Saudi Women Student and the Internet:

Gender and Culture Issues

By

Maryam S. Oshan

Submitted in partial fulfilment of the Requirements for the award
of Doctor of Philosophy of Loughborough University

2007

Research Student Office, Academic Registry
Loughborough University Leicestershire LE11 3TU UK
Switchboard: +44 (0)1509 263171 Fax: +44 (0)1509 223938

Loughborough University

CERTIFICATE OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this thesis, that the original work is my own except as specified in acknowledgments or in footnotes, and that neither the thesis nor the original work contained therein has been submitted to this or any other institution for a degree.

..... (Signed)

.....26/6/2006..... (Date)

Abstract

The Internet plays an increasingly significant role in people's lives. Poverty of data and research on Internet use and users is probably one of the most significant factors affecting the understanding of the Internet use and attitude in a conservative country and society such as Saudi Arabia. The aim of this research was to identify and analyse Saudi university students' use of the Internet, with particular emphasis on factors associated with, and influencing, female university students' attitude toward using the Internet.

A mixed method approach was used utilising a mixture of quantitative and qualitative research techniques. It included a questionnaire to more than 700 male and female university students in King Saud University which incorporated questions on web and email use as well as an adopted Internet attitude scale from Tsai et al (2001). This was followed by series of focus group interviews with female students on Internet gender related issues.

The study found that demographic variables are associated with Saudi university students' use of the Internet. Gender was found to be significantly associated with students' email usage, chatting, and feelings about the web. Culture also affected women's reasons for using the web, choice of websites visited, and web activities. It also influenced reasons for e-mail use and non-use, and the people with whom they communicated using email. Females in Saudi Arabia face many challenges when it comes to Internet access and use. These barriers tend to be somewhat different than those faced by man. For Saudi females it is more cultural (i.e. family restrictions, lack of time) and psychological (i.e. security & privacy, Internet complexity).The majority of students had positive attitudes towards using the Internet. Female students were as positive in their attitude as male students. However, females had real or perceived difficulties in their ability to control their Internet usage.

Considering the scarcity of previous literature in this particular context (Saudi Arabia), this research provides an original and comprehensive contribution to knowledge regarding Internet use and attitude among university male and female students.

Keywords: ***Internet Use, Internet Attitude, Internet and Higher Education, Gender and Culture, Saudi Arabia***

Acknowledgment

All praise is due to ALLAH, the Great Almighty, the most merciful, the most gracious, who bestowed upon me blessing and gave me the strength and perseverance to undertake and complete this research. Undertaking this research would also not have been possible without the support and cooperation of several individuals for whom the researcher would like to express her thanks and appreciation.

I would like to thank my supervisor, Dr Ann O'Brien for her guidance, support and good humour over the last four years. Her contribution of time, criticism, and interest in the research progress deserve profound gratitude and appreciation. Thanks are also extended to my Director of Research, Dr. Anne Morris in providing additional advice and guidance. The time and patience of Rosie Cornish from the university Math Centre is greatly appreciated in helping with statistics.

Finally my thanks are due to my family: my parents for their prayers, guidance and encouragement. My deepest gratitude and sincere appreciation are also directed to my husband Ahmad for his love, psychological support and patience.

Table of Contents

List of Tables

List of Figures

Chapter One

Introduction

POSITION IN THE THESIS

Chapter 1 **Introduction**	**Chapter 2** **Background**	**Chapter 3** **Literature Review** **Gender and the Internet**
Chapter 4 **Literature Review** **Internet Usage patterns and Attitudes**	**Chapter 5** **Research Methods**	**Chapter 6** **Questionnaire Analysis**
Chapter 7 **Focus Group Analysis**	**Chapter 8** **Discussion**	**Chapter 9** **Conclusions**
Bibliography	**Appendices**	

Chapter One

1

Introduction

1.1 Preamble

It is widely known that the development of information and communication technologies (ICT) has had a dramatic impact on every aspect of peoples' lives. The Internet is one of the most important technological developments of the late 20th century. It links computers internationally and is made up of various components including: the World Wide Web and e-mail. "By using the Internet, individuals living in different countries can connect through their computers almost instantaneously" (Bahdi, 2000, p.881).

The Internet technology took only four years until it reached a critical mass of 50 million users. In explaining the meaning of such diffusion, Barlow (1995) noted that "the Internet is the most transforming technological event since the capture of fire" (Barlow, 1995, p.50). For a rapidly growing number of people it is a useful information resource and communication tool and for others it is a vital part of their lives (Howard et al., 2002).

Although there are people who do not use the Internet and never will, some people cannot afford it, and some people do not use it well, the growing use of the Internet is not only a phenomenon in the United States and Europe; it is also true in many developing countries. For example, in Saudi Arabia "Internet users grew by over 430% in four years (2000-2005), amounting to CAGR (Compound Annual Growth Rate) of 44.4%, (vs. world growth rate of 27.4%); Internet users are exceeding 2.5 million. Personal computers (PC) penetration has also grown 40% annually (vs. world PC growth rate of 9%) to around 16% penetrations" (Digital reach report, 2005, p.3).

As the Internet becomes increasingly important in people's lives, the study of this communication medium has become one of the growing areas in social science research in the West (Ferris 1996; Jones, & Clarke; 1995). Gurumurthy (2004) noted that there is a mainstream view that ICT (i.e. Internet) has only technical rather than social implications. In fact, the enjoyment of benefits from ICTs is determined by societal relationships; hence these technologies are not gender neutral. With the widespread use of the Internet, Papacharissi and Rubin (2000) emphasize the great need for understanding the social attributes that effect people's use of computer mediated communications (CMC) and the outcomes of CMC attitudes.

In the Middle East, however, lack of data and research on Internet use and users is probably one of the most significant factors affecting the understanding of its use and attitude towards use. There is a lack of empirical research and statistical information Detailing peoples Internet use or attitude which in return made it hard to put in perspective the issues and concerns effecting Arab Internet users. For a conservative country and society such as Saudi Arabia, the effect of the Internet on peoples' lives is controversial, because of the open nature of this medium. Many Saudi citizens as well as some policy-makers are ignorant of the Internet's advantages and implications. Thus, they do not know whether to embrace the Internet or reject it.

1.2 Why this research was undertaken

The Government of Saudi Arabia recognizes the important role of information and communication technology (ICT) in social development which has been emphasized in the general five-year development plans that chart the short-term vision for development (Ministry of Economy and Planning, 2004; Alzahrani, 2001; Basager, 2001). However, a comprehensive long-term vision of ICT has also been prepared (Ministry of Communication and Information Technology, 2005). These plans aim to transform the country into an information society, bridging the digital divide through the utilization of ICT and providing information services to the local society (AlHoymany, 2006).

To ensure the utilization of the ICT plans, different strategies, from infrastructure outreach to education programmes and awareness have been introduced. One of these programmes is the "Home PC Initiative", programme which aims to spread ICT awareness by means of computer and Internet literacy education and by boosting the

use of PCs in the country. This programme was launched in mid 2005 with the plan to enable one million homes to own personal computers (PCs) within a period of 5 years in which US$ 10 are paid monthly in addition to the phone bill. In addition, a Royal initiative aims at equipping 21,000 schools with PCs and equipment over a period of five years (GITEX, 2004). The Ministry of Communication and Information Technology (MCIT) is also working on plans to distribute to the general public training materials (on CDs), which cover basic PC and Internet skills (MCIT, 2004; AlHoymany, 2006).

The World Summit in Information Society (WSIS, 2005) discussed ways to ensure that gender equality is integrated as an outcome process of the Information Society summits, as well as equal participation and benefits for women as men in the information Society. In Saudi Arabia, the National Information Technology Symposium was held in Riyadh from 6-8 February 2006. This made a number of recommendations (Abouzied, 2006), among which was to carry out further research in ICT and human interaction to promote better understanding of ways of bridging the digital divide.

Although many ICT initiatives in Saudi Arabia are underway, there "is little activity taking place in ICT research and development in Saudi Arabia such as that carried out by Saudi ARAMCO (mainly in the area of supercomputers) and some universities" (ESCWA, 2005, p.8). In view of the importance of women's use of technology and related research and to contribute to efforts in Saudi Arabia, the researcher takes the initiative to study Saudi female students' use and attitude towards the Internet. In Saudi Arabia, there is a lack of studies that examine female use of the Internet

(Goblan, 2003; Al-dobayan, 2003). Without an understanding of how women use the Internet, research study will not be able to change and develop their access to, participation in, and use of online communications.

1.3 Aims

The overall purpose of this research is to identify and analyse Saudi university students' use of the Internet, with particular emphasis on investigating the factors associated with, and influencing, female university students' attitude toward using the Internet. There are two main focal elements which will be the discussion topics of this study and will shape its outcomes: Internet use patterns, and attitude of students in King Saud University toward the Internet.

1.4 Objectives

The main objectives of this research are:

1. To determine students' general patterns of Internet use.
2. To identify whether they encounter any barriers in using the Internet and, if so, what those are.
3. To compare the use of the Internet among female and male Saudi students and the issues surrounding any difference.
4. To explore female students' positive and negative attitudes towards the Internet.
5. To identify factors associated with and influencing female use of and attitude toward the Internet.

1.5 Research Questions

A number of research questions were developed from a review of the related literature and were considered during the analysis phase of the research data. These research questions are related to factors associated with and influencing Internet use and attitude.

1.5.1 Internet use patterns

- Do students in King Saud University use the Internet?
- What is the Internet use pattern of Saudi undergraduates in King Saud University ?
- Are there differences in the Internet use pattern based on age, gender, and study field?
- For what purposes do students at King Saud University use the Internet?
    - Do students at King Saud University use the Internet for their studies (for academic purposes)?
- Does Internet use among male and female students vary according to age, subject studied, and marital status?
- Does female Internet use (frequency and purpose) differ from that of males If so, how? and why?
- Are there any physical or psychological barriers that limit female students' use of the Internet? What are they?
- What problems do female university students perceive in regard to use of the Internet?

1.5.2 Internet attitudes

- What are the Saudi undergraduates' attitudes toward the Internet including affection, perceived usefulness and perceived control levels?

- Are there differences in attitudes toward the Internet, such as, anxiety, and computer self-efficacy levels based on gender and study field?
- Do students at King Saud University perceive the Internet as a valuable and useful tool for their studies?
- Is there any difference in perceived value of the Internet for their studies between:
    - Male and female students?
    - Students studying different subjects?

1.6 Context of the Study

The goal of this study was to find out about the Internet's use and impact on university students' daily lives, academic and social practices. The main reason behind the selection of this group of Internet users is that they are considered to be heavy users of the Internet compared to the general public. In addition, Internet use has very much became a part of university students' daily routine.

The research data was collected through a questionnaire survey and focus group interviews. The focus group interviews were carried out mainly to examine and explore further the results obtained from analysis of the research questionnaire. The findings were then integrated and used to draw an overall picture of female students' Internet use and the factors influencing and associated with their use and attitudes.

1.7 The significance of the study:

Although women's use and attitude towards the Internet has been widely researched in the West since the early introduction of the Internet in the 1990s, there has been

little published on women's use of the Internet in developing countries. Kole (2000, 2001) noted that there was very little research on two uses in 'gender', 'Information Communication Technology (ICT)' and 'society/development'. Despite the fact that some sources on Internet use in developing countries are using data that are "highly questionable", (for inconsistency and irregularity collection methods), these data are still used as an authoritative source for gender-specific Internet usage in these countries (Minges, 2002; The World Bank, 2005).

More specifically, the lack of empirical studies on women's use of the Internet in developing countries and particularly the Gulf Co-operation Council (GCC) countries was one of the important motivations for carrying out this research. A review of the literature identified that there was relatively little published (four studies) on Saudi women's use of the Internet. Furthermore the majority of these studies concentrate on patterns of Internet use among females none concern attitudes towards; the Internet or gender differences in a comparative manner. These studies are very general in nature, examining mainly the demographic profile of Internet users and the use of the Internet for specific purposes.

The current research intends to contribute to a better understanding of Internet use and attitude by students in King Saud University, specifically, examining gender differences. Although these have been investigated in an enormous body of research in the West in topics pertaining to the information systems (IS) field, very few researchers have investigated gender differences in the context of Internet use in Saudi Arabia.

The findings of this study will identify important issues in Internet use and attitude which will help the Saudi authorities in their effort to encourage Saudi women to utilize this medium effectively for the empowerment of their social, academic, and work lives. This study is the first study, to the best of the researcher's knowledge that investigates the use and attitude of Saudi university female students toward the Internet in comparison with their male counterparts. It is an exploratory study that will provide base-line data for future studies in the field, and will provide recommendations and suggestions for Saudi Arabian information policy.

1.8 Scope and Limitations

Ford et al. (1980) noted:

> *"It is immediately apparent that any study of information-seeking behaviour which attempts to be both comprehensive in coverage and exhaustive in depth is likely to be time-consuming, long-drawn-out and liable to alienate the subject of study. To be effective research in information-seeking behaviour must be selective, firmly based on existing knowledge and capable of being located within the general framework of information studies." (Ford et al. 1980; p.1)*

In the light of the above statement, this research is limited to investigating the use and attitude toward the Internet of King Saud University students in Riyadh (the capital city of the Kingdom of Saudi Arabia). There were several limitations as follows:

- The focus of this thesis is upon Riyadh as the capital city of the Kingdom of Saudi Arabia, because the oldest, largest, and most important universities are located in Riyadh. Although there are other important universities in other cities in the kingdom, it is difficult to cover other cities comprehensively because of the size of the country. The Kingdom of Saudi Arabia has an area

of 2,250,000 square kilometres, which is approximately equivalent to that of the UK, France, Germany, Italy and Spain combined.

- As this research is funded by the government, the outcome of this research is mainly aimed at King Saud University, since it provides free higher education to the people of Saudi Arabia.

- Time constraint was a major factor which limited the research in two ways. Firstly, the time given by the sponsor of the research for data collection was three months maximum. Secondly, the time consumed by the bureaucratic procedures of carrying out research in Saudi universities made it necessary to limit the study to one university (more details are in 5.3 Research Methods Chapter).

1.9 Outline

This thesis includes nine chapters; the structure is illustrated from beginning to end in Figure 1.1. The first two chapters; Chapter 1: Introduction and Chapter 2: Background, provide the reader with a general introduction and background about the research topic and the country of Saudi Arabia. Chapter 3 is a review of the literature related to gender and the Internet, while Chapter 4 examines research on students' use of and attitudes toward the Internet, along with a critique of empirical research on Internet use in Saudi Arabia. Chapter 5 describes the study method adopted for this research, and explains how this research was conducted. Chapters 6 and 7 detail the quantitative and qualitative results of the study. Chapter 8 presents the integration of questionnaires and focus group analysis exploring use of and attitude to the Internet, along with the significance of the results in the light of the reviewed literature and the research aims and objectives. The thesis closes with Chapter 9: Conclusion and

Recommendation. It summarises the whole work and presents recommendations for further improvement. It is important to note that this chapter highlights some important ideas for further exploration of issues that could not to be covered in this thesis.

Opening	Themes	Study Method	Findings	Explored Themes	Closing
Chapter 1 Introduction					
Chapter 2 Background					
	Chapter 3 Gender & Internet				
	Chapter 4 Internet use Patterns and Attitude				
		Chapter 5 Research Methods			
			Chapter 6 Questionnaire Analysis		
			Chapter 7 Focus Group Analysis		
				Chapter 8 Discussion of Relevant Themes	
					Chapter 9 Conclusion and Recommendations

Figure 1.1: Thesis structure

Chapter Two

Internet in Saudi Arabia

POSITION IN THE THESIS

Chapter 1 Introduction	**Chapter 2 Internet in Saudi Arabia**	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Two

2

Internet in Saudi Arabia

2.1 Introduction

This chapter provides background information to the study in terms of a general overview of Saudi Arabian Internet services and an introduction to Saudi culture and the status of Saudi women. An understanding of Saudi culture is critical in studying Saudis' use of and attitude toward the Internet.

2.2 Profile of Saudi Arabia

Saudi Arabia is located in southwest Asia, at the crossroads of Europe, Asia and Africa; it is "directly on the Tropic of Cancer, is in both the northern and eastern hemispheres. It's positioned in the Middle East, a recognized geographical region of

south western Asia. The country is bordered by Jordan, Iraq, Kuwait, Qatar, United Arab Emirates, Oman, Yemen, and the Persian Gulf, Arabian Sea, Gulf of Aden, Red Sea and the Gulf of Aqaba" (World Atlas, N.D). Saudi Arabia is the largest of Gulf States, and it covers an area of 865,000 square miles, about four fifths of the Arabian Peninsula and it is divided into six districts.

The capital city of the Kingdom of Saudi Arabia is Riyadh; it lies in the Central district. According to the Saudi Ministry of Foreign Affairs, Riyadh extends for almost 600 square miles and has a population of more than 4.7 million in 2000 (Figure 2.1: map of Saudi Arabia).

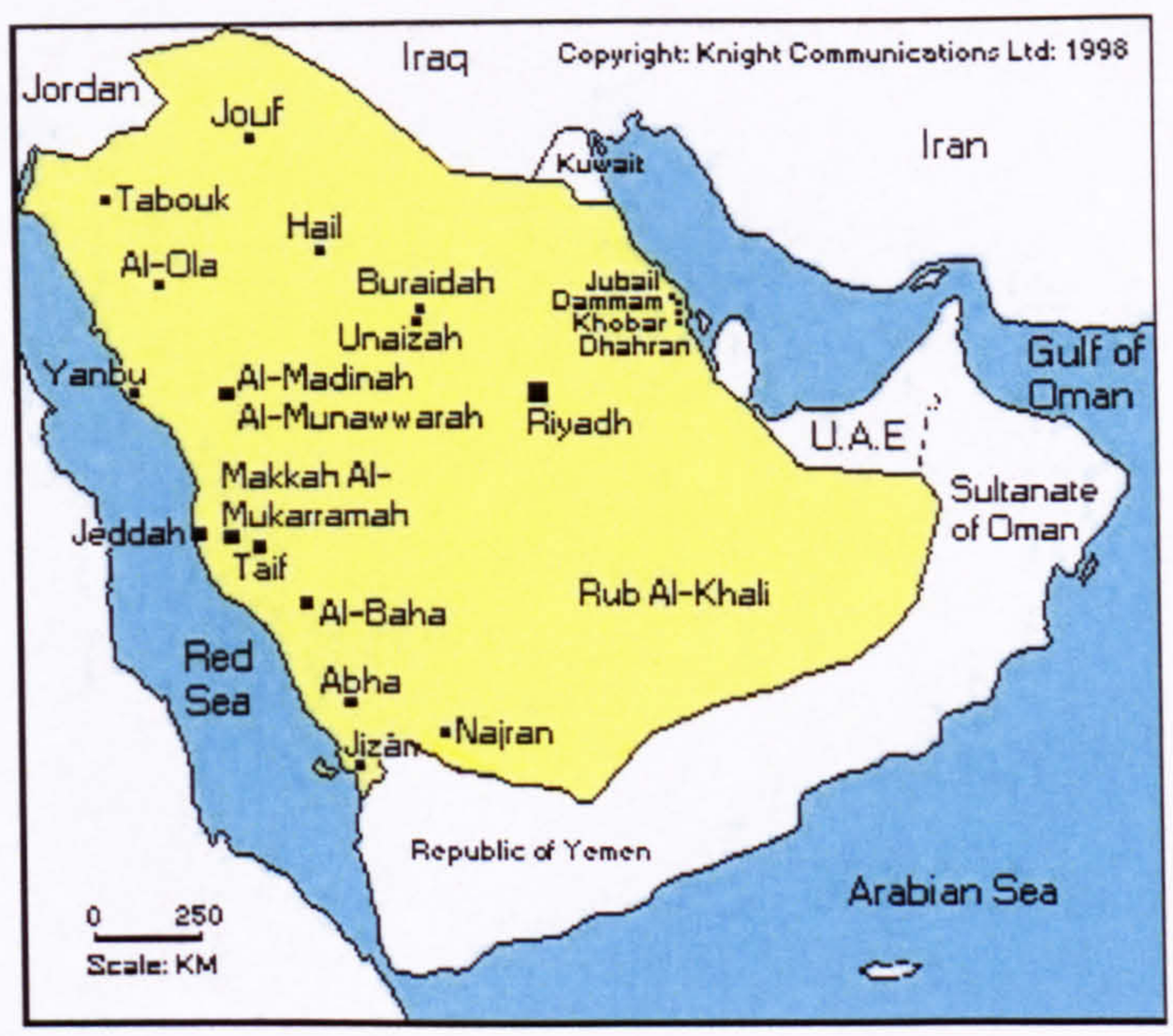


Figure 2.1: Map of Saudi Arabia

(from the Saudi Arabia Information Resources, 2005)

In 1974, the Kingdom's population was just over 7 million. Since then, by all accounts, the population has grown dramatically. Initial outcomes of the 2000 census

gave a figure for the total population of 20.8 million, of which 15.5 million were Saudi nationals. Of the Saudi national population, 50.4% are male and 49.6% female. Currently, it is estimated that more than half of the Saudi population is under the age of 20 (Saudi Arabia Information Resource, 2005).

