communication whereas KUTKM participants continue to value it.

3. Letters on paper have a role at KUTKM that they no longer have at UB.
4. While email use at UB goes across all job titles, there are problems when individuals of a certain status at KUTKM are expected to use email.

Hofstede‘s classic study appears to offer some possible answers to the questions raised by these differences. Hofstede (1991) rated 66 countries on five characteristics or dimensions:

Long term orientation: this dimension describes a culture‘s orientation to the present or the future. Values associated with long-term orientation are persistence, thrift and perseverance; values associated with short-term orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'. Unfortunately there are no figures available for Malaysia‘s LTO dimension. The UK has a relatively low score (25, compared with Hong Kong‘s 96, China‘s 118 and Taiwan‘s 87). This could suggest that Malaysia would have a similar long-term orientation to its East Asian countries, but other factors such as religious tradition may make this unreliable assumption. We will not, therefore, use LTO in the discussion.

Masculinity: this dimension refers to the extent to which a society values and displays characteristics that are traditionally seen (in Western culture) as masculine or feminine. Masculine characteristics will include assertiveness, ambition, orientation to material wealth and competitiveness. Feminine traits include a valuing of relationships and quality of life. Malaysia was rated at 50 (34th position) on this scale (which tends not to include extreme ratings). Other countries with similar ratings included Egypt, Iraq, Pakistan and Israel. The UK is rated at 66 (12th), a score similar to those of the USA, Poland, Germany, South Africa and US. Highly Masculine countries were Japan (95) and Hungary (88), while the Scandinavian countries score

lowest on this scale, with Denmark at 16, Norway at 8 and Sweden at 5. Given that the Masculinity ratings are not dramatically different in the two countries, it seems unwise to relay on them to interpret the findings in this study.

Uncertainty avoidance: this dimension refers to a culture's willingness to live with ambiguous or uncertain situations. In cultures with high uncertainty avoidance, people readily accept rules about behaviour (what to eat, what to wear) and employees tend to stay longer with employers. In a culture where uncertainty is tolerated, people favour flexibility and informality. Both Malaysia and the UK score almost identically on uncertainly avoidance, with both having very low scores (36 and 35, ranging 59th and 61st). According to Hofstede, Muslim countries (defined as over 50% practicing Muslims) would be predicted to show a high level of uncertainty avoidance: speaking of Muslim countries in general, he goes on to suggest that ~~[t~~] he combination of these two high scores (UAI) and (PDI) create societies that are highly rule-oriented with laws, rules, regulations, and controls in order to reduce the amount of uncertainty" [Hofstede, 1991]. Malaysia clearly does not fit this general model, which was calculated to account for all Muslim countries, including the Middle East.

Given the similarity of ranking on this dimension, we cannot look to it for explanation of any differences in the data. 1

[1] Other writers have interpreted this dimension differently. Straub (1994) conducted a study on the usage of e-mail and fax in Japan and the US. It was found that Americans were extensively use e-mail for work-related issues while Japanese firms do not. He attributed the differences in using these two technology materials to culture. According to him, high uncertainty avoidance in Japan could explain the Japanese perceptions on new work technologies such as e-mail and fax. Straub's interpretation of ~~u~~ncertainty avoidance" sees this trait in the Japanese preference for using the telephone, letter or fax *to avoid any denial from the receiver*.

However, the ratings for the two remaining traits are of great interest.

Individualism: Hofstede opposes individualism to collectivism. In a collectivist culture, people will define themselves mostly as a member of a long-term group, such as a family, a religious group or perhaps in our case, an institution or working group. In a collectivist society, people are integrated into strong, cohesive in-groups. People in an individualistic society tend to define themselves apart from group memberships and to develop as distinct personalities. The ties between individuals tend to be loose, with everyone expected to look after him/herself. The most collectivist societies according to Hofstede are in Latin America: Guatemala is rated at 6, Ecuador at 8 and Venezuela at 12 in terms of individualism. However Malaysia is also quite low, with a 26 rating, coming 46th out of 66 countries. The UK, on the other hand, is highly individualistic culture, ranking 3rd on the Hofstede list, with a score of 89, only just below the US (91) and Australia (90). We return to this difference in the discussion below.