The official language of the country is Arabic. Although most people who live in Saudi Arabia speak Arabic, not all of them are of Arab origin. This is because Muslims have immigrated to the land, particularly to the western region where the two holy cities Mecca and Medina are located. The country is strongly attached to Islam since the prophet Muhammad (peace be upon him and upon all prophets) was born here and delivered his message mainly inside the Arabian Peninsula. Islam is therefore the way of life for the majority of people who live in Saudi Arabia, and they do not admit a significant separation between life-spiritual and life-mundane (Saudi Arabia Information Resource, 2005).

Economically, Saudi Arabia has the largest oil reserves in the world. The policy of the Kingdom is to develop a viable economy based on refined petroleum products (Abdrabboh, 1984). Oil reserves in Saudi Arabia are set to rise within the next two decades after the government has announced that a new well has been discovered in the Rub `al-Khali desert, and production began there in the first quarter of 1996. The source contains 14 billion barrels of crude oil and more than 25 trillion cubic feet of gas (Energy Information Administration, 2005). Moreover, Saudi Arabia has started a massive development programme with long-term objectives to diversify the economy and build a strong private sector (Ministry of Economy and Planning, 2004).

2.3 Internet in Saudi Arabia

The first connections to the Internet in the Arab region date back to the early 1990s. The first Arab country to link to the Internet in 1991 was Tunisia followed by Kuwait who established the Internet services in 1992. Between 1993 and 1994, Egypt, Turkey, Jordan, and the United Arab Emirates were linked to the Internet; while Syria and Saudi Arabia were the last countries in the Arab region to set up Internet services with regular public access only becoming available in the late 1990s (Wheeler, 2006).

Although Saudi government institutions were first logged on to the Internet in 1994 and King Fahd had approved public Internet access in 1997, it was not until December 1998 that the qualification of ISPs (Internet Service Provider) was announced by King Abdulaziz City for Science and Technology (KACST). KACST is in charge of providing Internet services to Saudi Arabia, in coordination with the Ministry of communications and the Ministry of Finance. It is connected to three different International providers in USA, Canada, and France (Al-Rasheed, 2001). The delay in permission for public Internet access took place because the authorities and decision makers wanted to establish a system for controlling the flow of information embedded in the Internet (Shteiwi, 2003).

The deployment of the Internet in Saudi Arabia was preconditioned with the design of strong filtering system, and only then were the Saudi public were permitted access to the Internet, as the government believed it could control the content users could access. "Saudi Arabia's Council of Ministers in 2001 issued a decree regulating Internet use which prohibit users from accessing or publishing certain forbidden content" (The OpenNet Initiative, 2004, p.5). Saudi Arabia is connected to the

international Internet through high-speed data links which are operated by the Internet Services Unit (ISU) in the Saudi government; “while Saudi internet users may subscribe to any of a number of local internet service providers, all Web traffic is apparently forwarded through a central array of proxy servers at the ISU, which implements Internet content filtering roughly in line with parts of the Resolution” (Zittrain & Edelman, 2002). Users are directed to a page that clearly notifies them that access to the site has been denied if they try to open a webpage on the government blacklist. Complaints can be filed to remove banned websites from such a list.

Authorities in Saudi Arabia blocked specific categories of Internet content. Pursuant to the 2001 Council of Ministers decree, the ISU prohibits "pornographic web pages... [and] pages related to drugs, bombs, alcohol, gambling, and pages insulting to the Islamic religion or the Saudi laws and regulations." (Internet Services Unit webpage, 2005). The ISU maintains that almost 95% of all blocked web pages fall within this category. Nevertheless, non-pornographic contents are only blocked based upon direct requests from the government’s security bodies.

The number of websites banned in 2001 in Saudi Arabia reached 200,000. However, in 2004 the numbers doubled to reach almost, 400,000 web pages. “The Kingdom’s censorship of 400,000 web pages and its use of one of the Internet's largest filtering systems on the pretext of protecting Islamic values and culture earned Saudi Arabia the Reporters without Borders’ satirical "First Prize for Censorship" in March 2004” (Zittrain & Edelman, 2002).

As of the end of 2003, there were 1.6 million Saudi Internet users, out of over 21 million of the population. The majority of users are aged 16-25 (40%), and 26-35 (43%) (Yunis, 2003). The government has developed the country's communication infrastructure and the geographic coverage of Internet services, which was successful in increasing access and use of the Internet; in 2004, there were 2 million Internet users in Saudi Arabia, it was expected to reach to 5.4 million Internet users by 2005 (Bo-Holeqa, 2004). In fact the Internet World Stats (Library of Congress, 2006) noted that there were 2,540,000 Internet users in Saudi Arabia with 1,170.0 % growth in use between 2000 and 2005.

2.4 Saudi Arabian Culture and Values

In the world, various cultures exist which have a wide range of similarities and diversities. Culture reflects peoples' lives and attitudes, and the way they act. The introduction of Saudi culture in this chapter will help to avoid misunderstandings and create a better basis for further discussions, as one has to understand an individual's actions in terms of their culture and background.

There are many different definitions of culture which reveal different understanding of human activity. The United Nations agency, UNESCO, stated in 2002 that culture is the "set of distinctive spiritual, material, intellectual and emotional features of society or a social group, and that it encompasses, in addition to art and literature, lifestyle, ways of living together, value systems, traditions and beliefs" (UNESCO, 2002). In addition, Dahl reviewed and analyzed various definitions of culture. He concluded that a 'culture' consists of different aspects which are shared by a group, and that it acts as an interpretive structure of behaviour (Dahl, 2004).

Hall (1959) identified two classic dimensions of culture which are known as high-context culture and low-context culture, to classify differences in communication styles. In *Beyond Culture* Hall (1976) stated that:

> *"High context transactions feature pre-programmed information that is in the receiver and in the setting, with only minimal information in the transmitted message. Low context transactions are the reverse. Most of the information must be in the transmitted message in order to make up for what is missing in the context". (Hall, 1976, p.30)*

High-context culture refers to communities where people have close connections over a long period of time, whilst low-context culture refers to societies or communities where people tend to have many connections but of shorter period of time (Beer, 2003).

Saudi Arabia is considered a very high context culture, which means that the message people are trying to convey often relies heavily on other communicative cues such as body language and eye-contact rather than direct words (Gorrill, 2004). Many aspects of cultural behaviour in a high context culture are not made explicit because most members of that culture are familiar with what to do and think from a long period of interaction. This type of culture is largely based on intersecting networks, long-term relationships, strong boundaries, and relationship (Hall & Hall, 1990; Beer, 2003; Wikipedia, [N.D]; Dahl, 2004).

The Saudi population is characterized by a high degree of cultural homogeneity, which is reflected in a common Arabic language and in devotion to Islam. It rests in

the diffusion of values and attitudes demonstrated in relations within the family, and between the family and the rest of society. "Family is the most important social institution in Saudi Arabia. For Saudis in general, family is the primary foundation of identity and status for the individual and the immediate focus of individual loyalty, just as it was among those who recognized a tribal affiliation. Family structure in Saudi Arabia is generally compatible with the structure of tribal lineage" (Library of Congress, 2006, p.20). In this context a Muslim is expected to keep in touch with people related through blood bonds such as grandfathers, grandmothers, uncles, and aunts, very frequently by visiting, offering gifts and money if needed, and by being compassionate, showing cheerfulness and respect (Zakaria et al., 2003).

Although chastity and sexual modesty are very highly valued in Arab culture; these virtues are primarily applied to women. These morals were tied to both family honour and to religious commitment. Modesty is another important characteristic that people should sustain; again it is particularly important for women. Being shy in Saudi culture means that people should not be too outgoing and they should not discuss things that may embarrass others.

Gender segregation in Saudi Arabia is one of the important features that profoundly influence every aspect of public and social. Segregation is prescribed by the Islamic religion and it is maintained physically and socially and it does not allow females to mix with unrelated males in areas such as education, banking, public transportation, work place, restaurants, schools, and libraries (Al-munajjed, 1997; Wheeler, 2000, Al-Al-Saggaf, 2004).

In Saudi Arabia education is "also segregated by sex and divided into three separately administered systems: general education for boys, education for girls and boys only traditional Islamic education for boys only" (Sedgwick, 2001). The Ministry of Education, founded in 1952, controls general education for boys, while girls' education comes under the authority of the General Presidency for Girls' Education. Both boys and girls follow the same curriculum and take the same examinations. There are eleven women's colleges, which were established between 1970 and 1982, offering four-year bachelor degrees, master's degrees in education, science, humanities, and a doctorate in education. Women's colleges are also operated under the authority of the General Presidency for Girls' Education.

Despite the fact that the society and tradition favour men's education over women's, the difference between boys and girls in the unequal distribution of educational funds is a logical manifestation of gendered hierarchies in the overall Saudi society (Afshar, 1993). In 1980, there were more female graduates in the humanities than males. Women in Saudi universities could study most of the same subjects as their male counterparts, except those which might lead to their mixing with men (Hamdan, 2005). "The practice of segregation and limiting men and women to their own company is an institutional mechanism designed to protect women and their chastity and to prevent other men from encroaching on the honour of the family" (Al-munajjed, 1997, p.34).

A remarkable consequence of Internet communications in Saudi Arabia is that it has enabled males and females to communicate with each other in a way not feasible before. The ability of the sexes to communicate, while remaining physically

segregated, enables them, to some extent, to overcome this gender separation. The question of whether or not this form of communication is acceptable is another matter. While is obvious that in Saudi culture face-to-face communications and contact between two sexes is immoral, it is not clear whether crossing gender boundaries in online communication is also wrong.

2.5 Summary

This chapter provided the necessary background in which to place Internet use and attitude by Saudi Arabian students in a cultural context. In addition to the information about the study setting and the area background the chapter briefly explain the mechanism of Internet services in the kingdom. In the next chapter, gender and Internet issues in developed and developing countries will be reviewed in depth.

Chapter Three

Literature Review: Gender and the Internet

POSITION IN THE THESIS

Chapter 1 Introduction	**Chapter 2 Background**	**Chapter 3 Literature Review Gender and the Internet**
Chapter 4 Literature Review Internet Usage patterns and Attitudes	**Chapter 5 Research Methods**	**Chapter 6 Questionnaire Analysis**
Chapter 7 Focus Group Analysis	**Chapter 8 Discussion**	**Chapter 9 Conclusions**
Bibliography	**Appendices**	

Chapter Three

3

Gender and the Internet

3.1 Introduction

There is now a vast literature on use of computer, email and the Internet including a considerable amount on its use by both males and females. Chapter three gives a summary of research conducted on gender issues that have been identified during the past eleven years (1995-2005) in order to provide an appropriate background framework of this research. Chapter four draw together a range of issues from previous research on university students' Internet use and Internet related attitudes. Although the chapter

includes the discussions of some non-students Internet users, students are the focus of this study as they are the major users of the Internet medium.

3.2 Chapter Preface

The literature review in this chapter covers a period of almost ten years (1995-2005), during which the issues surrounding the Internet faced by women have changed. In the early years of the introduction of the Internet, women were using it less and encountered many obstacles. Women in both developed and developing countries are now using the Internet excessively such that female users in some Western countries now statistically outnumber men. This chapter will also provide a frame of reference for understanding the subsequent chapters. Section 3.3 and 3.4 presents the background to research on women's status on the Internet. Challenges, empowerment, and impact issues and their effect on women's use of the Internet are detailed in Section 3.5. A chronological look at the digital gender gap is taken in Section 3.6 followed by a discussion of issues faced by women in developing countries

3.3 Why Bring Gender Online?

Researchers have questioned gender difference, why gender is an issue online as being biologically derived, or built socially through external cues and controls (Ferris, 1996; Schmesier, 1996). The arrival of computer mediated communication (CMC) made some of these external visual cues apparently irrelevant. Online, people can create, adopt and have several different identities by using nicknames or remaining anonymous. Both women and men can pose as the opposite sex (McAdams, 1996). On the Internet,

individuals can actively exploit methods of self-presentation to deceive people. The Internet, as a medium, is a very powerful tool for 'personal construction;' and to explore, understand, communicate and develop personal identity (Turkle, 1995).

With few exceptions, early research on CMC omitted gender, and tended to focus on the effectiveness of the technology and its acceptance and interface issues (Hiltz & Johnson, 1989). Men have traditionally dominated ICT technology and they comprised the majority of users of computer networks in the early days. It is only recently that researchers have started to take users' gender into account, and begun to uncover some of important differences. Gender in the virtual world is now considered to be an important subject for research, as knowledge of the medium has developed. In this chapter, literature available on gender and Internet issues is divided into two major themes: challenges, and empowerment.

3.4 Women and the Internet: The Democracy 'Paradigm'

Women have encountered many issues when using the Internet. The issues that arose in the early period of the Internet where the Internet was in its infancy differ from those of recent years as people become more familiar with the new medium. CMC has been a phenomenal medium that has turned the world into a global village (We, 1993). It has been described as a democratic agora, a virtual meeting place where people throughout the globe can interact equally regardless of the differences in ethnicity, race, social status, and gender. Perhaps it was the findings of early research that CMC promoted social equality (e.g., Temple & Lipp, 1989), which led many researchers to predict that CMC

would democratize communication and diminish gender differences (Ferris 1996; Trias, 1997).

Even though the Internet is the product of a gendered society, some people still maintain the belief that the Internet, "holds promises of a more participatory democracy" (Becky, 1994). It is the communications style, or voice, and the content of the information presented online that are key issues for a democratic electronic society. Women and men have different communication styles, which have often led to misunderstanding, yet some thought that the cyberworld would be genderless (Simmons, 1995).

3.5 Gender and the Internet

The literature identifies many issues that face women in relation to Internet use. In this section of the Chapter, literature related to challenges and empowerment issues in women's Internet use will be examined.

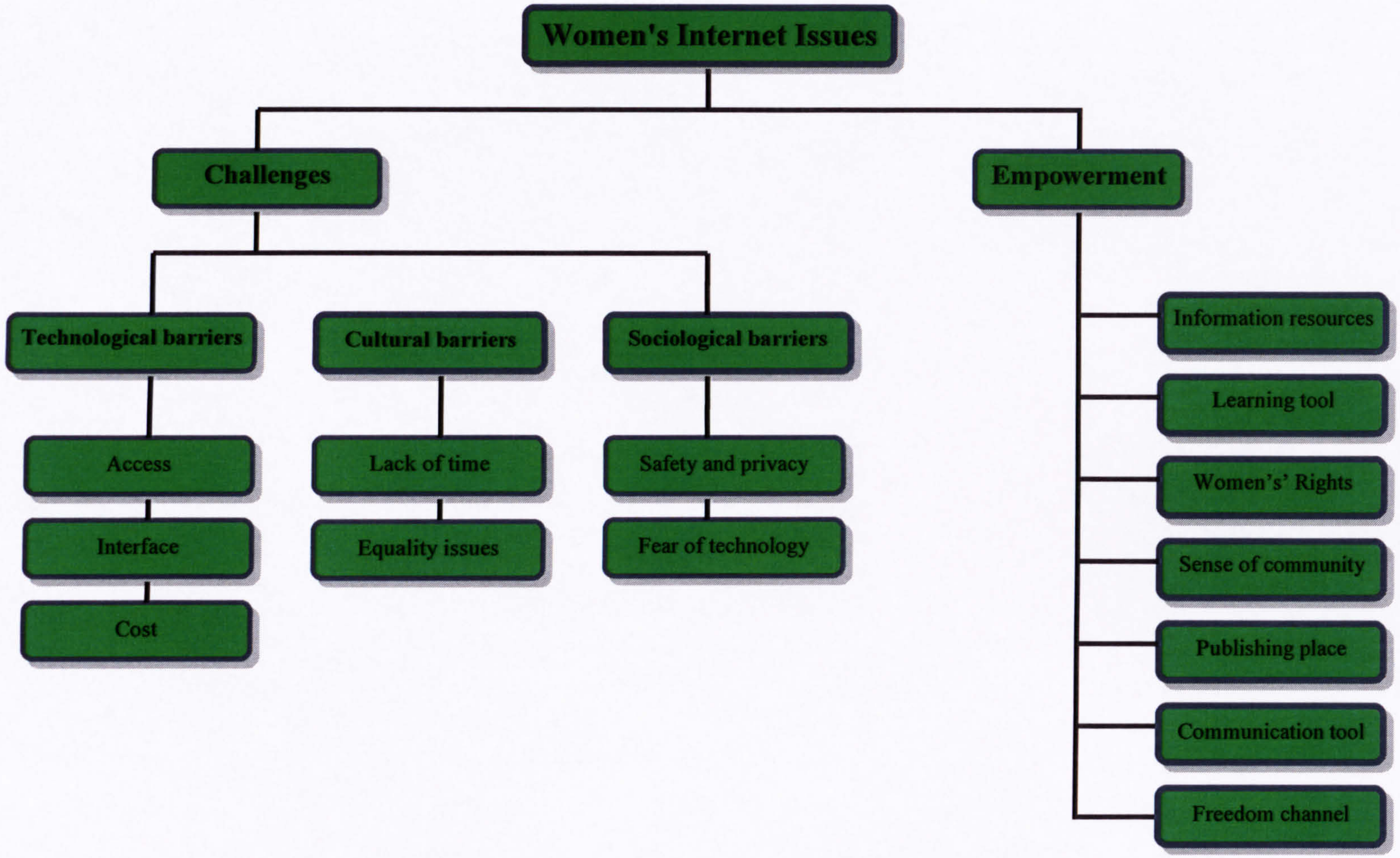


Figure 3.1: Women's Internet Issues

3.5.1 Challenges

3.5.1.1 Technological barriers

Access is one of the key issues faced by women in using the Internet. It becomes an issue at several levels (Balka, 1992; Liff & Shepherd, 2004). It includes being able to have a computer, being able to access the Internet from home, and being able to log on to more women-friendly websites (Morahan-Martin, 1998a; Bimber, 2000; Morahan-Martin, 2000). Women have limited access to the Internet for a number of reasons, which are related to gender responsibility differences such as time, money, family obligations, and giving priority to others' needs (Harcourt, 1999; Sutton, 2000).

Braidotti (1996) noted that women still earn, on average, less than men, and their finances may prioritize other things over Internet related purchasing. This leaves women with less funds to spend on computers, modems, software, and Internet connections. Goulding & Spacey (2003) Norris (2001) and Ono & Zavodny (2003) noted that costs of going online can be more of a barrier for women than men. Bimber (2000) also noted that gender differences in Internet use and accessibility may exist because of differences in socioeconomic status between the two sexes.

3.5.1.2 Cultural barriers

Culture and social infrastructure play a very significant role in influencing the way individuals think of and/or feel about technology. Therefore, people can be expected to be different in their uses of the Internet (Li, 2000; Hapnes and Rasmussen, 2000;

Morahan-Martin, 2000). Lack of time and online harassment and flaming are some of the major cultural barriers to greater internet use.

Time is one of the biggest barriers that may prevent women accessing the Internet. Even if a woman has access to a computer and the Internet in the household lack of time would still be a barrier (Resnick, 1995; Spacey et al., 2003). Women are often the primary carers for their children and therefore, have less free time to learn or browse the Internet, due to the responsibilities of the home (Truong, 1993; Shade, 1993; Kaplan & Farrell, 1994; Simmons, 1995; Kennedy et al., 2003; Wasserman & Richmond-Abbott, 2005). Kennedy et al. investigated different types of Internet activity, and found that the presence of children affects women, while men with children do not differ from men without children.

Real world biases and power relations did not simply disappear on the Internet. Thus is by using harassment and hostility on-line, flaming others, sharing jokes against women (Shade, 1993), posting pornographic images, or asking women personal; or more barefaced, such as sending women sexual propositions via e-mail (Bell & La Rue, 1995; Kramarae & Taylor, 1993) builds an environment that is unsociable and frightening to women (Herring, 1994, 1996, 1999).

Gender harassment online received extensive coverage in the early years of the Internet (FeMiNa, 2003). Perhaps this early research was a reaction to the claim that the online world is essentially democratic. People were very excited about the freedom and equality of the Internet so that they forgot the consequences of anonymity and the hostility caused

by the absence of censorship. In fact, researchers have suggested that the relatively low percentages of women online in their early 1990s and the resultant irritation of "male dominance" of the net, may contribute to the frequency of harassment of the minority gender (Truong, 1993; Kramarae & Taylor, 1993; Shade, 1993; Bell & La Rue, 1995; Herring, 1994, 1996, 1999; Finke, 1997; Morahan-Martin, 2000; Bowker & Liu, 2001; Morahan-Martin, 2004).

3.5.1.3 Psychological barriers

Privacy has become one of the most controversial subjects in this Information Age (Nagler, 2004). Previous research suggests that females are more concerned than males about online privacy Kehoe et al., 1998; Westin, 1997; Sheehan, 1999). Although people may feel it is safe in relative anonymity of the Internet environment (Donath, 1999), Adams-Price & Chandler (2000) found that some women feel safer in closed mailing lists (lists that are only open to individuals invited to join the list) than open lists since individual behaviour is monitored.

Technophobia can be defined as negative attitudes towards technology or computers (Anthony et al., 2000). Research has found that females, compared to males, are more likely to be technophobic (Rosen & Weil, 1995; Maxwell, 2001; Hapnes & Rasmussen, 2000). Gilbert et al. (2003) and others' research findings support Brosnan's (1998) proposition that technology anxiety is linked with users demographic variables such as age, gender and education. Kaplan and Farrell (1994) claim that many studies stress that fear of technology is a significant obstacle that women may face in their electronic

communications practices. Kennedy (2000a) noted that surfing the net and using electronic communication (ICT) successfully is not a one-size-fits-all exercise, therefore, women should get over fear of IT by literally touching a computer and getting online.

3.5.2 Empowerment

ICTs such as the Internet arguably have the potential to offer greater benefits to women than men (Carter and Grieco 2000; UNCTAD 2002). Because of their societal and cultural states, women, become distanced from global information and knowledge, which is reflected in the levels of empowerment and equality of women in comparison to men (Nath, 2001). The existence of the Information Society demonstrates the need for women of all ages to reinforce their contribution as experts, and designers of the new information and communication technologies (Dearnley & Feather, 2001; Fountain, 2000; Goulding & Spacey, 2003). The Internet, in particular, has had a huge impact on the development of the Information Society and commentators have drawn attention to the potentially liberating nature of ICT (particularly the Internet) for women (Bahdi, 2000).

Recent years have seen an increased call to women to access and use new information and communications technologies as a means for their empowerment (Nath, 2001). Bahdi (2000) believed that one of the important ways in which the Internet empowers women is by giving them the chance to access information regarding their human rights. It has also opened up alternative forms of communication to those offered by government controlled media sources, and therefore acts as a catalyst to the empowerment process (Sutton, et al., 2002; Hu & Leung, 2003). The capacity of the Internet enables more flexible work

arrangements, and may assist women to expand interconnections, linkages, and networks (Fontaine, 2001).

The Internet also created further ways of sharing knowledge and increasing experience, learning, and eventually working online (Rommes, 2002; Pollock, 2003; Sevdik & Akman, 2002). Internet communications tools are useful to keep in touch with family and friends, which then strengthens relationships in society (Howard et al., 2002). It is even argued that the Internet has advantages over more traditional means of communications, because of its power to connect women all over the world in a short time (Youngs, 1999).

The Internet has its own culture that provides women with the opportunity to establish worldwide friendships with people they otherwise would not meet. In this virtual world, most physical and geographical (time, distance) barriers are simply non-existent. The removal of such barriers formulates the Internet as a "haven" for those people who seek help and social support online (Finn & Banach, 2000; Morahan-Martin, 2000; Doring, 2000; Hapnes & Rasmussen, 2000; McGerty, 2000).

Positive online communication and sharing of information between women has created an online sense of sisterhood that works to empower women. They use a variety of ways to reach others using personal WebPages, e-mail addresses and chatting rooms (Kennedy, 2000; Hapnes & Rasmussen, 2000; Howard et al. 2002; Bahdi, 2000; McGerty, 2000). King (2000) argued that women-only communities are not the only way to give women a voice but that, in the case where there are no women-friendly spaces, women-only

forums may be the best alternative. By gaining self-confidence and more experience in a safe environment, women will be able to stand up for their own when faced with harassment by others.

Women have discovered how to appreciate the individuals they meet online for who they are, through what they write about themselves, or what they say about particular issues. They do not have the extra assumptions, which they tend to create when seeing the individual in person (Hapnes & Rasmussen, 2000; Morahan-Martin, 2000). Although this is true for both sexes, the benefit is even greater for women because, as Maxwell (2001) explained, the gender discrimination is not there, making it easier for women to be who they are.

The Internet therefore can be a kind of "freedom channel" since women and girls are able to avoid worries about how they look, their bodies, and clothes, which might prevent them from getting to know others (Bente et al., 2000). As a exercise of this freedom, women sometimes would choose to change their gender online, and Danet (1996) claims that many participants in online discussions manage successfully to camouflage their gender identity, even over long periods of time. These opportunities also have a positive side for people who are isolated or disabled, allowing them to build up social relations and communications (Suler, 1999; McGerty, 2000).

Women use the Internet as a new form of alternative press for their creative writing, revealing their thoughts and feelings. This free publishing has improved women's self-

esteem through diffusing equality to overturn male domination online (Hapnes & Rasmussen, 2000; Spacey, 2000).It is argued that the open environment of the Internet has reinforced democracy and liberty for its users, enabling women to develop and transmit their opinions, views and experiences online more freely (Bahdi, 2000).

Learning can be easier through the Internet and it is another way of empowering women. Distance learning, lifelong education and informal virtual information sharing contribute to the ability of women to utilize the Internet services in developing their knowledge and skills (Howard et al., 2002). An example of how the Internet can be an accessible learning and education resource is the Webgrrls (a Canadian women-only mailing list), which was created as a place where women could learn and ask questions about computers and the Internet. It was created to prevent women from falling behind with new technologies. Participants in the list are reported to be very enthusiastic as they could ask questions without being criticised on their understanding. Indeed, participating in this list was an enormous boost to the participants' confidence (Drost & Jorna, 2000; Harcourt, 1999).

To summarise, therefore, the unique feature of online communication is its anonymity, lack of physical control, and lack of face-to-face contact, enabling women to express themselves in a way that they might not otherwise. This anonymity in online conversation provides shy women and girls the freedom to express their sexuality and personalities in a safe environment. This "freedom channel" enables them to explore a new identity without being embarrassed about their appearance (Morahan-Martin, 2000; Bente et al.

, 2000).

3.6 Gender digital divide

While the Internet and computer technology seem to promise a world beyond gender differences, it has created a gap. Kramarae & Taylor (1993) explains that this gap divides rich and poor, individuals and countries, women and men. Studies in 1998 showed that while the gap between boys and girls in maths and science was narrowing, another larger gap was developing in computer access, use, and skill (LaPin, 1998). This gap was explained as a product of male and female differences in technology-related attitudes behaviours, and skills (Morahan-Martin, 1998a).

Research on gender differences in Internet attitudes bears a resemblance to research on computer attitudes, signifying a correlation between the two attitudes. Men use the Internet for longer and on a more frequent basis than woman. They therefore, use the Internet more comfortably and feel more competent than females do (Morahan-Martin, 1998b; Tapscott, 1998; Morahan-Martin & Schumacher, 1997; Schumacher & Morahan-Martin, 1998; Rommes, 2002).

Braidotti (1996) hypothesized that the gender gap between male and female in the use of computers and the Internet will continue to grow wider, similar to the gap between the first and third worlds. However, in follow up research Morahan-Martin (1998a) suggested that the gender gap in Internet use will narrow as access prices come down, and technological changes make it more user friendly. Nevertheless, she admitted that in the late 1990s, computers and the Internet were still thought of as a male technology toy.

She attributed this male domination to the fact that the computer culture was developed by its earliest users, primarily males.

In the late 1990s virtually all statistical studies showed that fewer women than men used the Internet. Typical figures for 1999 showed that in the United States and Canada, 53% of users were men and 47% women. Bimber (2000) in research conducted between 1996 and 1999 suggested that two gaps exist; one in access and use of the Internet. The differences between men and women in socioeconomic status (SES) were one plausible explanation of this gender gap. Studies in early 1999 and 2000 showed that the gender gap in using the Internet still persists in the stereotyped land of the Net (Bimber, 2000).

In 2002, according to NetSmart America (1999), on average a woman Internet user spent 6 hours and 43 minutes online, compared to the average man, who spent 8 hours and 20 minutes by month. Perhaps women are often newer users and many have not acquired the routine of spending longer hours online. However, this gap, according to more recent research, is narrowing (Katz,et al., 2001; Norman and Erbring, 2001). These studies report that in 2000, an increasing proportion of new Internet users was made up of women. Ono and Zavodny (2003) state that the gender gap that existed during the 1990s has since disappeared. Data collected from several surveys during the period 1997-to 2001 shows that women were less likely than men to use the Internet at all in 1997 and 1998. In contrast, women were more likely to use the Internet in 2000 and 2001 (Ono & Zavodny, 2003). However, Bimber (2000) has speculated that this gap would diminish as educational and income differences between male and female shrink.

3.7 Women and the Internet in Developing Countries

ICT can play a crucial role in helping women to get the information they need on subjects such as health, education, finance, activities, or human rights. Democratization of communications and gender sensitive communications are crucial elements in the consolidation of democratic practices in developing countries (Kole, 2000; Robins, 2002). However, most women Internet users in many developing countries are part of a small, urban educated privileged group, and are not representative of women in the country as a whole. According to Hafkin and Taggart (2001), women in 2001 were only 38% of those in Latin America, 22% of all Internet users in Asia, and only 6% in the Middle East. Significantly, in 2000 women in South Africa represented 51% percent of Internet users, up from 38 percent in March 1999, according to a survey from NUA (NUA, 2001). In Turkey according to IBS research the number of Internet users was 600.000 in 1997; however in May 2000, the number of users was around two million (Sevdik & Akman, 2002; Keser et al., 2002).

The Internet offers access to information that otherwise would not be accessible. Afemann (2000) argues that in many developing countries, there are some restrictions on a free press. Obstacles cited by participants from Africa, Asia, Latin America and Middle East included poor communication infrastructure, training, high Internet charges, language, and high cost of connectivity .Therefore, only people from the upper class or upper middle class can afford to spend money to surf the Internet (Afemann, 2000). Internet users need to know international languages, particularly English, as it reduces the language barrier.

Cultural barriers in developing countries hinder women from accessing the new information technology (i.e. the Internet), because it is more complex than simply providing computers in a library, or other public place. Literacy, education, cost, locality, and women's perceived role in societies are also cultural barriers (Kole, 2000, 2001; Zakaria, et al., 2003).

Another issue facing women in developing countries, is gender bias in attitudes towards women studying or using information technology. Even in developed countries, attracting young women to science and technology studies is an issue (Anand, and Uppal, 2002). In Malaysia, women are denied access to education and technology; instead the culture encourages them to either get any job or get married. The attitude that ICTs are not for women is widespread (Hafkin, 2002).

While some commentators claim that home computers and Internet connections are rare in most developing counties, Internet access from home is more common in the Middle East, predominantly in the Gulf States (Zakaria, et al., 2003; Al-Saggaf, 2004; Al-Saggaf & Williamson, 2004; Khudair, 2005; Oshan & O'Brien, 2005). In fact, a study in Saudi Arabia revealed that 80 % of Internet users access the Internet form home and 14 % from work and only 4 % access the Internet from Internet café (KACST, 2002). Even in less strict developing countries like Turkey, 77 % of women Internet users are accessing the Internet from home and the proportion accessing the Internet from Internet cafés is only 2 %. (Sevdik & Akman, 2002).

In many Muslim and Arab societies, women are segregated from men for religious and cultural reasons. Traditionally, women are not expected to participate in open public spheres and therefore cannot access cybercafés. "In these societies home access to information technology gives women access to information and opportunities for communication with other women, provided that they have appropriate skills and available time" (Hafkin & Taggart, 2001, p.26).

Language is a major obstacle facing women in relation to accessing information on the Internet. English was the dominant language of the Internet in 1999 and in 2000, although the percentage of English material had declined, it was still high at an estimated 68 %. As a consequence, the flow of information on the web has been from Western countries. Women in some developing countries who have not had any access to formal schooling where they may lean international languages are prevented from benefiting from the Internet, and the Information highway.

In conclusion, a study by the Academy for Educational Development's LearnLink project (2001) , finds that women in developing countries face considerable obstacles in gaining access to ICTs. The study claims that unless gender is considered when telecommunications policy is formulated and IT programs are designed, women risk greater social and economic isolation (Maguire, 2001)

3.8 Concluding Remarks on Gender and Internet Issues

There is an extensive literature on women's Internet issues, which can be divided into three major themes. The first theme is that the Internet is gender neutral, and acts as a democratic agora, where people throughout the world can interact as equals regardless of differences in ethnicity, race, and gender. The second theme presents the Internet as a product of a gendered society which is for many women inequitable; consequently the Internet is a male-dominated world (Becky, 1994; Simmons, 1995; Herring, 1994, 1996, 1999; Finke, 1997; King 2000). The third theme suggests that the gender digital gap is closing and the Internet may even be seen as a female domain. The Internet empowers women in many ways, enabling them to meet, communicate, and learn. Women are also using, participating and making the digital world of the Internet, which was previously perceived as a male world (Kramarae & Taylor, 1993; Shade, 1993; Bell & La Rue, 1995; Spence & Buckner, 2000).

Chapter Four

Literature Review: Internet Use Patterns and Attitudes

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Four

4

Internet Usage Patterns and Attitude

4.1 Chapter Preface

The following sections will draw together a range of issues from previous literature on the topics of students' Internet use and computer and Internet related attitudes. Students are the focus of this study as they are the major users of Computer-Meditated-Communications (CMC) but at the same time research relating to non-student users of the Internet will be discussed when relevant. First, Internet usage patterns are discussed (email, web, chatting) from a gender differences point of view, based on prior studies. In section 4.3 students' attitudes toward computers and the Internet are discussed. The final section presents a summary of the existing empirical research on women's Internet use in Saudi Arabia. Figure 4.1 show the relationship between subjects covered in this chapter.

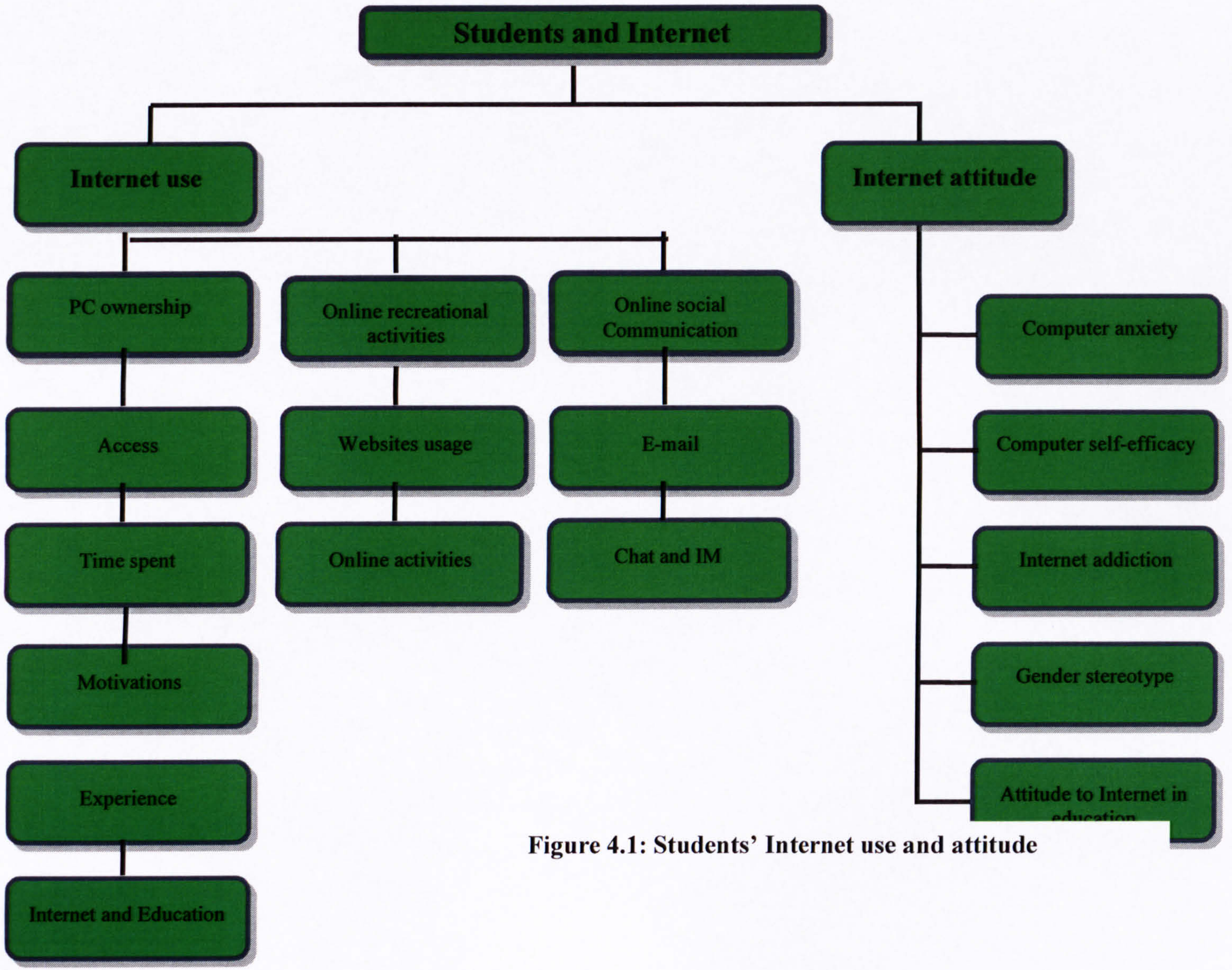


Figure 4.1: Students' Internet use and attitude

4.2 Internet Use Patterns

4.2.1 PC ownership

By the early twenty first century studies show that in the US the majority of students have their own computers, many of which are connected to the Internet through university or college. It seems that some students value their privacy and prefer to use the computer they own in private, rather than use those in university labs where their Internet activities can be monitored (Jones & Madden, 2002). Thus, it has been reported that most of their computer activities take place at home and in their rooms. Those students living on campus, who own their own computers, use the Internet more than those who have to use campus facilities or friends' computers (Wang, 2001; Jones & Madden, 2002; Odell, 2000).