Power distance: high versus low power distance refers to the extent to which members of the culture expect and accept unequal distribution of power. In a country with low power distance, individuals expect power relations to be relatively democratic and will relate to each other more or less as individuals, even regardless of formal positions. An example from the UK might be the low level of use of honorifics and in a University setting, the tendency for use of first names, from students to Vice-Chancellor. In a high power distance culture, individuals expect power relations that are sometimes autocratic or paternalistic rather than consultative: "[s]ubordinates acknowledge the power of others based on their formal, hierarchical positions." There is a

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They want to ensure that the message would reach the recipients. In this study we do not share this interpretation: we see avoiding denial as an aspect of collectivism.

dramatic difference between Malaysian and UK culture on this dimension, according to Hofstede's findings. While the UK is well towards the low-power distance end of the scale, with a rating of 35 in 57th place (between Germany and Switzerland), Malaysia was judged the country with the highest power distance in the world (104, in first place), above Guatemala and Panama. Again, we will refer to this difference below.

Figures 5.1 and 5.2 show the ratings for the four dimension ratings available for both countries:

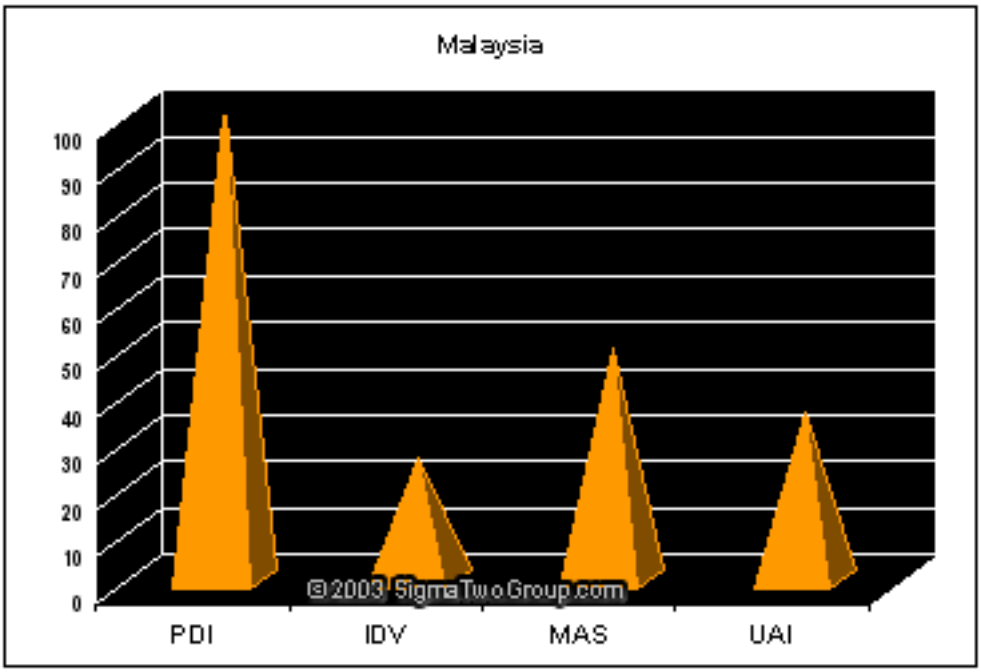

Figure 5.1: Malaysia's ratings on Hofstede's cultural dimensions (from www.geert-hofstede.com)