Students' computer ownership and home Internet access influence the overall use of the Internet. For example, Hoffman and Novak's (1998) study of both high school and university students found that, overall, students who had computers in their home used the Internet significantly more than those who did not have a computer in the home. In fact they tended to use the Internet more hours per week (roughly double the amount of the time) than those who lived in a household without a computer (Korgen et al., 2001).

In developing countries, PC ownership is less common. Jagboro (2003) found that students in Nigeria reported cybercafés as their primary site to get Internet access, due to the proximity of those cafés to students' facilities such as hostels, mini-markets and lecture halls. Departmental PCs and library computers were the least popular sites for

Internet access, due to the low level of connectivity, long queues, and the many restrictions surrounding their use. In contrast, Middle Eastern students reported accessing the Internet from their homes more than their college. For example, in Kuwait, 47% of students accessed the Internet from home and only 11% from college (Alkhezzi, 2002).

In this respect, however, female students may be at a disadvantage. Even though, Rajagopal and Bojin (2003) noted that female students in Nigeria indicated that owning a computer at home facilitates their learning and research, male students were more likely to have had a home computer (86%) than their female counterparts. Similarly, a study in the US by Jackson in 2001 revealed that female students felt restricted in choosing their academic courses, since they noted that they lacked access to adequate computer hardware, nor did they have the Internet at home.

4.2.2 Who is online?

Until recently, surveys of Internet users reported that men significantly outnumbered women online. Men logged in more, and used the Internet for longer hours on a more frequent basis for many different reasons than female (Morahan-Martin, 1998b). The HomeNet Project, which followed a sample of first-time Internet users in the USA from 1995 to 1997, reported that more males than females were active users of the Internet (Subrahmanyam et al., 2001). Bimber (2000) stressed the reasons behind the low Internet participation of females, which involve stereotyping, gendered technology which presents male values and socio-economics.

The growth of the new technology in the 1990s not only narrowed the digital gap between the two sexes in relation to Internet access, but also by 2000 this access gap had almost disappeared (Norman and Erbring, 2001; Norris, 2001). Since 1995, studies in the West (Chilsolm, 1996; Clemente, 1998; Flagg, 1999; Cummings & Krout, 2002) have found that women tend to be the new Internet adopters. Heimrath and Goulding (2001) noted that over the period of three years in a UK study, the percentage of women online had quadrupled while the percentage of men tripled. However, among 15 to 25 year old Internet users females outnumbered males. European figures suggest that in the United Kingdom women's Internet use is not far behind that of men: around 40% (Rainie & Kohut, 2000; Netvalue, 2001; Carlsson & Facht, 2002; Liff & Shepherd, 2004). Swedish statistics show that the use of the Internet is shared equally between the two sexes; however, boys are more likely to have their own computer and have more access to the Internet in homes (Carlsson & Facht, 2002; Sjöberg, 2002)

In a survey of American Internet users Madden and Rainie (2003) report that in August 2003, 65% of men and 61% of women were online. Since there are more women in the United States than men, this meant that the Internet population was about 51% female. Young women are more likely than young men to use the Internet, while older men are more likely than older women to be online (Fallows, 2005; Enochsson, 2005).

4.2.3 Access

Although people can access the Internet through universities and public libraries, access usually requires the ownership of computer and the payment of service fee for Internet

connections. As a consequence it is expected that the Internet access for those with low income and less education would be influenced by socioeconomic and cultural factors (Martin, 2003).

It is those colleges and universities that introduced the Internet in the late 1990s which has led to increasing students' use of the Internet, as many of them enjoy free and easy access to the Internet on university campuses (e.g., Kandell, 1998). Some of those universities have utilized this advantage, in terms of virtual office hours for students to meet with lecturers online (Meyers, 2003). Studies have also documented university students Internet dependency (Anderson, 2001; Scherer, 1997; Welsh, 1999). Internet 24 hours access encouraged college students to spend considerable time on the Internet (Hall & Parsons, 2001).

In a recent study by the Oxford Internet Institute, Liff & Shepherd (2004) surveyed 277 Internet users in the UK and findings showed that both men and women overwhelmingly reported their home as their primary places of access. However, there were significant gender differences, with 92% of male citing that home was one of their places of access, compared with 86% of women. While a detailed examination of American Internet use by Madden & Rainie (2003) showed that the way general Americans access the Internet has also evolved, the majority of online users log on from home (87%) while some 48% had access at work.

In some developing countries Internet cafés are very popular, mainly because most homes are not connected to the Internet and some still do not have a computer. Although the number of home Internet connections is rising, accessing the Internet from cafés is still popular among young (Braune, 2005). Young Moroccan women do not prefer using the Internet at home, since they would miss what is in many cases their only chance of getting out of the house (Shteiwi, 2004).

4.2.4 Time spent

Regardless of the amount of time spent on email, research suggests that males of all ages spend more time online than female (Busselle et al., 1999; Durndell & Thompson 1997; Kennedy , 2000; Kelsey 2002; Kennedy et al., 2003; Schumacher and Morahan-Martin 2000; Ono and Zavodny 2003). Commentators have argued that the social and cultural differences in leisure time reflect the gender differences in Internet use (Green, 2000; Kelsey, 2002; Kennedy et al., 2003; Lally, 2002). Since women have less time at home for leisurely Internet use, they then would have less chance to be familiarized with the Internet (Kelsey, 2002; Lally, 2002).

In 2003 Kennedy et al. gave several explanations for gender differences in Internet adoption. Gender roles and home responsibilities such as caring for children and housework shape how much time women spend online. Women are expected to have less opportunity to go online in the home because of these responsibilities. Liff and Shepherd (2004) noted that women (with the exception of email, messaging, and banking) were less likely to spend more than an hour a week on almost all Internet activities.

There appears to be a general trend that females spend less time online in a given calendar period than males, going online less frequently, and useing the Internet for fewer purposes than men do (Sherman et al., 2000b; Wang, 2001; Odell et al., 2000; Jagboro, 2003). In a survey of US college students' Internet use it was found that most students began using the Internet before entering college with the great majority (85%) of them having their own computer. University students during a typical day spent roughly as much time using the Internet as other Internet users. However, they tended to spend a good deal of that time in online communications. Students accessed the Internet on a daily basis and the majority had accessed e-mail within the past 24 hours (Jones & Madden, 2002).

There are many factors influencing the amount of time students spend using the Internet, such as students' major subject studied. Odell et al. (2000) found that students majoring in maths, business, and science use the Internet more (on average 8.5 hours vs.4.6 hours per week) than those majoring in the humanities, social sciences and education (Odell et al., 2000). In addition, study habits have been identified as a main factor that influences students' use of the Internet; students who dedicate more hours per week to their academic work tend to log on the Internet for more hours than those who study for less time (Korgen et al., 2001).

4.2.5 Knowledge

Women's knowledge status at the level of Internet use has been challenging. Women were less experienced in computers when compared with men in the early 1990s. Even

though women were more likely to use computers at work than men, it was only for more routine office activities, (i.e. word processing) (Kaplan, 1994). In relation to the Internet, Newton (2001) found men to have greater ability to understand the Internet and to possess lower levels of computer anxiety than women (Durndell & Haag, 2002). Gender appears to be significantly associated with the levels of self-perceived skill (Hargittai & Shafer, 2006). Young women are less likely to perceive themselves as skilled, which in turn bases their tendency to pursue maths and science-related careers (Correll, 2001)

A recent study by Hargittai and Shafer (2006) reports that men and women are significantly different in their abilities to find various types of information online. In the United States, research reported some types of gender-divide in how students use the technology. Even though the gender gap in technology use has narrowed with almost an equal percentage of females and males frequently using computers, females reported less confidence in their skills and less participation in Internet chat rooms or in other Internet activities (HERI, 2000; Rajagopal & Bojin, 2003).

Most American college students reported being at a "very comfortable" level of experience using the Web and e-mail. The average experience university students have on-line is roughly two to three years (Jones & Madden, 2002). However, male college students in America reported feeling more comfortable and competent using the Internet than women. Also in Nigeria, Rajagopal & Bojin (2003) stated that male college students rated their skill in creating and maintaining Internet web pages as excellent, whereas most females reported that they did not have any knowledge in this area (see also Bimber,

2000; Sherman et al, 2000a; Morahan-Martin, 1998; Sherman et al, 1996; Marcelline et al., 2005).

The controversy in literature on the state of the gender digital divide between male and female Internet users is very well documented (De Haan, 2003, Dittmar et al., 2004, Jackson et al., 2001, Losh, 2004, Ono & Zavodny, 2003, Rainer, et al., 2003, Rodgers & Harris, 2003; Marcelline et al, 2005). Women's and men's lifetime experience with technology is maybe one of the reasons for variation in frequency and scope of Internet use. Since men are more familiar with information technology they possess more skills relation to computers and the Internet use more than women (Spacey & Goulding, 2003).

4.2.6 Motivations for Internet use

Internet adoption requires motivational factors, which are measured to determine differences in Internet adoption. The main motive for many people to use the Internet is interpersonal communication and information searching (Charney & Greenberg, 2002, Jackson, et al., 2001; Morahan-Martin & Schumacher, 2000; Weiser, 2000). Females prefer a more interactive and synchronous experience. Thus males and females could be motivated to accept and use the web for different reasons (Jazwinski 2001). Grace-Farfaglia and associates (2005) noted that both women and men find gratification in online professional and work communities. Men are motivated for a self-improvement goal, while women carry on their personal relations online which provides them with social companionship (Grace-Farfaglia et al., 2005).

In a study of American college students, Jackson and associates found that women use the Internet for e-mail more often than men (Jackson et al., 2001). Men on the other hand were more likely to use the Internet to search for information than women. In UK, a study of both undergraduate and graduate students, Heimrath and Goulding (2001) found that 11% more males than females used the Internet for leisure purposes.

As for students in non-western countries, studies indicated that Internet use by college students in most developing countries is very much in line with the trend in developed countries. For instance, Jagboro (2003) noted that Nigerian students indicated their purposes for Internet use were for email, finding courses, and research material (see also Wang, 2001).In Macao, among five popular Internet activities, searching for information on the Web was the most frequent activity for Internet users. Chatting, including ICQ, BBS, chat rooms or forums, ranked second, followed by reading news, use of e-mail and playing games (Wang, 2001). However, for Taiwan's college students BBS, the World Wide Web, e-mails, and games are the four most popular Internet activities. In fact Taiwan's students regarded BBS as an important social tool for communication with other people because of its interactive nature. Perhaps BBS is very popular among Taiwan's students as they are able to discuss various topics with particular users as in chat rooms (Chou & Hsiao, 2000).

In Kuwait more than 73% of students of the College of Education at Kuwait University have used the Internet, with the World Wide Web as the most used Internet applications. Using the Internet for academic purposes such as completing assignments, searching for

materials, and communicating with professors and classmates was a major purpose of Internet use. Kuwait students regarded the Internet as a very useful tool for their study (Alkhezzi, 2002).

4.2.7 Online social communications

4.2.7.1 Email

Online communications have increased interactions in some relationships and occasionally have been used as a alternative for face to face communications with others. However, people still engage in and appreciate the more traditional means of social communications in spite of the growing role of online communication. (Rainie & Kohut, 2000; Morahan-Martin & Schumacher, 2000; Subrahmanyam et al., 2001). Email is one of the most used Internet applications by university students. For example, an early study of college students' use of the Internet in the United States, found that 95% of college students had used email. Another later study by Goodson et al. (2001) noted that students communicated with friends and family members via e-mail.

Jones and Madden (2002) noted that e-mail is one of the most popular means of online communications among students, with 72% of them checking their e-mail at least once a day, but, instant messaging was also popular. Students also indicated that they spent an average of an hour and a half per day online, with almost half of that time spent on e-mailing (Anderson, 2001). College students were driven to use e-mail because it allows submitting assignments, communicating with course instructors, classmates and parents at any time, and maintaining contact easily (Odell et al., 2000; Sherman et al., 2000b;

Morahan-Martin & Schumacher, 2000; Jackson et al., 2001; Jones & Madden, 2002; Eastin, 2005).

However, female college students used e-mail more than males, which can be linked with their even stronger motivation for interpersonal connections and communication (e.g., Kraut et al., 1998; Morahan-Martin, 1998a; Rainie & Kohut, 2000; Weiser, 2000; Jackson et al., 2001; Broos, 2005; Marcelline et al., 2005). Existing research into the gender differences in use of email highlights the different ways both genders use the Internet for communication. Although men are stereotypically expected to possess technological competence and the computer is stereotypically thought to be the man's technology, existing research suggests that women are a heavier users of e-mail compared with men (e.g. Hoffman, Kalsbeek, & Novak, 1996; Kraut et al., 1998; Rainie & Kohut, 2000; Teo & Lim, 2000; Marita et al., 2002).

Research also suggests that in fact it is the different obligations the two genders have towards relationships as well as the different values placed on them which would impact the way that the Internet is used in developing and maintaining social relationships. Boneva et al. (2001) analysed qualitative and quantitative data and concluded that there are gender differences in both behaviours and attitudes toward computer-mediated communication with family and friends. Being very social, women seem to have embraced e-mail as an inexpensive way to connect with those who live far away (Boneva et al., 2001). According to Fallows (2005), women are more enthusiastic about online communication where they use email in a more robust and engaging way.

It has been argued that women's preferences for e-mail imitates pre-existing gender differences in communication style, bearing in mind the usefulness of email features for women's expressive styles (Boneva et al., 2001; Jackson et al., 2001). Kennedy (2003) draws attention to the social expectations which are guided by gender roles in societies as the reason for variation in email use among male and female. As women in the West are the pre-eminent communicators in families, they spend significantly more time than men sending email to family and friends.

Shade (2004) found that women are more likely to keep in touch with remote family and friends by using email. In a very recent study Wasserman and Richmond-Abbott (2005) considered gender differences in email and chat-room use. They found that although the difference was not significant, women more than men were more likely to use email for communications. However, while women use email more for personal and long distance communication, men were more likely to it for more professional and commercial communication.

The social impact of email is particularly pronounced among women. They are more likely to report the effect of the role email plays in keeping and improving relationships (Rainie & Kohut, 2000; Boneva, 2001). These findings are consistent with some reports on a narrowing gap between women and men on instrumentality but not on expressiveness (Duck & Wright, 1993; Spence & Buckner, 2000).

In contrast to the earlier findings Subrahmanyam et al. (2001) suggested that gender patterns in online activities have become more similar than different, particularly the extent to which males resembled females in their heavy use of the email for personal communications. In the same way, Rainie & Kohut (2000) found that men and women were equally as likely to say they received or sent email on average on a typical day. In more general terms Anandarajan and others (2000) found no significant correlation between gender and Internet usage among a relatively small scale study of 80 graduate students. A much larger scale study of both graduate and undergraduate students in a UK university by McMurdo (2000) found that female university students in UK were using email less than male in both hours of use and frequency of sessions (McMurdo, 2000). In 2005 Joiner and associates found that women did not use the Internet for communication more than men (Joiner et al., 2005).

4.2.7.2 Online chatting and Instant Messaging

Chatting allows users to converse with others outside the times that meeting people is usually allowed. Empirical research has put much emphasis on CMC creating impersonality, hostility, and harassment (We 1993, Shade 1993, Herring 1993 and 1994, Walther, 1996, Spears & Lea, 1995, Tannen 1996, Ferris, 1996; and Savicki et al., 1996; Savicki & Kelley, 2000; Wolf, 2000; Bowker & Liu, 2001; Stewart & Choi, 2003, Anolli et al., 2005).

As online communication, in recent years, takes a different form than ordinary chatting rooms, for example Instant Messaging (IM), of which ICQ, MSN Messenger (MSN) and Yahoo! Messenger are some of the most popular systems. These are some of the most

recent and most popular incarnations of text chat technologies that are user-friendly, tell when friends are online in real time and allow the exchange of messages instantly (Baron, 2005).

Detailed examination of young people's use of Instant Messaging showed that they used IM to talk with peers after school, since they had too limited social time during school hours. Many young people have scheduled activities in the afternoon, leaving them with little time to converse face-to-face. According to Jones & Madden (2002) "College Internet users are twice as likely to use instant messaging compared to the average Internet user. On a typical day, 26% of college students use IM" it has become an integral part of college life (Jones & Madden, 2002, p. 2).

Engaging in chat rooms and in online discussions forum has to a small extent grown. More than a quarter of Internet users in the USA said they had used such a means of communication. However, men were more likely to chat online and participant in online discussion forums more than women (Madden & Rainie, 2003). Carroll (2002) argued that male domination of online chat-room use is possibly due their higher social and economic power to dominate conversations in offline society.

Lenhart & Rainie (2002) identified that one of the major advantages of instant messaging is that people can stay in touch with others. In the US 90% of instant message users say they use instant messages to stay in touch with faraway friends and family members. It has appealed to both sexes similarly as an online communication tool. However, it is

more common among women in America than men (Madden & Rainie, 2003). Baron's comparative study (2005) found that there are gender differences in the way college students converse in IM. Comparing males' conversations and females' conversations, he found that overall, male-male conversations have more of a spoken character, while female-female conversations have more of a written character.

Other authors (Jazwinski, 2001, Bonebrake, 2002; Bouchey & Furman, 2003 and Subrahmanyam et al., 2001) discussed how the online medium provides young people with a venue in which they can deal with issues concerning them as in their offline lives. For example the sexuality issues, where Instant messaging provides a place to discuss such sensitive and embarrassing topics in relatively anonymous environment. For young people chatting online provides a relatively safe place to create new sorts of relationships, that can in the real world be risky. However, one should ignore the unwanted cybersexual solicitation that the online chat environment may have (McGerty, 2000; Mitchell et al., 2001; Stewart & Choi, 2003; Greenfield & Subrahmanyam, 2004, Anolli et al., 2005)

In relation to chatting online Leung (2001) in his analysis of college students' motivations for online chatting in Hong Kong found that 77.5% of participants use ICQ, the user-friendly internet tool that tells when friends are online in real time and allows the exchange of messages instantly. Their motivations ranged from the joy of making friends on the net, the ability to disguise identity, the intrigue of non face-to-face communication and the gratification of an immediate response, to the diverse types of people one can chat with. Leung also found that students chatted on ICQ, "when they had nothing to do

(40.3%); [as] a habit (22.8%); when they were bored (18.2%); and when they were alerted by ICQ software (13.3%)" (2001, p. 493). Moreover, in Hong Kong female ICQ users chatted longer sessions and on a more frequent basis for sociability while males on the other hand spent less time and shorter sessions for entertainment and relaxation. Males used ICQ in breaks between classes while females use it to socialize with friends for affection.

Panyametheekul and Herring (2003) investigated turn allocation and participant gender in a Thai chat room. They found that turn allocation was generally similar to turn allocation that in face-to-face discussion and there were some gender differences. Their findings contradicted previous findings on gender in chat rooms. In their study, evidence of females' empowerment in Thai chat rooms was found. Females participated more often than males and received a higher rate of response from both females and males.

Jazwinski (2001) found that females appear to prefer chat groups over newsgroups, suggesting that females prefer a more interactive and synchronous experience. In contrast to early studies of CMC in the West, Panyametheekul and Herring (2003) indicated that Thai women in chatting rooms participate comfortably, free from the aggressive behaviours that often found in English-language CMC.

One of the first serious discussion and analyses of Arab chat was by Wheeler (1998. 2001, 2003, 2004, 2005). Using semi-structured interviews she interviewed Kuwait undergraduate students about their opinions of the Internet's effect on them and their

generation. In her research Wheeler draws the attention to the major social transformation in Arab countries not only as a result of young people's chatting with the opposite sex, but also the ability to access information that is considered prohibited and immoral. Wheeler maintains that like many young people everywhere, young people in Arab societies develop an interest in the opposite sex. However, for young people these feelings, in the past, have been off limits for discussion, even with their parents.

The Internet promotes communications across gender lines, and also for discussions of sensitive issues like sex, people in Arab societies view the Internet as both good and bad. This idea of communication between the two sexes is not acceptable because it violates Islamic disapproval of interactions between the two sexes outside of relatives and marriage. Those who are enthusiastic about online communication believe that chatting online is relatively harmless, in comparison with having a relationship with_someone on line, which is observed to be inappropriate (Wheeler, 1998, 2000, 2001; Abbas, 2001; Shaheen, 2001; Al-Saggaf, 2004; Al-Saggaf & Williamson, 2004).

In his case study of Internet use in Morocco, Braune (2005) highlights some reasons why young Moroccans are drawn to Internet chat rooms. According to Braune, young people create their "personality", not only in their contact with their friends, but also in their contact with the foreign ideas online. In fact social, religious and geographic limitations could be ignored while experiencing new things, particularly chatting.

4.2.8 Online recreational use

4.2.8.1 Online activities

Recreational use of the Internet encompass a wide range of activities e.g. pursuing hobbies, downloading videos and music, chatting, participating in online gaming, and web surfing. There are differences between university students and the general public in term of on-line leisure activities, and studies show that students' Internet activities differ to some degree from those of the general population. According to the Pew Project (Jones & Madden, 2002), American College students are twice as likely to have downloaded music files and they lead other Internet users in file sharing of all kinds. Perhaps their Internet use is mostly oriented toward entertainment, because college students are making the transition from teen years to adulthood (Madden & Rainie, 2003).

There are also a gender differences between men and women in their online activities. Odell et al.(2000) stated that 25% of male college students in his study reported visiting sex sites on-line, while only 1% of females used the Internet for such purposes (see also Bimber, 2000; Jackson et al., 2001). Gender patterns in Internet use vary substantially across different frequencies or levels of use (e.g. Howard et al., 2002). Males used the web more than females, consistent with their stronger motive for information seeking. They are more likely than females to use the Internet for research purposes, to look for news, play games, and listen to music (Bimber, 2000; Odell et al., 2000; Jackson et al., 2001).

Male Internet users have had a greater desire for downloading music online compared to women (Madden & Rainie, 2003). Students of Institutions of Higher Learning (IHLs)

noted that gender seems to be a significant predictor of Internet usage activities of messaging, browsing and downloading. Male students use messaging, browsing and downloading activities more frequently as compared to the female students (Ramayah et al., 2003).

Fallows (2005) verifies that with only a few exceptions, males used the Internet for more kinds of entertainment and recreation activities than women do. However, men are more likely than women to engage in light-hearted activities online, such as pursuing their hobbies, participating in sports fantasy leagues, downloading music and videos, and remixing files, as well as more serious activities, such as reading for pleasure and taking informal classes. In Greece, Greek boys were found to be using the Internet more for recreational and entertainment-related Internet activities (e.g., online gaming, downloading of music, games and video clips) than girls did.

Research on gender differences in online activities indicates that males tend to be more highly task-oriented than females (Venkatesh et al. 2003). As Roy & Chi (2004) noted that when using the Internet for an identical search task, boys performed significantly better than girls on both target-specific information and target related information. Generally men use the Internet to search for information more than women; because they are more task-oriented while women are more socially-oriented (Kennedy al., 2003).

Females use the Internet more for e-mails, and school research. Women also outnumbered men for a small number of activities, including health, medicine and

religion (Fallows, 2005). Females were more aware of other's feelings and were concerned more with group harmony, and building relationships'. Females also appear to prefer chat groups over newsgroups, suggesting that females prefer a more interactive and synchronous experience (Jazwinski, 2001).

Kuhlemeier & Hemker (2005) found that at home, compared to boys, girls spend less time at the computer, they search for information on the Internet less often and they use their computers less often for games and music. On the other hand, they use the computer at home more often to e-mail or to chat. On the other hand, Teo & Lim's (2000) study show a slightly different results where females seem to emphasize animation and multimedia features such as sound effects and background music to a greater extent than males. Hoffman & Novak (1998) also found some evidence that women are more likely to use real-time audio or video than men.

Perhaps males' preference for recreational use of the Internet (Haisken-DeNew et al., 2001; Hakkarainen et al., 2000; Millard, 1997) was rooted in the male-oriented computer game tradition (Kiesler et al., 1985). In fact, Greek boys' greater engagement in Web page creation seems to be in accordance with other studies reporting that boys get involved in demanding computer-related activities and gain programming experience from childhood more than girls do (Kiesler et al., 1985; Schumacher & Morahan-Martin, 2001). Howard et al. (2002) noted that variations in online behaviour were a product of different levels of experience with the Internet. They argued that the experienced Internet users, who had been online for more than three years, differ from those new users who

had gained Internet access a year ago or less. Men were significantly more likely to be the experienced users than women.

Grace-Farfaglia and associates (2005) found that gendered differences for Internet use within Dutch South Korean and American study samples. However, these differences did not fit entirely into the dichotomy of men as information gatherers and women as seeking social communication. Dutch South Korean and American men found social support and companionship through multiplayer gaming, online dating, and hobby/sports communities (Grace-Farfaglia et al., 2005).

Recent evidence suggests that gender differences in online activities are starting to disappear. In fact there is a remarkable number of online activities that are performed equally by both men and women, which are very popular with young adults. Madden & Rainie (2003) in detailed examinations of American Internet usage reported that the gap had narrowed slightly, although men still lead the music download online; 35% of males, compared to 29% of females.

However, no significant gender differences were detected regarding Internet use for communication via e-mail, chat, or Web surfing and information search activities (Papastergiou & Solomonidou, 2005). Moreover, the Internet's chat rooms and instant messages are used in equally by men and women, and browsing the Internet for fun as a leisure pursuit was also equal to both sexes (Rainie & Kohut, 2000).

Although men go online in greater numbers than women for some activities, both men and women are equally likely to go to the Internet for a wide variety of activities, from getting travel information to online banking to looking up phone numbers and addresses. Women also play games, listen to audio and watch video clips, and use the Internet for shopping, chatting and share files as much as men. (Fallows, 2005). Although American men and women engage the same in online social activities, men still predominantly the news gatherer. Moreover, Dutch men and women were equally likely to maintain interpersonal communication via instant messages, e-mail, online dating, and gaming (Grace-Farfaglia et al., 2005).

The Internet is a popular tool among adolescents of both genders for downloading music or getting information about movies, books and other leisure activities (Fulkerth, 1998; Green, 1998; Sax et al., 1998, Callan, 1998; Rush, 1998 Rainie & Kohut, 2000). More recently Sam and associates found that female as well as male undergraduates seem to be equal in their receptivity to the use of the Internet, the extent of their use of the Internet, and the purposes for which they use the Internet (Sam et al.,2005).

4.2.8.2 Website visits

Some Internet websites (e.g., sports, sexually explicit materials) are more likely to be male oriented; others (e.g., cooking, religious) can be classified as female oriented. Yet a vast majority of other websites (e.g., health and fitness, games) might be classified as androgynous. The use of these different types of sites varies among men and women (Mehta, 2001).

On the Web, the gender gap is quite pronounced, however, and women are more likely than men to seek health information, research new jobs, and play games online whereas men are more likely than women to get news, shop, search for financial information and sports news, access government Web sites. Women are also more religion surfers than men, a trend that has become increasingly evident over time (Rainie & Kohut, 2000; Teo & Lim, 2000; Shade, 2003, 2004, Madden & Rainie, 2003, Wasserman & Richmond-Abbott, 2005; Fallows, 2005). In contrast research by Weiss and associates (2003) about the gender differences in reading news online found that the difference between men and women and reading news on the Internet is not due to their gender, as previous studies have shown, but due to an intervening variable, length of time reading news online. Their finding suggests women are not less interested or less comfortable with reading news online, and that once women catch up with men in the length of time reading news online, the gender difference are likely to disappear.

It has been suggested that before the Internet was introduced in 1990s women engaged less frequently in financial and governmental social activities, in their use of various webpages. Nevertheless, the growth of the Internet allowed women to engage in these activities online more efficiently, which explains the narrowing of the gender digital gap in Internet knowledge (Wasserman & Richmond-Abbott, 2005).

In the USA 81% of men pursued their hobby online, compared to 73% of women. There is a gap in looking for hobby information online on a typical day (24% of men vs. 14% of

women). Similarly, more men than women claimed the Internet played an important role in engaging in a new hobby (Lenhart & Rainie, 2002; Madden & Rainie, 2003).

Research on college students' use of the Internet generated findings which appear to highlight the well-known assumption that men use the Internet for information gathering and entertainment and women use the Web for communication (Shaw & Giacquinta, 2000). The most pronounced gender difference was found in male university students' use of the Internet for recreational activities such as playing games, gambling, accessing news, and visiting adult-only sites. However, females are more likely to use the Internet to communicate with family members and friends (Goodson et al., 2001; Jackson et al., 2001; Morahan-Martin & Schumacher, 1997; Odell et al., 2000; Heimrath & Goulding , 2001; Scealy et al., 2002).

A small scale British study by Heimrath & Goulding (2001) reaches similar conclusions, finding gender differences which were apparent in students' replies under the "Other" category of websites visited, which reflected traditional perceptions of women's Internet use. Whereas male responses included gaming, business, competitions, computer software updates and professional awareness, females mentioned shopping, banking, news and various types of information searching.

4.2.9 Internet for education

The Internet first became widely used in some Western colleges in the 1990s, and many Internet search engines like Yahoo, and Napster were created by college students. Nowadays college students use the Internet far more than the general population, since

universities continue to increase the number of courses requiring Internet use and are expanding Internet accessibility (Jones & Madden, 2002). It is, therefore, as Odell and associates emphasized, important to study college students to understand and predict the future of national Internet use, since college students are some of the primary Internet users (Odell et al., 2000).

As mentioned earlier, universities have contributed to the growth of the Internet as more and more universities become connected. In fact "At growing numbers of colleges and universities across the country, net access is viewed by faculty and students as a core resource and a basic right, similar to a library card" (Marklein, 1997). In the late 1990s it was estimated that the majority of America's university students accessed the Internet (Marklein, 1997). A small scale study by Panda and Sahu (2003) revealed that 50% of students in the engineering colleges in Orissa were accessing the Internet using dial-up connection.

A review of the literature reveals that college students are the most frequent users of the Internet. They use the Internet mainly for educational purposes rather than for entertainment (Bavakutty and Muhamad, 1999; Mistler-Jackson & Songer, 2000). In a very recent study findings showed that the majority of students used the Internet mainly to learn and find school resources (Robinson, 2005) and to prepare and complete course work (Mishra et al., 2005; Hanauer, 2004).

Internet use is important for students' educational process. University students use the Internet to communicate with classmates, to access the library, and to do research. In fact 79% of American college students thought that using the Internet had a positive impact on their academic experience. In reality they use the Internet more than the library, and subscribe to one or more academic related mailing lists Students may also find communicating electronically is less threatening than speaking in_class (Kussmaul et al., 1996). A more recent study by Fuchs and WöBmann (2004) confirms that having a computer at home and using it at school will almost certainly improve some computer skills.

Detailed examination of Internet use by 406 graduate and undergraduate students from Shippensburg University by Laite (2000) showed that more than half of undergraduate students used the Internet twice a week and another 37.1% used it 1-2 times daily. 54.7% of the graduate students used Internet 1-2 times per week and 37.7% used it 1-2 times daily (Kumar & Kaur, 2006). In Nigeria university students used the Internet for research materials, and e-mail. According to Jagboro (2003) Nigerian students' use of the Internet for academic research would significantly improve through the provision of more access points at departmental and faculty levels.

Thomas and associates (2001) surveyed seven hundred and twenty-eight undergraduate and graduate students on the use of technology in one of their courses. Students were generally very positive about the use of technology, with no major differences across class-level (freshman to graduate). Although females were generally positive about the

use of technology, they rated the use of technology for learning somewhat lower than their male counterparts (Thomas et al., 2001).

Researchers have argued that men view the Internet generally and e-learning particularly, as a way to provide education in a quicker and less expensive way (Arbaugh 2000). In contrast, women, see the Internet as a way to develop cooperation and support networks for learning and communication (Herring 1994). Students' attitude to the Internet will be discussed in the next section.

4.2.10 Section summary

College students are heavy users of the Internet compared to the general public in both developed and developing countries. Many students in developed countries have their own computer, and are able to access the Internet through their university, college, etc. In developing countries, students access the Internet mainly through cybercafés, while university labs were the least popular site due to the low level of connectivity, and long queues.

College students' use of the Internet serves many purposes, such as browsing, entertainment, finding resources for studies, communicating with friends far away, and academic research. Students have also used the Internet for academic purposes. For most students in both developed and developing countries the Internet is a functional tool that changes the way they go about their studies. However, in the West, male college students use the web more than females, and they are more likely than females to use the Internet for research purposes, look for news, play games, and listen to music. During a typical

day, college students spend roughly as much time on-line as other Internet users do. However, they tend to spend a good deal of their time on-line in communications such as E-mail.

4.3 Attitudes toward computers and the Internet:

4.3.1 Introduction

In relation to computer attitudes, males and females are most alike. Kay (2005) noted that out of 98 instances of computer attitude measurement, 48 studies found that males had more positive attitudes, while females found to have more positive attitudes in 14 studies. Yet, males and females found to have similar attitudes in almost 36 studies.

Over the past decade, researchers have investigated males' and females' perceptions and attitudes regarding computers and the Internet (Ford & Miller, 1996; Smith and Necessary, 1996; Whitley & Bernard, 1997; Jackson et al., 2001; Durndell & Haag, 2002; Colley, 2003; Kadijevich, 2000; McMurdo, 2000; Schumacher & Morahan-Martin, 2001; Tsai, 2004). These studies, in general, revealed that males have more favorable attitudes than females; for example, Ford and Miller (1996) found that females felt that the Internet was too big and unstructured, and found searching the Internet difficult, not enjoyable and used it only when unavoidable. Males, on the other hand, were happy to search the Internet for relevant information, comfortable taking a course taught entirely via the Internet and enjoyed using it. Therefore Ford and Miller suggested that females report significantly greater levels of disorientation and disenchantment in relation to Internet use.

In the South African context, user attitude to computers was addressed by the studies of Clarke and Finnie (1998) and Smith & Oosthuizen (2005) who found that there is a highly significant difference between the sexes with respect to "fear of computer power", with males being less apprehensive. Further, Mitra and associates examined Internet attitudes among college students over four years, and found that, despite excellent access to both computers and the Internet, the females held less positive views of computers and used them less often than the males (Mitra et al., 2001a). In a re-examination study of gender effects in students' computer attitude, Subrahmanyam and associates (2001), found that although there is some evidence of change, it is clear that gender differences still remain. Females use computers less, like them less and evaluate their own computing ability less favourably than do males (Subrahmanyam et al., 2001). Females were also found to have higher anxiety and lower control of their Internet usage (e.g., Tsai et al., 2001).

Liaw and Huang (2003) identify that users' perceptions and acceptance of the Internet, shapes and may determine individual desires to use the new technology. Such perceptions have been found to differ between males and females. In a study of students' attitudes toward ICT, Colley (2003) revealed that computers are perceived as tools to accomplish tasks by females, while males perceived the technology as a toy for play and mastery. These gender differences are particularly important in understanding how computers are used for learning purposes (Colley, 2003).

Recent evidence suggests that males and females approach the Internet differently. Females tend to approach the Internet as a tool to accomplish a task, while males on the other hand, tend to perceive the Internet technology as a toy. This finding may be linked to culture of on-line gaming which are mainly designed for males (Tsai & Lin, 2001; Peng et al., 2006). Mitra's et al. (2005) analysis demonstrates that while males are more likely to use the Internet for its own sake, females, on the other hand, are more likely to use it in a manner which fits with their everyday routine.

Males and females are also different in how they explicate their interest in Internet technology. Enochsson (2005) discusses how males "show" their interest in technology, while females do not seem to have the same interest in "showing" their interest. However Enochssons' research findings are consistent with research that claims that males' and females' computer and Internet use nowadays are equal (Carlsson & Facht 2002; Tapscott 1998). In 2005 Joiner and associates found that when controlling for Internet identification and Internet anxiety, there was a significant and negative correlation between gender and use of the Internet. In total, all three of their predictors accounted for 40% of the variance in general Internet use with Internet identification accounting for 26%, Internet anxiety accounting for 11%, and gender accounting for 3% (Joiner et al., 2005).

Other literature, however, contradicts the above findings, for example several investigations have reported that gender had no significant effect on user Internet attitude (Jennings & Onwuegbuzie, 2001; Shaw & Giacquinta, 2000; Shapka & Ferrari, 2003;

Oshan & O'Brien, 2005; Smith & Oosthuizen, 2005). Furthermore, In Hong Kong, Brosnan and Lee (1998) found that males were more computer anxious than females. Another study by Zhang found that female college students have more positive attitudes toward ICT than their male counterparts (Zhang, 2005). The contradiction in these research findings might be related to different methodology used, or the research setting. However, as the number of women online increases, their attitude toward computers and the Internet is shifting. Mitra et al. (2005) suggested that with the increased diffusion of the Internet, some gender differences disappeared. However, as the Internet is used in different way by both sexes some differences will persist. However, it is worth mentioning that the differences in usage and attitude observed in the earlier studies, which are nearly a decade ago. could disappear in later studies.

4.3.2 Computer anxiety

A considerable amount of literature has been published on computer anxiety. This research found that computer anxiety is higher among females than males, at all ages and in different parts of the world (Chua et al., 1999; Kadijevich, 2000; Zhang, 2005; Joiner et al., 2005). Todman (2000) examined the result of a survey of first year college students from 1992 to 1998 and found that over the years, male students became less computer-anxious than their female counterparts. In another study King et al.,(2002) followed students for three years, and found that girls were more anxious than boys.