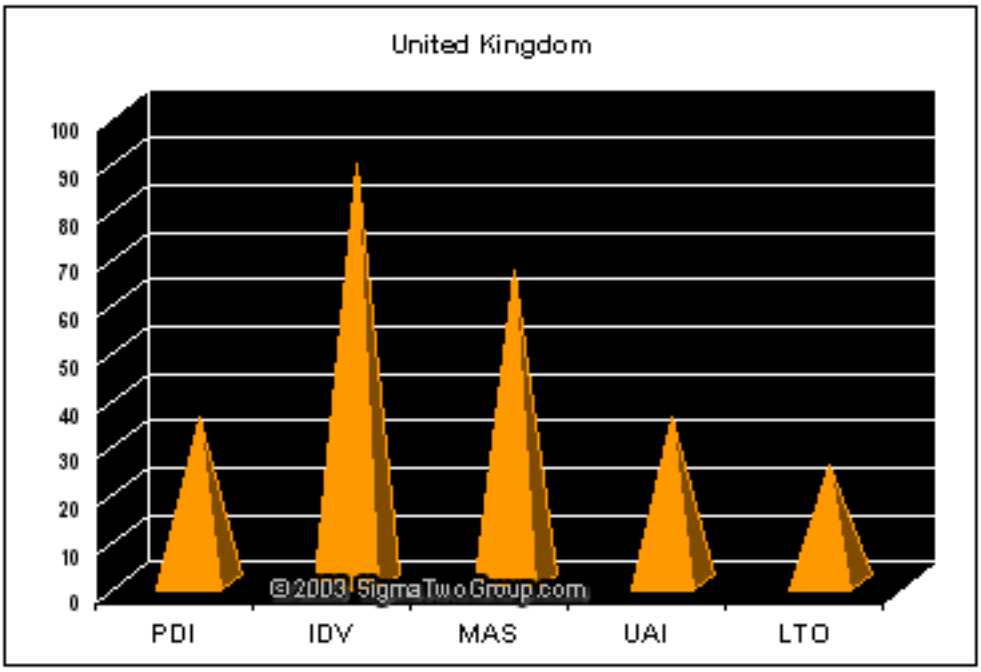

Figure 5.2: UK's ratings on Hofstede's cultural dimensions (from www.geert-hofstede.com)

According to Hofstede's studies, then, the two countries in the study are similar when it comes to Masculinity and Uncertainty Avoidance, but show clear differences when it comes to Individualism and especially to Power Distance. In this tradition, Cullen et al (2004) claimed that attitudinal barriers could be culturally based. In many cultures that place high value on oral culture, personal communication and strong family and kinship networks, the use of computers for communication purposes will not be a high priority. The level of individualism-collectivism influences approaches to conflict settlement, behaviour patterns and the system of employee motivation (Hofstede, 1991). This distinction could illuminate the differences in email and Internet adoption between the two sites. As we saw, the UB participants appreciate the efficiency of the Internet in allowing them to accomplish their work tasks, without having to engage in face-to-face or telephone conversations. The UB participants pursue their own paths, only going

to the trouble of negotiating with others when absolutely necessary. They are also happy to sit alone with their PC, in contrast to the Malaysian participants' reports of boredom and solitude. Zeda's comments on her library use illustrate this point:

> I prefer looking at books and going to the library…I still enjoy going to the library. I can meet friends and even at times have tea together. I do feel bored locked in my own office.
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

The Web is seen as an isolating activity, whereas the Library is a different physical and social context that is actively enjoyable to visit. This is not simply a matter of sociability. It appears that the Malaysian participants prefer to have their work confirmed and validated by making it into a collective rather an individual enterprise. Gaining individual recognition for one's work does not seem to be a significant goal in this context. It is worth conjecturing whether the Malaysian participants may consciously or unconsciously be avoiding some of the disadvantages of email in their insistence on face to face contact. Many researchers suggest that ~~t~~his form of communication [email] invites more conflict—manipulative and disrespectful behavior that escalates anger and reduces productivity—through the reduction of social cues and depersonalization of the other, which can lead to exchanges of negative emails between two or more people (Turnage, 2007).