HERI noted that male students are five times more likely than female students to pursue computer science studies and related careers. This gender difference is related to females'

lack of self-confidence when dealing with computers (HERI, 2000). In Romania, Durndell & Haag (2002) reported that university students' attitude toward the Internet was significantly affected by gender, with females reporting on average, greater computer anxiety than males. This research clearly supports the views of researchers such as Jackson and associates who found that females are more computer anxious (Jackson et al., 2001)

Researchers identified that family socio-economic status and parental gender stereotypes about computing influence female attitudes toward computers. Thus, female students reported more computer anxiety than did males; (Qureshi & Hoppel, 1995; Schofield & Davidson, 1997; Shashaani & Khalili, 2001). Others suggested that prior experience with computers did not mediate gender differences in anxiety, but in fact anxiety mediated gender differences in computer behaviour (Whitley & Bernard, 1997). In fact Gackenbach's (1998) have argued that gender may interact indirectly with computer experience by affecting computer anxiety and computer-related attitudes.

In contrast, other studies found that the small difference between males and females across the age range suggests that gender is not an important variable in considering differences in computer anxiety (King et al., 2002). Further, in Malaysia, Hong (1998) reported that there were no significant differences in undergraduates' attitudes toward computers. In fact Hong reported that male and female undergraduates are not different in their computer anxiety across different fields of study. More recently Sam and associates

(2005) found that in Malaysia there were no significant differences in computer anxiety levels, between the two sexes.

4.3.3 Computer self-efficacy

Studies suggested that in general females, regardless of actual computer skills, under-estimate themselves (Shashaani, 1997). Others found even when females are more successful in class, their confidence level is significantly lower than that of males (Gurer & Camp, 1998; Selby et al., 1997; Shashaani, 1997; Shashaani & Khalili, 2001). In New Zealand (Selby et al., 1997) and in Hong Kong (Lee, 2003), females were found to have lower confidence in their computer skills. Similarly an annual survey of incoming college freshmen in the USA, reported that the gender gap in computer confidence was wider than it had ever been in the 35 years. Males are more likely than females to view their computer skills as above average (Sax, et al., 1998).

In a very recent research Hargittai and Shafer (2006) reported that in terms of the actual skills, female tend to rate their online skills lower than male. In a comparison study of male and female Internet identification, Joiner and associates noted that males' identification with the Internet was significantly higher than females'. In particular, males were significantly more likely to feel part of an Internet community than females (Joiner et al., 2005).

Female lower self-confidence and self-assessment may affect significantly the extent of their online use and behaviour in use of the Internet. Females with lower self-efficacy are

more likely to drop out of computer programmes (Kekelis, et al., 2005). Sherman et al. (2000a) and Morahan-Martin (1998a) claimed that male positive attitudes led to higher levels of participation than for women in four of five activities: WWW, newsgroup, MUDs, and chat groups. This idea is supported by HERI findings that females students participate less frequently than males in online chat-rooms or in other Internet activities (HERI, 2000). Males' computer self-efficacy drives their greater web use, while females' motivation to communicate produces higher levels of e-mail use (see also Rajagopal and Bojin, 2003; Jackson et al., 2001; Shashaani & Khalili, 2001).

However, contradictory to many studies on attitude, Ray and associates presented evidence to support the belief that women have become more comfortable with technology (Ray &, Sormunen, & Harris, 1999). Female computer skills are more likely to be inhibited by the presence of males during the learning process (Corston and Colman, 1996). By and large, research revealed that females' comfort level with computers increases with experience. Although males scored higher on Internet self-efficacy both before and after training, Torkzadeh and Van Dyke (2002) suggested that training significantly influences Internet self-efficacy for individuals and that males and females alike benefit from training.

4.3.4 Gender stereotype

Research suggests that the overwhelming factor preventing equality with regard to ICT is stereotyping and social conditioning (Dobson, 1998). Women's gender role prescribed by social culture arguably means that they have less leisure time and more limited access to

the Internet than men (Smith & Blaka, 1988). Moreover, male domination of online communication results in females adopting less positive attitudes than males to the Internet and perceiving it as less useful (Heimrath & Goulding , 2001). In a small scale study of university students in a British university Heimrath and Goulding found that male students generally expressed confidence in the usefulness of the Internet in the workplace; and agreed with the statement, "the Internet is a time-saving tool in the workplace". On the other hand, female opinion, was divided, only 47% agreeing with the statement. Females expressed some reservations regarding the effectiveness of the Internet (Heimrath & Goulding , 2001).

The stereotypical culture which has developed around computer and computer use is predominantly manifested in the marketing of computer-games. According to Morahan-Martin (1998b) computer attitudes are likely to generalize to the Internet, since it is perceived to be a male world. In fact, the USA some research of nonusers reported that females more than males view the Internet as complicated and difficult to understand (Fox & Fallows, 2003). Women also had more negative educational and recreational experiences of computing which could have led to low perceived usefulness of the Internet. In fact Heimrath and Goulding (2001) found few females who began using the Internet on their own initiative. Thus, they concluded that gender roles and stereotypes control women's relationship with technology and present practical difficulties of time and access.

Despite the increase of women presence on the Internet, stereotypical views of ICT technology may explain why women Internet users do not view the experience online as positively as male experience (Whitley & Bernard, 1997; Woodfield, 2000). Gender stereotypical views, might explain the negative attitude some women have in relation to computer and Internet use. As part of the stereotype, Tsai & Lin 2001 noted that males are expected perform better than females in technology-related tasks causing, females be less confident about their ability to use the Internet. Lang and Hede, in a study of four most popular girls magazines in Australia argued that although there were "no clear stereotypical portrayals found, the stereotypes are portray in gaming advertisements, and the absence of IT advertisements or promotion in teenage girl magazines could be construed as a product of stereotyping embedded in society's beliefs that IT is male and not of interest to young girls" (Lang & Hede, 2004, p.295)

4.3.5 Students' attitude to the Internet in education

Empirical evidence supports the link between attitude and performance. Students with more positive attitudes toward computers perform better than students with more negative attitudes (Wolfe, 2001). Wang (2001) emphasised that there are two different views on the effect of the Internet on college students and their education. The positive view regards the Internet as informative, convenient and resourceful, emphasising the benefits, economic as well as social. On the other hand, the negative view emphasises the downside of Internet use, such as the effect of addictive use of the Internet on people's health, financial and social life.

Students' attitudes to computer technology is very important in higher education, where the Internet is increasingly becoming a central element of the education curriculum in many university departments. Even though there are gender differences in students' perception of the role of ICT in education, college students in general are positive about Internet's impact on their learning process (Sherman et al., 2000b; Rajagopal & Bojin, 2003). The overwhelming majority of students feel online communications have enhanced their academic experiences in positive way. Both male and female students indicated that they enjoy using the Internet for academic and personal reasons.

Most studies have found that women's use of linking computer technology was less than for men in the same context. Even when given equal access to computers, women use them less than men (Shashaani & Khalili, 2001; Palloff & Pratt 2001). Women are less likely to be attracted to computer courses and computer-related careers. Some studies showed that this phenomenon has not changed during the last decade, although women have more chance to access computers. They also seem to use technology for learning in a unique way to build online learning societies, which permits them to eliminate barriers and struggle in educational experiences (Rajagopal & Bojin, 2003; Li, 2000).

4.3.6 Section summary

It is evident from the literature that gender differences persist in users' attitudes toward the computer and Internet usage. Males' computer self-efficacy drives their greater web use, while females' motivation to communicate produces higher levels of e-mail use. Research shows that male positive attitudes led to higher levels of participation than for women in four of five activities: WWW, newsgroup, MUDs, and chat groups. In fact

female students participate less frequently than male in online chat-rooms or in other Internet activities. Even when women are given equal access to computers, they still use them less than men and they are less likely to be attracted to computer courses and computer-related careers. Females have higher computer anxiety and lower self-efficacy than their male counterparts. However, most students report being very comfortable regarding their experience of using the Web and the e-mail.

4.4 Empirical studies on female use of the Internet in Saudi Arabia

4.4.1 Shaheen (2001)

This study was concerned with the effect of Internet use upon the use of the academic library. The study examined first year university students' use of the Internet, and the motivations and barriers influencing their usage. The study also investigated students' use of the academic library in King Abdulaziz University and how they saw it in comparison to their views of the Internet. However, one of the study limitations is, that students' Internet use was investigated briefly, only to compare it with students' library use. Thus, there was not much detail about Internet usage patterns.

One thousand five hundred First year students from thirteen departments in King Abdulaziz University participated in this study, six hundred of whom were female. The method used to collect data for this study was a questionnaire survey. Shaheen found that the majority of female students considered the Internet as their first source of information, while the academic library and the Internet were in equal positions for male students. Both males and females had used the Internet in past three years and they used it on a daily and weekly basis.

Respondents used the Internet for a variety of reasons such as chatting (60%), email (50%), listening to music and songs (46%), and for general browsing (46%). Female students stated that they accessed the Internet mainly from home, while male students accessed the Internet mainly through Internet cafes. There was a relationship between frequent use of the Internet and the users' gender. Even though more female students stressed that the Internet was their first priority when seeking information, more male students used the Internet on a daily and weekly basis.

4.4.2 Al-Dobaiyyn (2003)

Al-Dobaiyyn did research on how female researchers in Saudi universities from the Internet to obtain information. The study aimed to investigate female researchers' use of the Internet to seek information, the availability of that information, and the strategies they apply to obtain it. Furthermore it aimed to identify any significant differences amongst female researchers in relation to their age, geographical location, nationality, level of education, and their field of study. Al-Dobaiyyn also examined how satisfied female researchers were with the Information they acquired from the Internet. From a general point of view in relation to research on students' Internet use, this research was limited in two ways. One was in relation to the study sample, which was restricted to research students. The second was the study theme, which was devoted to using the Internet to search for research materials and information online.

Al-Dobaiyyn used survey questionnaires as the method of her study. Three hundred and forty questionnaires were distributed in five Saudi universities scattered around the

country, with a 74% response rate. More than 75% of the respondents used the Internet, most of whom accessed the Internet from home. They used the Internet on a daily basis, with the e-mail service as the most used service of the Internet. Respondents' strategy to find information on the Internet was to use search engines, with Yahoo ranked the highest most used, followed by Google, and the Arabic search engine Ayna ranked the third.

The most important reasons for using the Internet by respondents were the up to date information, and time saving. Sixty one percent of the respondents were satisfied with the outcome of their Internet searching, and only 6.8% were not happy with it. Slow connectivity and connection interruption while browsing were the main difficulties faced when using the Internet. Time, language and information accuracy were also factors that affected respondent' use of the Internet.

4.4.3 Al-Hajery (2003)

Al-Hajery conducted a study on the World Wide Web's effect on Saudi male youth. This field study covered Internet cafes in Riyadh, the capital city of Saudi Arabia. Al-Hajery combined two methods for his study, using questionnaire surveys and observation. The two questionnaire surveys were aimed at young people visiting Internet cafes, and the managers of these Internet cafe. The researcher also created a monitored network to monitor Internet cafes customers' activities. Perhaps the most serious disadvantage of this method is that if users knew about the monitoring, their usage would be different and careful. If, on the other hand, users did not know about this monitoring process, it would be an ethically questionable research method.

The majority of respondents were single men who had, on average, three hours of free time a day 43% of them had finished or were doing their bachelor degree, 30% were educated to high school level, and very few had a post graduate qualification. A third of respondents still lived with their families according to the nature of Saudi culture. They had been using the Internet for an average of two years, and very few had used it for more than five years. For Saudi males, Internet cafes were the most popular place to access the Internet, away from family restrictions.

Approximately half of the study sample found slow connection to be the main obstacle, followed by the language, and the cost. Sixty-one percent of respondents were enthusiastic about the Internet's effect on their lives, 25% said it had a very positive effect, while 13% believed that the Internet had a negative effect on them. Respondents used the Internet for a variety of reasons, checking email, entertainment, chatting, meeting like-minded people, news, romance, reading newspaper, searching for sex sites, searching and online shopping.

4.4.4 Goblan (2003)

This study was about academic trends of Internet use in Riyadh city. It was aimed at academic society particularly at females in three major academic institutions. Goblan investigated women's use of, and attitudes toward the Internet in academic society. She also identified some of the obstacles that female academics encounter when using the Internet.

Goblan used a questionnaire survey as the method for the study, which was distributed in the academic libraries of to the three academic institutions selected for the study, King Saud University, the Women's College of Art, and the Institution of General Administration. The study population consisted of three hundred faculty members, graduate students, and undergraduate students.

The study found that 76% of the survey respondents used the Internet, most of whom had used it for an average of one year. The majority of respondents had personal subscriptions as a mean of access to the Internet. Regarding training, self teaching and teaching by friends were ranked the highest in term of frequency, while training in commercial computer centres was ranked the lowest. Using the Internet to increase knowledge and for general information was the main motivation for Internet use, followed by checking e-mail. Creating personal homepages was the least reported use. The study identified some difficulties that respondents met when using the Internet such as slow Internet connectivity, and the language.

4.4.5 Section summary

Female university students in Saudi Arabia use the Internet on a weekly and daily basis, and the majority access the Internet from home. They use the Internet mainly to find up to date information, to check their emails, and because it is time saving. There are many obstacles that Saudi females encounter when using the Internet, such as language, slow connectivity, and the accuracy of information on the Internet.

4.5 Summary Critique of the Literature

Most studies reviewed in this chapter are high quality academic papers in refereed journals. The majority of literature on Internet use patterns and attitudes reflect Western research, much of which were based in the United States and some in the UK. Some other studies are set in different developed and developing parts of the world such as (Shashaaini & Khalilli, 2001) in Iran, (Hu & Leung, 2003) in China, (Tsai & Lin, 2001) in Taiwan, (Wang, 2001) in Australia, (Enochsson, 2005) in Sweden, (Sevdik & Akman, 2002) in Turkey, (Alkhzzi, 2002) in Kuwait. At the present there is very little research on Arab students' Internet use, particularly previous literature in the researcher's particular context (Saudi Arabia). Studies found on Saudi women and students use of the Internet were discussed in detail in Section 4.4.

In relation to the research scope, many of the studies cited in this chapter are single studies on selected samples with homogeneous characteristics. However, the review of the literature included some comparative studies not only between male and female but also between users in different part of the world. For example Li (2001, 2002) and Li & Kirkupp (2005) compared male and female Internet use in both UK and China. Marcelline et al. (2005) used a four country sample from India, Mauritius, Reunion Island, and USA. While Grace-Forfaglia et al. (2005) compared Internet users in the USA, Netherlands, and South Korea. For comparison between college students in developed and developing countries Shashaaini and Khalilli (2001) based their research in Iran and the USA.

The usefulness of these studies depends very much on the method used to collect data. The majority of studies reviewed are quantitative studies which used survey techniques. Some were conducted by well known government and non government bodies such as the Pew Project in America. Examples of studies that used only a questionnaire survey are those of Shermen et al. (2000), Liff & Shapherd, (2004), Jackson et al. (2001), Hu & Leung (2003) and Korgen et al. (2001). Some other studies used both quantitative and qualitative techniques. For example Boneva et al. (2001) and Li (2002) used questionnaire and interviews, Baron (2005) and Mitra et al. (2005) used questionnaire and focus groups while Enochsson, (2005) used questionnaire, observations, interviews, and document reading.

Some research involved a large sample population and national studies such as the the Pew Project in America (Rainie & Kohut, 2000; Jones & Madden, 2002; Fox & Fallows, 2003, Fallows, 2005), and OXIS (Oxford Internet Survey) in the United Kingdom (2003, 2005). The research sample runs up to thousands of households in different parts of the country. Some other studies which are not national surveys also had a large sample, for example: Teo & Lim (2000) in Singapore surveyed 1370 students, Korgen et al. (2001) surveyed 800 college students in the US, while Wasserman & Richmend-Abbutt (2005) surveyed 2000 of American public. In contrast there are many one-off small studies such as Wang (2001) in Australia with a sample size of 217 college students, Jagbror (2003) in Nigeria who used only 73 questionnaires, and in 2005 Mitra and associates surveyed 92 college students in Wake Forest University in USA.

Much of the literature reviewed in this chapter is about students' Internet use patterns and attitude, however, there are some studies of the non-student population. Those were useful from a gender point of view since there are similarities between Internet use by female students and non-students. University students' use and attitude towards the Internet seems to be similar to that of the general public, with the exception that university students are more intensive users of this medium.

Although most studies reported are high quality papers, the findings were tested against the context of the research and methods used. Some research studies are not only large well founded projects but also ongoing research on people's everyday life online, such as the Pew project in America. This project explores Internet impact on American daily life using telephone and online surveys that are supplemented with observations and interviews. It started in 2000 and is a long-term project that releases 15-22 pieces of research every year. Similarly the OXIS survey in the UK that examines British Internet use and access, started in 2003 and carried out another survey in 2005.

The findings of most research are in agreement with each other, however, although there were some contradictory results in relation to patterns of Internet use based on the differences in the cultural setting of the research. For example, Li's (2002, 2005) findings about British and Chinese female students' email use seems to contradict with those found in most American research because of differences in perceived gender roles and responsibilities. On the other hand, contradictions in findings of students' attitude towards the Internet were mostly to do with method of measuring attitude (attitude

scales). Some attitude scales were adopted from scales that were originally developed for the workplace such as (TAM), others have some psychological background, such as that used by Jackson et al (2001). The inconsistency in findings on Internet attitude are usually the result of differences in research context and socio-cultural background, such as those found in Sashaaini and Khalilli in Iran (2001).

4.6 Concluding remarks on Internet use patterns and attitudes

Many male and female students in both developed and developing countries use the Internet and have their own personal computers. The majority also access the Internet from home for privacy reasons. In the early nineties, more males were online than females. However, in recent years the number of female users has increased and in some developed countries, female users out-number male.

Students are more frequent users of the Internet. They use it to learn, find study resources, prepare, and complete course work. The application most used by college students is email, and they are generally positive about the benefit of the Internet to their education. Although female students are as positive as males, they use it for their education less. The majority of Western students have use IM before entering college and they used it more than the general public, to communicate with family, friends, and their lecturers. Students are drawn to use IM and online chatting rooms because they are able to discuss sensitive and embarrassing topics, make new friends, get immediate response, and disguise their real identity. For people in the Arab world, chatting online has created a social transformation because of the ability to cross the cultural line of gender

segregation, and the ability to discuss topics that are off limits in face to face conversation. There are gender differences in the way males and females chat online. Females chat more frequently and for longer sessions for the sake of sociability, while males chat less frequently and in shorter sessions, for relaxation and entertainment.

One of the most used Internet applications by females is email in and, fact, they use it more than males. Females use email more for personal long-distance communication, while males use it more for professional commercial communications. The gender differences in email usage is due to many reasons that are related to the different obligations women have towards relationships, differences of value women place on relationships, and to the different in social expectation guided by gender. Females are also more socially impacted by the role of email in improving relationship. Women are more likely to use email; however, while female use email for personal and long distance connections, male, in contrast, are more likely to use email for more professional and commercial communication. The gender gap for other online activities like chat rooms and instant messages has almost vanished.

While female Internet users participated almost equally in many activities compared to their male counterparts (i.e. visiting a government Website or seeking information on product), male Internet users still outnumber women in most Internet activities. Men are still much more likely to seek information online on financial, and sports, while women are more likely search for information on health and religion. However, there is no gender-based difference in use of the Internet for school-related or job-related research.