We would claim that the stark difference in the power distance dimension for the two countries also has explanatory power. There was strong evidence in the KUTKM responses that people of higher status in the organisation, particularly Deans, avoided and discouraged use of electronic media. Zeda makes this distinction:

> … I am the type who prefers mediated communication…ha...ha not because you are doing the research…mmm unless it's urgent and important, then I will see the person in person…but with my boss it has always been face-to-face communication!
>
> (Zeda, Lecturer cum Subject Coordinator, KUTKM)

As an academic researcher, she does not feel the need to validate her decisions with colleagues, but with superiors, email is still not seen as an appropriate medium. One way of imposing the perception of power distance, from the Superiors' side, would be to insist addressed face to face, or at least via telephone or SMS, rather than via email. Again, this may be an unconscious reaction to the potential flattening effect of email recognized by early researchers in computer mediated communication: "email plays a positive role by flattening organizational structures, allowing for greater information exchange among more people and enhancing socialization" (Turnage, 2007). This kind of flat structure would be at odds with the cultural norm of the country, whereas it could be argued that in the UK, the characteristics of email are in close alignment with the organisational structure and implicit characteristics of institutional relationships. This is not a one directional perception, as the high power distance notion is not one imposed by superiors but also accepted, shared and acted on by subordinates. In our case, we can see that the KUTKM participants share this perception that emailing a boss is somehow "morally wrong". Nadiah articulates this opinion:

> …I do send emails to my superiors like my dean but I do not receive email from him…after all to me it is rude to inform my superiors via email. If there is anything to be informed, I shall see him personally
>
> (Nadiah, Assistant Registrar, KUTKM)

The implication is that as leaders, those in high positions should be treated with more respect than other, and a symbol of this respect is that subordinates should only have conversation with them face-to-face. None of the participants at UB, where a more consensual system prevails,

suggested similar attitudes. By extension, the continuing use of paper letters also now makes sense. If sending an email suggests a lack of respect for a superior, it also suggests a lack of weight in its contents. This leads logically to the need to use paper, which can be validated by an organisational stamp and the signature of a high ranking staff member, thus taking on some of their authority.

5.5 CONCLUSION

This chapter has discussed the meaning of the findings reported in Chapter Four, in terms of two classic models. After a brief preliminary discussion of the implications of technological differences at the two sites, we saw that Rogers' innovation diffusion model provided a useful framework with which to describe technology adoption in these tow case studies. The five factors considered were Trialability, Observability, Complexity, Relative Advantage and Compatibility. We then explored how far Hofstede's Cultural Dimensions model could be used to explain some of the differences found in that data and organised with Rogers' model. There are strong differences between UK and Malaysian culture on two dimensions, Individuality and Power Distance. These differences were seen as plausible explanatory factors for differences in perceived relative advantage and perceived compatibility at the two sites.

In the next chapter we will draw some conclusions about the study and its findings.

6 CHAPTER SIX: CONCLUSION

6.1 INTRODUCTION

This chapter begins by very briefly summarising the research process and findings of this study in Section 6.2. In Section 6.3 some reflections on the reliability of the study are given. Although there are some limitations to generalising the results, Section 6.4 draws out some implications, while Section 6.5 makes suggestions for future research.

6.2 SUMMARY

USING A SEMI-STRUCTURED INTERVIEW, TWENTY-SEVEN PARTICIPANTS' RESPONSES FROM TWO OCCUPATIONAL GROUPS, ADMINISTRATORS AND ACADEMICS, AT COMPARABLE SITES IN THE UK AND MALAYSIA WERE ELICITED FOR ANALYSIS. FROM THE DATA, FIVE THEMES APPEARED:

1. Differential email usage patterns;
2. Differential web usage patterns;
3. Affective issues around the use of email and Web;
4. Perceptions of the role of the Internet in everyday life;
5. Computer-Mediated and Non-Computer-Mediated communication

A number of technology-related issues arose, including the provision of basic facilities, storage, connection speed, and training.

Differential email and web usage patterns

The patterns of the Internet e-mail and WWW usage between KUTKM, Malaysia and UB, UK working women are different in volume and magnitude. The results demonstrated that level and intensity of usage in both work and personal tasks among the participants between the two countries differ. Malaysians had shorter histories of Internet use and used it less, particularly for work. In the UK, however, the Internet, and email in particular, is tightly integrated into everyday work life at all levels. Outside the office UB working women also regularly conducted online transactions, while their Malaysia counterparts were very reluctant to do this due to security fears and worries about degraded quality of experience.

Affective issues around the use of email and Web

The UB administrators and academics at the time of the study were broadly positive about the Internet, which worked well in their context. Spam was the only problematic issue. At KUTKM, there were more negative comments. There was irritation from the Malaysian administrators due to the lack of a critical mass of email users in the workplace. This means that email use is frustrating, as there is no certainty that an email once sent will in fact be read and acted upon. Malaysia participants have not integrated email into their working practices extensively as compared to UK participants work practices. Their frustrations come from the slow pace of adoption by their colleagues, as well as technical issues.

Perceptions of the role of the Internet in everyday life

KUTKM and UB participants were generally appreciative of the practical advantages of Internet use. All used the Internet for personal communication and for leisure use. However only UB

participants reported extensive online transactions, whereas KUTKM were reluctant to take part in financial transactions online.

Computer-Mediated and Non-Computer-Mediated communication

There were significant differences in media choice, with KUTKM participants reporting that letters on the one hand and synchronous communication via face-to-face conversation and telephone on the other were generally preferred to email. This was particularly the case when communication between superiors and subordinates was concerned.

The results were then viewed from the perspective of Rogers' Innovation Diffusion model, using the characteristics of trialability, observability, complexity, relative advantage and compatibility. The model worked well to describe the factors leading to Internet adoption or non-adoption. In order to explain the difference in take up, we then looked at the results through the prism of Hofstede's cultural dimensions, finding that the dimensions of individualism/collectivism and high/low power distance were particularly pertinent and thus confirming the informal hypothesis that the cultural underpinnings of a group play a significant role in its decisions about adoption of innovation.

In condensed form, the study's contribution to knowledge has been to show that:

- There are extensive differences between comparable sites in Malaysia and the UK. In particular, integration of Internet communication into work practices, media choice and spread of Internet use across roles were all found to be very different on the two sites.
- Rogers' five factors provide a useful comprehensive framework for describing the reports of our participants

- Applying two of Hofstede's cultural dimensions to the interpreted data allowed us to theorise about the reasons for the differences found in the data, connecting cause to effect in a natural way that could be extended to other settings. Hofstede's cultural effects play an important role in the predisposition towards and selection of electronic communications media.

6.3 REFLECTIONS ON THE STUDY

In this section we reflect on the strengths and the weaknesses or limitations of the study.

Limitations of the study

As a pair of case studies conducted at two sites, the study is obviously limited in terms of coverage and scope. Only twenty-seven women were interviewed, all at the same organisational level in some sense, i.e. within an academic department. It emerged from the data that organisational hierarchy is an important discriminator in decisions to adopt technology: thus a failure to interview Deans, Vice Chancellors and so on leaves a gap in the data. However this only emerged at the data analysis stage and could not be corrected. Similarly, there were other issues that arose form the data that would have made interesting interview questions. For instance, the interview schedule did not mention SMS or mobile phone use in the workplace. It became apparent that these were interesting topics, but as they were only mentioned in Malaysian interviews, it proved impossible to incorporate them into the UK interviews, which were carried out first.

A further note of caution should be given in relation to the uncritical use of Hofstede's dimensions. These have been challenged both for now being dated and also for seeming to imply a stable and homogeneous culture across a nation (McSweeney, 2002). However they are still very widely used and for the purposes of the study we are confident of their appropriateness.

It should also be mentioned that the report on the study is appearing five years after the interviews took place. This was unavoidable, but makes the findings appear somewhat dated. However, it may be that they also give a sense of chronological perspective.

Strengths of the study

Many previous studies in the field of innovation adoption were quantitative in nature. They typically tried to establish relationships between many variables (such as adoption and gender or age. This approach produces results for a large population but may not capture a sufficient depth of information on Internet usage to lead to a god understanding of the reasons for adoption and non-adoption. This qualitative interview gave the opportunity to obtain first hand reports from working women in their own words. In particular, the researcher succeeded, despite issues of different language and culture in developing a good rapport with participants and to elicit a range of sometimes controversial disclosures, for instance about downloading music in the workplace, annoyance with other people‘s refusal to use the Internet and at UB, dislike of interacting directly with colleagues.