Examination of Internet usage patterns shows that males utilize it in a more personal way while females on the other hand, utilize it in more social ways. Figure 4.2 shows the gender difference in Internet usage patterns between males and females.

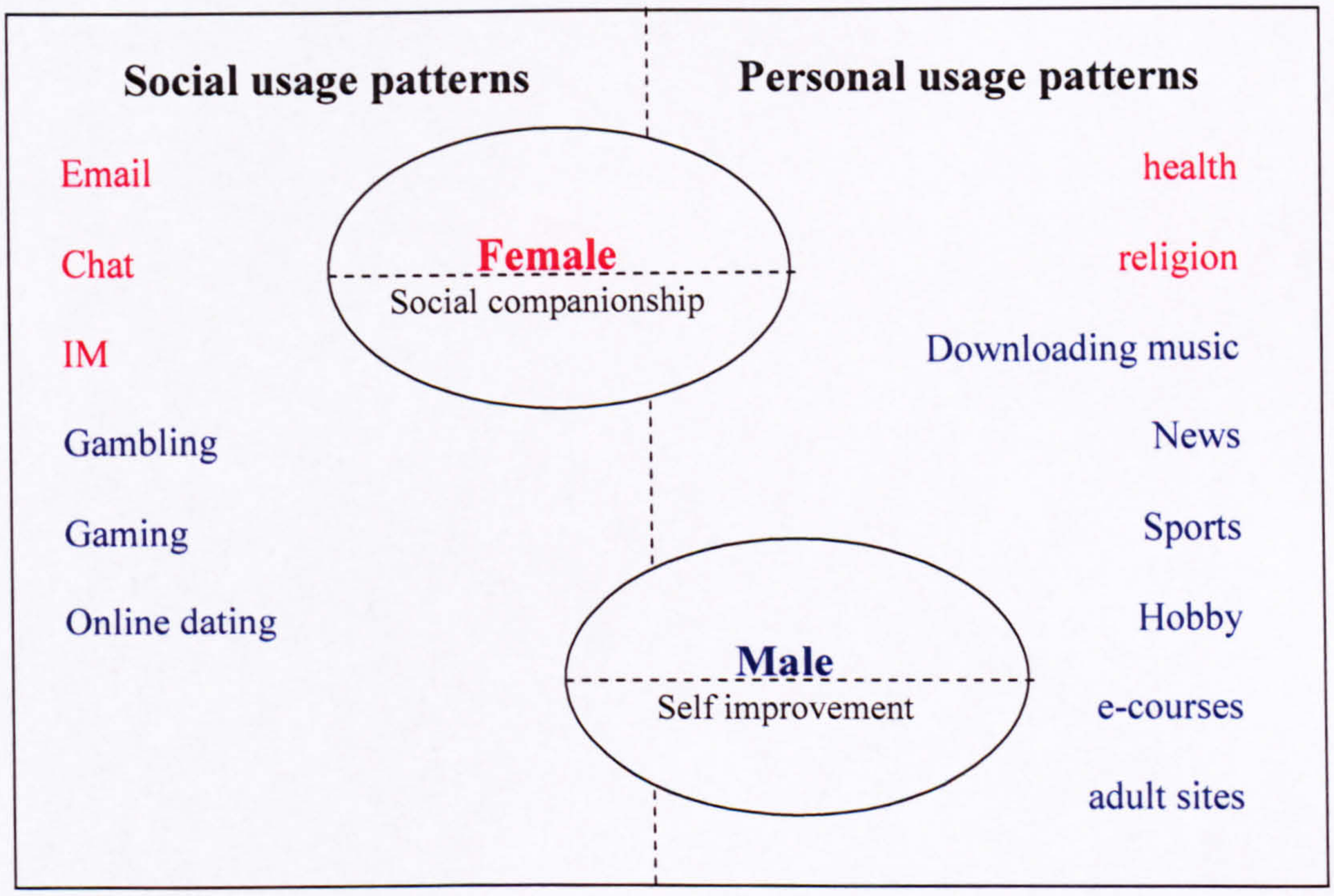


Figure 4.2: Gender differences in Internet usage patterns

This is clear in relation to motivation for usage, online activities, and websites visited.

Males are motivated to use the Internet for self improvement, while females seek social companionship. In addition, male Internet users pursue their hobbies online, listen to and download music, look for news, sports, visit adult-only websites, and use the Internet for entertainment and recreational activities more than females. Male online socialization is embedded in game playing, gambling, messaging, and online dating. Females' on the

other hand use the Internet more for health and religious information. Their online socialization is focused on creating and maintaining social relationships by email, chat, IM, and other form of CMC.

Although both males and females are generally positive about the Internet, the roles it plays in their lives differ. These gender differences have been reflected in attitudes toward computers generally and the Internet. Males are more confident, have more positive attitudes, lower anxiety, and are more interested in "showing" their interest in the technology. Males also approach computers as a technology for play and mastery. Such a positive attitude results in greater Internet use and participation. However, females' perception of computers is as tool to accomplish tasks, which influences their attitudes. They have less favourable, less positive attitudes, and low self-confidence. Females also experiences higher computer anxiety and rate their skills lower than their male counterparts.

In figure 4.3 male and female attitudes are presented, along with the factors associated with such attitudes. Although the increased participation of women online may diminish the gender differences in attitudes toward Internet use, it is unlikely that they will disappear any time soon. Female attitudes to the technology are influenced by many social and cultural factors. Stereotypical views of ICT are a good reason to expect that females may not view their experiences as positively as males.

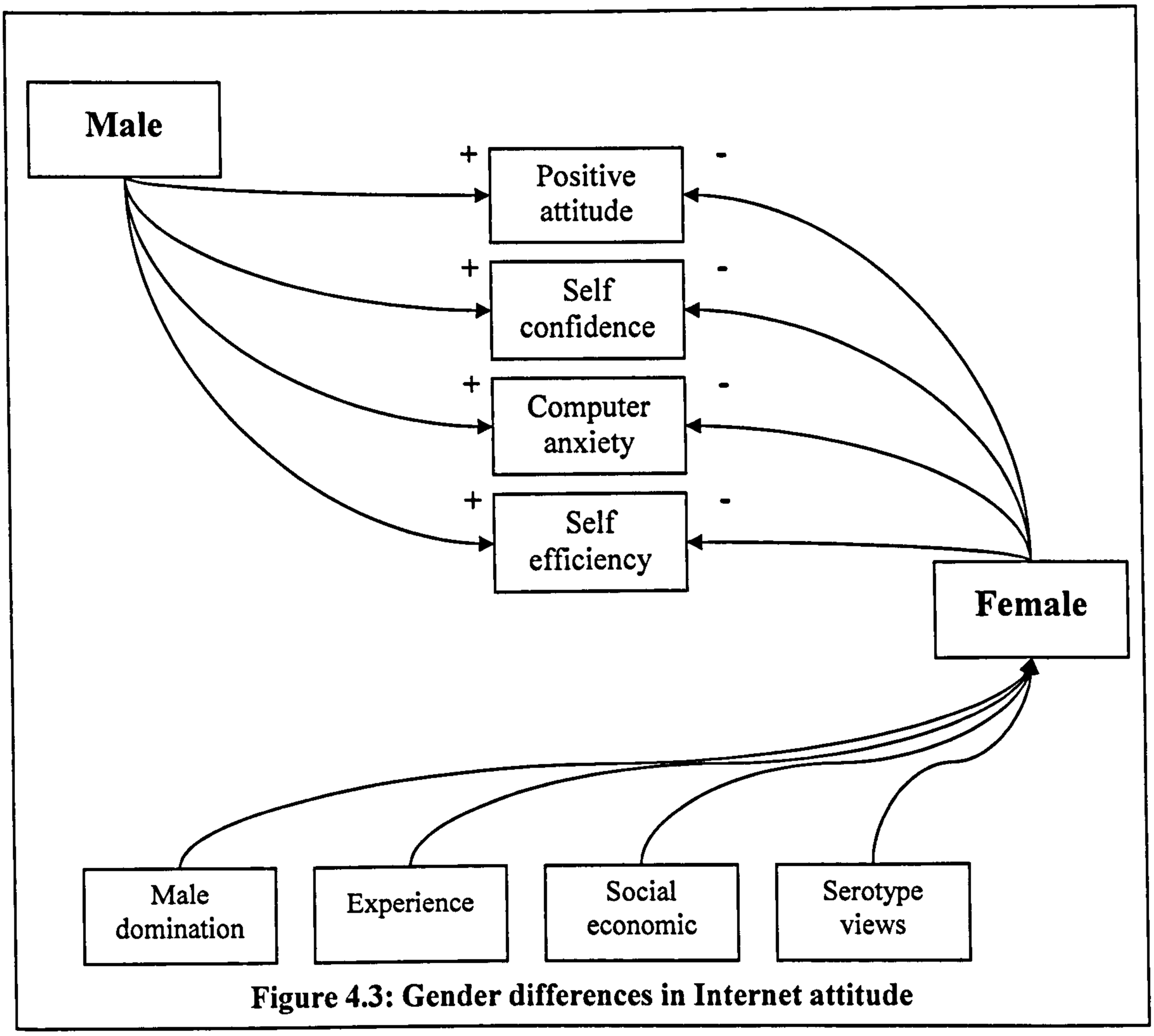


Figure 4.3: Gender differences in Internet attitude

Also, as part of the stereotype, males are expected to perform better in ICT related tasks, and as a result, females are often dissatisfied with their ability and skills. Female gender roles prescribed by social culture mean they have less leisure time to access the Internet. Family socio-economic status and parental gender stereotypes view of computing influence female attitude toward computers.

Chapter Five

Research Methods

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	**Chapter 5 Research Methods**	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Five

5

Research Methods

5.1 Introduction

The study employs both quantitative and qualitative techniques to investigate Saudi Arabian female university students' use of the Internet. These techniques are used in a mixed method research approach where both quantitative (questionnaire survey), and qualitative (focus groups) techniques are combined to give better understanding of the phenomena under investigation. This chapter provides an overview of the approach employed in the research. First, the combination of quantitative and qualitative methods is justified. Then, a comprehensive description is provided for each method.

Table 5-1: Previous research strategies

Author	Population	Gender	Topic	Research Method	Sample size	Study site
Goblan 2003	University Students & staff	Female	Academic trend in Internet use	Quantitative	300	3 Female Institutions in Riyadh
Al-Dobaiyyn 2003	Research students	Female	The use of the Internet by female researchers to acquire information for research	Quantitative	340	5 Female Institutions in Saudi Arabia
Shaheen 2001	First year Undergraduate student	Male Female	The effect of Internet use on library use	Quantitative	1500	King AbdulAziz University Jeddah
Al-hajery 2003	General public	Male	Internet effect on male young generation	Quantitative Transaction analysis	N/A	Internet cafes in Riyadh
Oshan 2006	University Students	Male Female	Internet use patterns and attitude	Quantitative Qualitative	1500	King Saudi university in Riyadh

5.2 Previous research Strategies

A review of the literature identified that there are only four studies which relate to female use of the Internet in Saudi Arabia. Previous studies and research strategies (in comparison with the current research) are presented in Table 5.1 which shows brief details of the studies relating to Internet use in Saudi Arabia. Further discussion can be found in the literature review (Chapter 4 Section 4.4)

Two studies by Goblan, (2003) and Al-Dobaiyyn, (2003) focused on female students' (undergraduate and research students) academic use of the Internet. Goblan's (2003) data analysis was simply descriptive analysis using tables to illustrate the results. No inferential statistical tests were used to identify relationships or associations between the research variables. Al-Dobaiyyn (2003), used inferential statistical tests (independent-samples T test) to compare respondents according to characteristics such as nationality, study field, age, and academic degree. In addition the Post hoc test, Tukey's HSD, was used to identify which particular combinations of groups were significantly different.

The majority of these studies used a quantitative data collection method embedded in a questionnaire survey. One study focused on comparing male and female Internet users (Shaheen, 2001). This study applied descriptive data analysis using both charts and tables to illustrate the research findings. Al-Hajery's (2003) research data analysis methods were not available for review.

5.3 Philosophical assumptions

There are four assumptions, which have bearing on methodological approaches for the social sciences. These are identified by Burrell and Morgan (1979), as related to ontology, human nature, epistemology, and methodology. The ontological assumption is concerned with the investigation of external or internal reality. The epistemology assumption is concerned with the nature, sources and limits of knowledge. The third assumption is related to human nature, whether human beings and their experiences are regarded as products of the environment or considered as being creative. The first three assumptions have direct implications for the fourth. This assumption is methodological, and concerned with an approach to finding specific knowledge (Collis & Margaryan, 2003).

There is a philosophical debate among scientists as to how best research can be conducted. This debate is focused on the value of two main paradigms the positivistic and the phenomenological (Creswell, 1994). These research paradigms could be contradictory or accommodated within a single research (Myers, 1997).

5.3.1 Positivistic paradigms vs. phenomenological paradigms

The positivistic paradigm in social science is historically based on the approach used in natural science. This approach "seeks the facts or causes of social phenomena, with little regard to the subjective state of the individual" (Collis & Margaryan, 2003, p.52). Positivist research is described as highly structured research that attempts to explain the causal relationships between variables using the quantitative method (Hussey & Hussey, 1997). One of the main implications of the positivist approach is

the need for the researcher to be independent of what is being researched (Saunders et al. 1997).

The phenomenological "*Interpretivism*" paradigm, on the other hand, is "concerned with understanding human behaviour from the participant's own frame of reference" (Collis & Margaryan, 2003, p.53). This paradigm developed as a result of criticisms of the positivistic paradigm. It recognizes the subjective aspects of human activities concentrating on the meanings of social phenomena contrary to their measurement. Data collection and analysis, according this approach, are described as time consuming, difficult to interpret (Saunders et al. 1997).

Although Creswell (1994) referred to positivist paradigms as quantitative and the phenomenological as qualitative, it is possible for a positivistic paradigm to produce qualitative data and vice versa (Collis & Margaryan, 2003)

5.4 Research Design

There are four types of research design, according to Hussey and Hussey (1997) and they range from exploratory through descriptive and analytical to predictive research. Exploratory research is undertaken to get better understanding of the nature of the problem as few studies might have been conducted in that area (Saunders et al. 1997). Descriptive research aims to identify the characteristics of a particular problem. It is also intended to offer the researcher a profile of the relevant aspects of the phenomenon under study. Analytical or explanatory research is seen as an extension of descriptive research, where the aim is to analyse the issues related to the research phenomena in order to understand why thing behave in described way. Predictive

research, aims to provide how, why, and what answers, not only to the current problem but also to future problems (Saunders et al. 1997; Collis & Hussey 2003; Sekaran 2000).

This research can be described as exploratory since it aims to investigates female students' use of the Internet in Saudi Arabia in a context that has been very little investigated. At the same time it is also a descriptive and analytical research. The study tries to describe the current states of female use and attitude toward the Internet when compared to male and to analyse issues affecting such use and attitudes.

5.5 Choice of Methodology

The current empirical study was designed to investigate Saudi female university students' use of the Internet in King Saud University, using the *Mixed method approach* in which qualitative and quantitative techniques are combined in one study. Many researchers believe that qualitative and quantitative research methods can be combined in a single study as quantitative methods are appropriate for answering certain kinds of questions, and qualitative methods are right for the others (Hoepfl 1997; Myers, 1997). The goal of mixed methods as stressed by Johnson and Onwuegbuzie (2004) is that the two approaches of quantitative and qualitative draw from their strength and minimise their weaknesses. Burke and Larry, (2003) argued that mixed method designs is now the third major research approach after quantitative and qualitative.

Greene et al. (1989) listed the five most important factors for mixed method research as follows; triangulation, complementarity, development, initiation, and expansion. In the current study the mixed method was used in particular for complementarity

reasons, such as seeking elaboration, enhancement, illustration, clarification of the results from the first method with the results from the second.

The ability to highlight the researcher's viewpoint in the research process, and to explain some of the psychological depth of the subjects studied (impossible to represent simply in numbers,) are some of the strengths of the qualitative method. These strengths complement quantitative approach, such as the lack of contextual insights (i.e., socio-cultural), and the inability to look at the differences among subjects (e.g., psychology, attitudes, opinions, values, ethics). On the other hand the weaknesses of the qualitative method, such as the influence of the researcher's perception, and the difficulty of generalising to other research settings, can be overcome by the quantitative method which is less subjective, leads to generalizable results, also the statistics help in reducing contradictions (Kruger, 2003; Weinreich; 2003).

Mixed methods allow researchers to have greater confidence in the research findings than if only a single method is used. As well as effectively reducing measurement error helps to overcome problems of bias (Clarke & Dawson 1999). Combining quantitative and qualitative methods should lead to a richer understanding of the issues under examination. Additional insights may be revealed by integrating multiple modes of analysis that would otherwise remain undiscovered via a single methodological approach.

As with any research approach there are some benefits and challenges to a mixed method approach. Greene and Caracelli (1997), Tashakkori & Teddie (2003), Allyn &

Bacon (2004), and Schutz et al (2004) have identified some of these advantages and disadvantages as listed below in Table 5.2.

Table 5.2

The advantages and disadvantages of mixed method strategy

Advantages	Disadvantages
Builds research based on the strength of both quantitative and qualitative research methods	Requires training and expertise in quantitative and qualitative methods
Provides a more comprehensive view of the phenomena being studied	Requires extensive data collection and resources
Increases breadth and depth of study	It is expensive
Inspect paradoxes and contradictions of the study	Takes more time and effort

Remenyi et al. (1998) stressed that the researcher's background and familiarity with the study context plays an important role in selecting the most suitable research methods. Using mixed methods was thought to be the best way to achieve the aims and objective of the study and respond to the research questions, as qualitative and quantitative techniques work together to offer more evidence for the current study. Results from the qualitative data should elaborate, enhance, illustrate, and clarify the results obtained from the quantitative data.

The mixed research approach process takes eight stages (or steps) which can be carried out iteratively as applicable to the research (Burke & Larry, 2003). Based on the above discussion, this study employed mixed methods to gain a richer understanding of the research questions. In the following initial section, a general

view of the steps taken to design the method for the current research is given. In order to enhance the clarity, Figure 5.1 explains the structure of important steps in mixed research for the current study.