Many studies have explored Internet use in a range of settings as described in Chapter Two; nevertheless, a comparative case study such as this, between women in a developed and a developing country, is rare. This study has therefore extended the geographical coverage of investigation, establishing an association between technology adoption and cultural factors.

6.4 IMPLICATIONS

This study has shown that UB participants have internalised a very efficient ―working through email" culture. As for KUTKM, it is tempting to say that e-mail is ―not yet integrated".

This suggests that increasing email use is in some way inevitable and only a matter of time (and technological infrastructure). This may well be the case, especially given the global culture within which an educational establishment such as KUTKM operates. It is likely that if KUTKM embraced working through email, this would be an advantage to KUTKM or other networked organisations in Malaysia. In order for this to happen a change would be needed whereby bosses changed the organisation culture by allowing subordinates sending messages through the e-mail for work related matter.

On the other hand, we have seen in the data some implications and results of Internet use that KUTKM might prefer to avoid. Lessening face-to-face communication with colleagues suits the UK ethos of individualism, but may be in too much tension with collectivist principles of Malaysian society to be acceptable. Similarly, and more profoundly, the need to maintain high power distance may work against the more widespread adoption of the technology.

6.5 FUTURE DIRECTIONS

There are a number of directions that could be taken in further extensions of the study. Obviously now that a methodological framework has been developed, it would be straightforward to incorporate new geographical locations into the study. Interesting comparative studies could be carried out for instance with one of the Scandinavian or Middle Eastern countries, which differ markedly along several of Hofstede‘s dimensions from both Malaysia and the UK. Additionally, the findings of this study might be more comprehensive if both males‘ and females‘ patterns of Internet use were explored.

However, as mentioned above, the data reported here are now five years old. In a fast moving technological environment, it is to be expected that the situation at both sites will have evolved. Thus a new study, at either or both sites, would be likely to yield interesting new findings that could form a longitudinal study. New technologies such as the Internet enabled mobile phone and the iPod and other MP3 players may enable further developments than move against the trends we have noted. For instance, we may find the UB administrators listening to music on their own iPods using headphones. At KUTKM it may be that global trends towards Internet use have imposed general Internet use despite the national tendency to expect high power distances.

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APPENDIX A

INTERVIEW SCRIPT

INTERVIEW SCRIPT					
Internet Usage Among women in Malaysia and United Kingdom					
Nos.	**Research Que**	**Key Word(s)**	**Interviewer Script**	**Prompts (if necessary)**	**Reminder(s)**
A		**Self Introduction**	Hello..., I am Kalthom Husain, a research student from School of Computing, Mathematical and Information Sciences, University of Brighton. I am very grateful that you have agreed to talk to me today. I estimate we'll need 1 hour - is that OK with you?in the one hour with me today.		
		Research Purpose	At present I am undertaking a research project on Differential Effect on Internet Use Among Women: A Study of Malaysia and United Kingdom		
		Seeking permission to audiotape	Before I begin, I would like to seek permission to audiotape our conversation as I wouldn't want to loose any data revealed by you? May I ? Can we begin now?		Audiotape , Switch on tape for recording. Watch for non-verbal cues
B	**What is the pattern of email use ?**	**Email experience**	1. How long have you been using the email?		
			2. Do you use email for personal and work reasons?		
		Email use	3. How do you use email for personal and work reasons?		

APPENDIX B

PARTICIPANT DETAILS AND PSEUDONYMS

Profile of KUTKM Participants

Normal text = administrator *italic* - academic

Pseudonym	Position	Age	Experience		Highest Academic Qualification			
			Working	Computer/ Internet	Post graduate	BA/BSc or equivalent	or equivalent GGSCE	or equivalent
Aisyah	Personal Assistant	21	02	02	-	-	-	√
Farah	Assistant Administrator	22	01	02	-	-	-	√
Didi	Assistant Administrator	22	01	01	-	-	-	√
Hidayah	Assistant Registrar	27	06	04	-	√	-	-
Habshah	Personal Assistant	42	21	03	-	-	-	√
Mahirah	Assistant Registrar	26	02	05	-	√	-	-
Nadiah	Assistant Administrator	25	03	04	-	-	-	√
Diana	*Head of Department*	*26*	*02*	*04*	*√√*	*-*	*-*	*-*
Atiqah	*Tutor*	*24*	*01*	*05*	*-*	*√*	*-*	*-*

Zaleha	*Tutor*	*27*	*02*	*05*	**-**	**√**	**-**	**-**
Mariam	*Lecturer*	*28*	*03*	*03*	**√√**	**-**	**-**	**-**
Zana	*Tutor*	*26*	*01*	*02*	**-**	**√**	**-**	**-**
Zeda	*Lecturer cum Student Placement Coordinator*	*27*	*02*	*05*	**-√**	**-**	**-**	**-**

Profile of UB Participants

Pseudonym	Position	Age	Experience		Highest Academic Qualification			
			Working	Computer/ Internet	Post graduate	BA/BSc or equivalent	or equivalent	GCSE or equivalent
Lucy	Research Administrator	25	15	07	-		-	-
Marilyn	Senior Resource Assistant	45	18	10	-	-	√	-
Mary	Programme Assistant	37	18	11	-	-	-	√
Gillian	Senior Resource Assistant	52	27	11	-	-	√ √	-
Jill	Programme Assistant	36	20	09	-	-	√	-
Jenny	School Administrator	36	19	06	-	-	-	√
Ann	Programme Assistant	45	20	11	-	-	√	-
Catherine	*Senior Lecturer*	*45*	*20*	*08*	*√√*	-	-	-
Karen	*Subject Coordinator*	*37*	*10*	*07*	*√*	-	-	-
Susan	*Senior Lecturer*	*50*	*22*	*11*	*√√*	-	-	-
Bella	*Award Leader*	*36*	*14*	*08*	*√√*	-	-	-
Alice	*Senior Lecturer*	*37*	*15*	*07*	*√*	-	-	-

Alison	*Senior Lecturer*	*47*	*20*	*11*	*√√*	*-*	*-*	*-*
Nancy	*Award Leader*	*38*	*10*	*07*	*√*	*-*	*-*	*-*

APPENDIX C

INTERVIEW REQUEST MALAYSIA

Dear Ms/ Mrs……..

REF: CMIS Ph.D Student Request

Firstly let me introduce myself. My name is Kalthom Husain and I am a PhD student in CMIS. Currently I am undertaking research on Women's Internet Usage in Malaysia and United Kingdom

I would be very grateful if you could spare some time for me to arrange an interview with you. The interview probably takes an hour. You may decide on any of the dates commencing 6 October till 22 October 2003, time and place that are most convenient to you.

I am sure a meeting with you will be very valuable for my research and your cooperation is very much appreciated.

I may be contacted via email (puan_kalthom@yahoo.com) or at 016-3054890.

Thank you so much and hoping to hear from you soon.

Best Regards,
Kalthom Husain

Room 616 Watts Building

University of Brighton

East Sussex , United Kingdom

APPENDIX D

INTERVIEW REQUEST UK

Dear Ms/ Mrs, Dr……..

REF: CMIS Ph.D Student Request

Firstly let me introduce myself. My name is Kalthom Husain and I am a Ph.D student in CMIS and house at W616. Currently I am undertaking research on Internet Usage Among Women in the Workplace in Malaysia and the United Kingdom.

My supervisors, Dr. Lyn Pemberton and Dr. David Horner have recommended that I request an interview with you.

I would be very grateful if you could spare some time for me to arrange an interview with you. The interview probably takes an hour. You may decide on any of the dates commencing 17 May 2004 – 24 May 2004, time and place that is most convenient to you.

I am sure a meeting with you will be very valuable for my research and your cooperation is very much appreciated.

Thank you so much and hoping to hear from you soon.

Best Regards,
Kalthom Husain

Room 616 Watts Building

University of Brighton