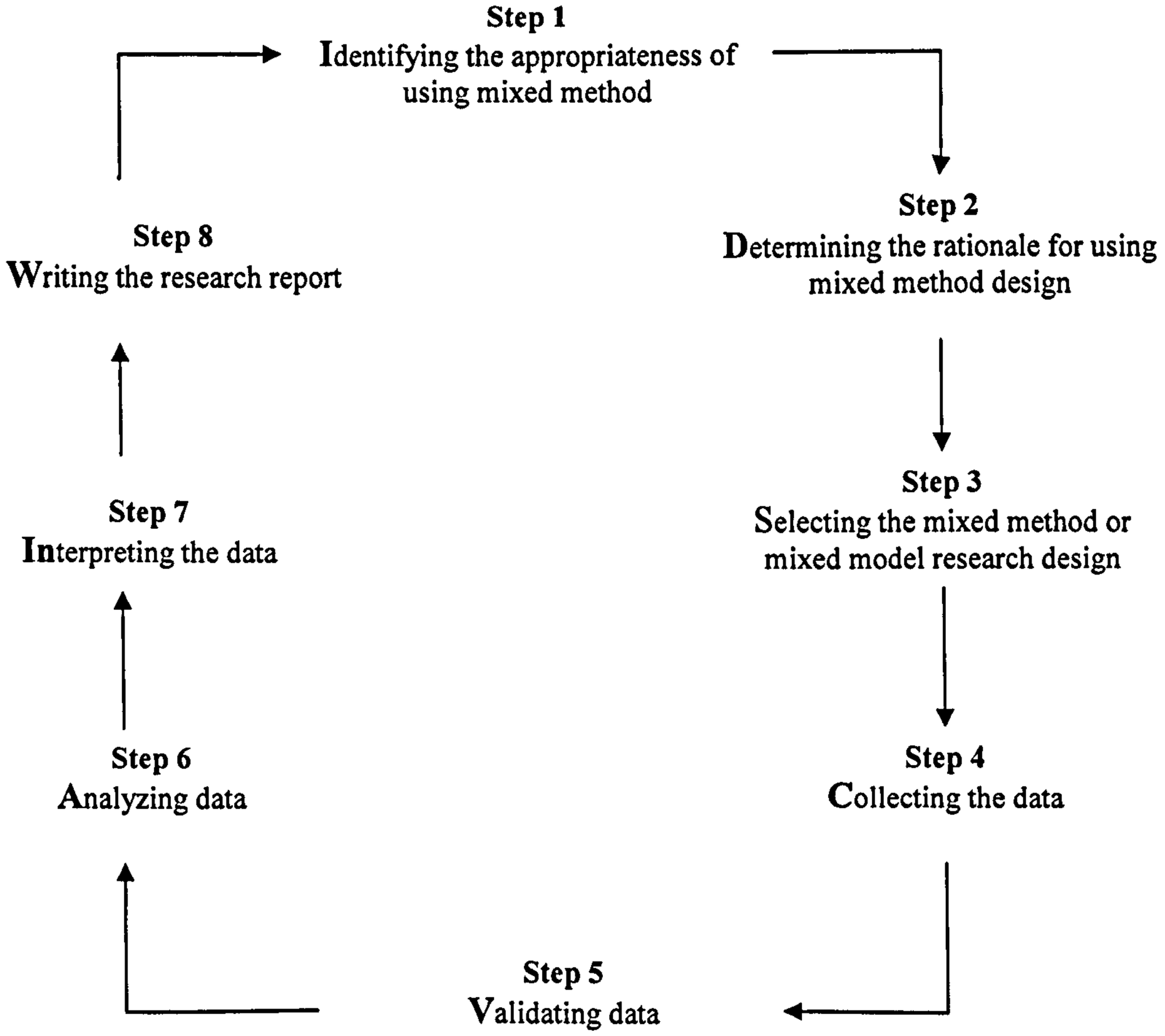


Figure 5.1 Steps in designing mixed method research

Mixed method research design is categorized according to (1) time order: concurrent versus sequential and (2) paradigm emphasis: equal status versus dominant status (Burke & Larry, 2003). In the current study both quantitative data (questionnaire survey) and qualitative data (focus group) were collected in phases (sequentially) but with equal priority, and they were integrated in the data analysis stage. Table 5.3 illustrates the choices of the criteria in mixed method implementation strategy based on Creswell, et al, (2003) Burke & Larry, (2003), and Tashakkori & Teddlie, (2003).

Table 5.3
The Criteria Employed for Choosing Mixed Method Strategy

Implementation	Priority	Integration
Concurrent (QUAL+QUAN) (QUAN+QUAL)	Equal Status	At data collection
Sequential QUAL→QUAN	QUAL Dominant	At data analysis
Sequential QUAN→QUAL	QUAN Dominant	At data interpretation

The questionnaire and focus groups data were planned in sequential time order where the quantitative approach (*questionnaire*) preceded the qualitative approach (*focus group*). They were collected in separate phases and used with equal status rather than one having dominant status. Equal status can be difficult to achieve in relation to the number of respondents, however, the data collected by both approaches were treated equally in terms of issues and ideas emerging.

Analysing data from quantitative techniques generates a mass of numbers that need to be summarised, described and analysed. On the other hand, qualitative data analysis describes and summarises the mass of words generated by the focus group. It allows researchers to seek relationships between variables that have been identified or to relate behaviour and attitudes to particular respondents. Bearing in mind the criteria shown in Table 5.1 a sequential explanatory strategy as the strategy of the current study was chosen. It is the most straightforward of major mixed method approaches (Creswell et al., 2003) where quantitative precedes qualitative data collection, and then both techniques are integrated with an interpretation of the entire analysis. The clear and straightforward nature of this strategy makes it easy to implement all its

stages and steps. Figure 5.2 which was adapted from Tashakkori &Teddlie (1998) and from Creswell et al. (2003) describes the visual model of the strategy chosen.

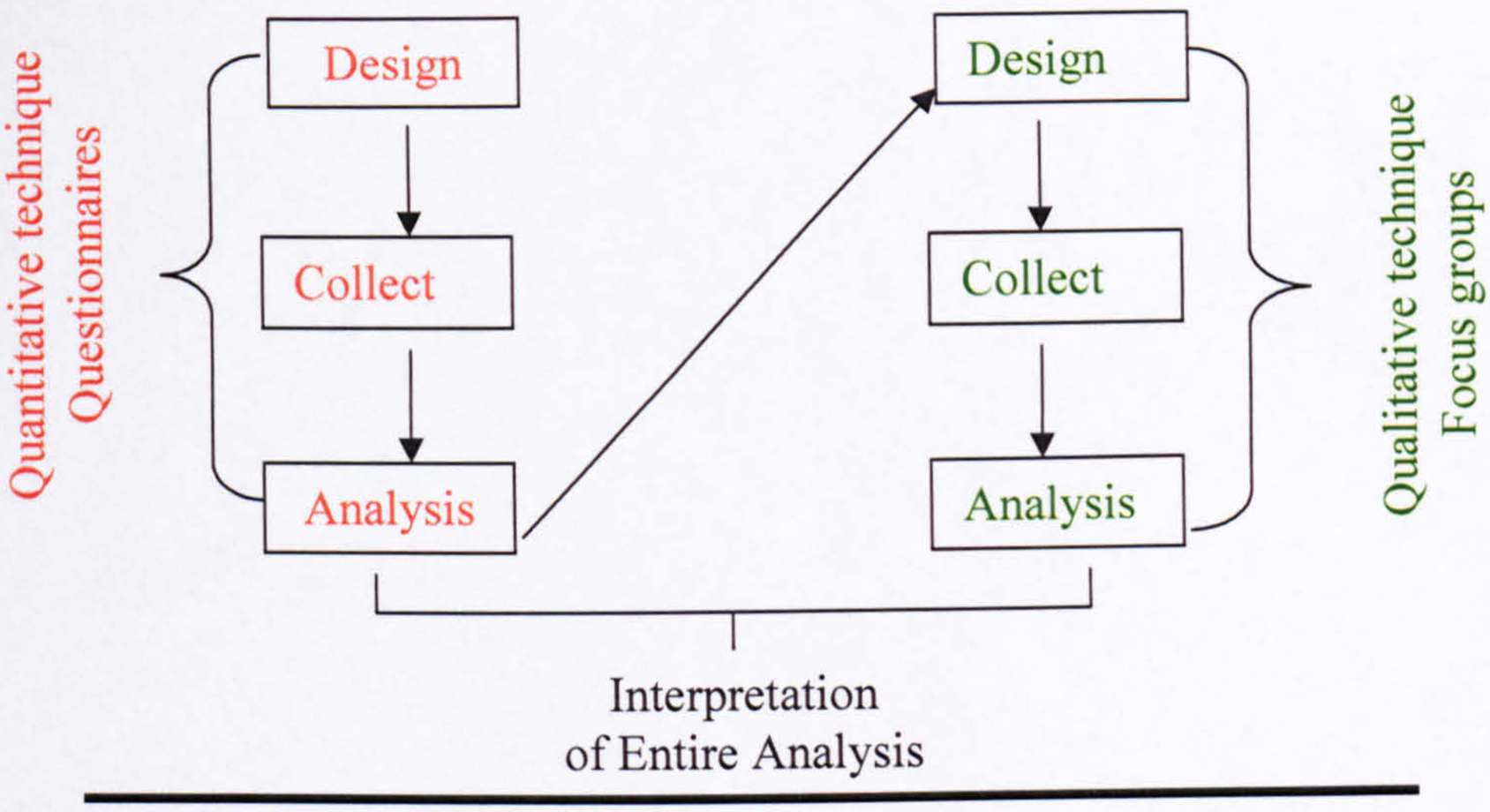


Figure 5.2 Visual model of strategy used in the study

5.6 Sampling and Respondents

The sampling frame for this study consisted of the students of King Saud University Riyadh. More specifically, it was composed of 1500 students, including male and female students in 28 departments. The study targeted university students for two main reasons:

- Studying university students' use of the Internet is very important in understanding and predicting the future of national Internet use, since university students are the primary Internet users in Saudi Arabia and in the rest of the world (Odell et al, 2000, Jones & Madden, 2002).

- Saudi Arabia and most GCC countries are currently behind the Western world in adopting Internet services, as well as in the number of people using the

Internet. Therefore, there is a great need for research directed specifically toward understanding of students' use of the Internet in Saudi Arabia.

The study sample was restricted to the city of Riyadh for two main reasons:

- King Saud University is the first and largest university established in the kingdom of Saudi Arabia, and its main campus is situated in the capital city of Riyadh which ensured students from a wide variety of backgrounds.

- In order to achieve a reasonable response rate it was necessary to target a sample that could be easily accessed. Limiting the sample to Riyadh made the data collection process easier, which increased the response rate.

Generalisation of the findings is related to the size of the sample, as Saunders et al. stated that the "larger your sample size, the lower the likely error in generalising to the population" (Saunders et al.,1997, p.127). In fact, the size of the sampling error generally decreases as the size of the sample increases (Thomas et al., 2001). Therefore, it was intended to survey a large number of male and female students in the 28 departments.

The sampling method use in this research was stratified sampling, and it was preferred because it assures the ability to represent the overall population. In making the sample more representative of the population, the population was divided into "strata of non-overlapping, homogeneous groups" (Hunt & Lyrrell, 2004). The steps followed in selecting a stratified random sample for the current research were:

- **Define the target population and strata to be used:** As with all sampling of this type, it was necessary to clearly define each stratum to be sampled. The university student population was divided into four groups of strata 1-*general courses attended by female Science students*, 2-*general courses attended by female Humanities students*, 3-*general courses attended by male Science students*, and 4-*general courses attended by male Humanities students*.

- **Select a simple random sample within each strata.** A stratified sample was then obtained by selecting a separate simple random sample drawn from each population stratum. Students in all strata have to take at least one course in Arabic, English, or Islamic studies once in every academic year. These courses were run every day in the week but at a different times of the day. Students attending these courses were from different departments and in different years of their studies. After obtaining the weekly schedules of courses in each strata, the courses then were randomly selected.

5.7 Questionnaire Survey

Asking questions is one of the most natural ways of gathering information. Questionnaires are "systems for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behaviour" (Fink, 2003). Given the purpose of the quantitative part of the study, a survey research methodology was found appropriate for the current study.

In survey research: (a) a large number of respondents are chosen to represent the population of interest, (b) systematic questionnaire or interview procedures are used to elicit information from respondents in a reliable and unbiased manner, and (c) sophisticated statistical techniques are applied to analyse the data (Singleton, 1980). The survey method was deemed appropriate for a number of reasons. First of all, the purpose of the quantitative approach used in the study was to answer the research questions to gain an understanding of the factors that influence university students' use of the Internet. Therefore, it was necessary to employ a method that permitted the researcher to establish relationships and make generalizations about the population.

Second, in order to study behaviour, beliefs and attitudes and their relationships, it was important to use a method that would allow a systematic determining of values and relations. It is not an exaggeration to point out that this method is the only method where generalized information can be collected systematically from organizations. Third, in order to obtain a reasonable sample size to test statistically the research framework and answer the research questions, as well as to increase the accuracy of the findings, it was necessary to obtain data from a large portion of the selected sample. "A self-administered survey was chosen for this study for the considerable advantage of the potential anonymity of the respondent, which can lead to more truthful or valid responses" (Joppe, N.D). Also, the questionnaire could be filled out at the convenience of the respondent. Thus, survey method served as an appropriate tool for the current study.

5.7.1 Questionnaire content and structure

The instruments of the questionnaire were designed to capture data on a wide range of issues regarding students' use of the Internet (Appendix A-1). A five-page questionnaire was constructed, a portion of which was adapted from Jackson et al., (2001) and Tsai et al., (2001). Table 4.4 shows that the self administered questionnaire contained 35 variables and was divided into six main sections: General information about Internet use; e-mail (Electronic mail); World Wide Web; Training and Experience; The Internet and Studies; Personal Information.

The first section consisted of five questions designed to provide introductory data about students' use and non-use of computers and the Internet. According to previous research, students often own their computers, and those who do, use the Internet more than those who use their friends' computer, especially in the case of female students (Wang, 2001; Jones & Madden, 2002; Odell, 2000, Rajagopal & Bojin, 2003). Therefore, the following questions were identified:

- Respondents' computer use and ownership: *'Do you use a computer? Do you have a computer at home? (Yes/No)'*

- Internet access location: *'Where do you access the Internet from? (home, friend or relative's house, Internet cafés, other places)'*

- Reasons for starting Internet use: *'How did you start using the Internet? (through somebody's recommendation, media features, my own curiosity etc')*

Table 5.4: Phenomena studied and their associated variables and measuring instrument

Phenomena studied	Variables	Measuring instruments
General Information about the Internet	1-Computer use. 2-Computer ownership 3-Internet access 4-Access location 5-Reasons for first time use of the Internet	Questionnaire
Email usage -Purposes of use -Attitudes	6-Email use for communications 7-Who do you communicate by Email 8-Reasons for choosing the Email to communicate 9-How often do you use Email 10-Attitudes toward Email usage	Questionnaire and focus groups
World Wide Web usage -Frequency -Chatting -Attitudes	11-Browsing the web 12-Length of usage 13-Sites visited the most 14-Web visits for particular reasons 15-Dration of chatting online 16-18 Statements for attitudes' measurements	Questionnaire and focus groups
Internet experience	19-Internet training 20-Place of training 21-Ability to undertake using the Internet 22-Skills improved through Internet use 23-24 Difficulties in Internet use	Questionnaire and focus groups
Internet and education	25-Email usage for academic reasons 26-Web usage for academic reasons 27-Web usefulness for academic studies 28-29 Online courses 30-Courses required Internet use 31-Attitudes toward using the Internet for studying	Questionnaire and focus groups
Demography and personal information	32-Age 33-Marital status 34-Year in college 35-Field of study	Questionnaire

The second section of the questionnaire was designed to provide information about respondents' use and non-use of electronic mail (Email). Some of the questions in this section were adopted from a survey carried out by Jackson et al. (2001) in 1999 about American college students' use of the Internet. This section includes five multiple-choice format questions to assess the extent of email usage for example:

- Email usage : *'Do you use e-mail to communicate with others? (Yes/No),*
- People communicated with: 'Who do you communicate with through e-mail? *(Family, local friends, other people locally, overseas friends, other people overseas, others),*

Respondents were also requested to indicate their frequency of e-mail use with a five-point scale: *'Never, rarely, occasionally, often, and very often'*. According to previous research, college students were motivated to use e-mail because it allows turning in assignments, communicating with professors, peers and parents at any time, day or night. In this current study respondents were asked about the reason for email usage

- You use email to communicate with others because *(you can email at your convenience, you can send pictures and sounds, you can express your feelings better, it's quicker, it's less expensive, others)*

Section three of the questionnaire included 8 questions designed to explore students' use of the World Wide Web. This section was designed to measure many aspects of Web use. At the start, respondents were asked about their use and non-use of the web, and how long they had been using it. Respondents were also asked to indicate the sites they visited on the Web most frequently; by choosing from some Web categories such as *(entertainment, study related, sports, health, news, women's interest, etc.*

The respondents' Web use was measured in terms of the extent of Web use for a variety of activities such as *(school related activities, personal interests, job-related activities, etc).* These activities were measured on a 5-point Likert scale using to five

categories: *'1=never, 5=very often'*. This measurement method has been successfully used in previous research on students' use of the Internet by Jackson et al. (2001).

According to research, 'chatting' (including ICQ, BBS, chat rooms or forums) was ranked the second among college students' most popular Internet activities (Wang, 2001). Female students do not participate as frequently as males do in Internet chat-rooms (HERI, 2000). Therefore two separate multiple-choice format questions were included on respondents' use of chat rooms, and the time spent chatting *(less than an hour a month, 1-10 hours a month, less than an hour a day, 1-2 hours every day, 2-3 hours every day, and more than three hours every day).*

Over the past decade researchers have developed various scales to measure students' attitudes to computers but only a few scales to measure students' attitudes to the Internet. Therefore, a review of computers and internet attitude scales was carried out in order to determine the most appropriate attitude scale to adopt for the current study. Tsai et al. (2001) Internet attitude scale was selected as the most appropriate for this study. This attitude scale contained a pool of items that was mainly adapted from Selwyn's (1997) computer attitude scale. Tsai's et al. (2001) scale includes a total of 18 items which were slightly modified to suit the current study, presented using a four-point Likert scale 'from strongly agree, agree, disagree, to strongly disagree'.

Statements in this scale were divided into four subscales: 1) affection, to assess the respondent's feeling and anxiety while using the Internet, 2) perceived usefulness, to measure the respondent's positive perceptions about the Internet's impact on individuals and society, 3) perceived control, to measure the respondent's self-

confidence about the independent control of Internet use, and 4) behaviour subscale, to assess the respondent's actual practice and frequency of Internet use. Table 5.5 illustrates the scales' 18 items divided into the four subscales.

Table 5.5:Tsai, et al. (2001) Internet attitude scale

Subscale	Statements
Perceived usefulness	-The Web allows me to do more interesting and imaginative work -The Web enlarges my scope -The Web makes a great contribution to human life -The Web helps me acquire relevant information I need -The Web makes society more advanced
Affection	-I hesitate to use the Web in case I look stupid -If given the opportunity to use the Web I am afraid that I might damage it in some way -The Web makes me feel uncomfortable -I feel bored toward using the Web -When using the Web, I am not quite confident about what I am doing
Perceived control	-I could probably teach myself most of the things I need to know about the Web -I need an experienced person nearby when I use the Web -If I get problems using the Web, I can usually solve them one way or the other -I do not need someone to tell me the best way to use the Web -I can use the Web independently, without the assistance of others
Behaviour	-I only use the Web at school when told to -I use the Web regularly throughout school -I spend much time on using the Web

Attitude scales rely for their effectiveness on the respondent's cooperation and honesty. A respondent may give an uncertain response for one reason or another such as fear, misunderstanding, or desire to show off. This is a disadvantage of using scales to measure attitude, which led to the development of other methods. Oppenheim (1992) argued that by using indirect methods such as in-depth interviews and projective techniques (sentence completion, cartoons, picture interpretation, and stories), attitude can be approached at a deeper level than by using an attitude scale. In the current research, however, attempts were made to overcome the disadvantage of using scales to measure Internet attitude by using focus group interviews.

The fourth section of the questionnaire was designed to measure respondents' competence in Internet use. It started with two questions about formal instruction, if any. This was followed by a multiple-choice question with items such as *'in high school, in the university, private training institute, from friends and family members, in free public training'*. These items were taken from the literature and were believed to be applicable to Saudi university students.

Evidence from the literature revealed that knowledge about computers and the Internet influence users' perception of the Internet. Female students were reported to be less confident about their ability to use the Internet (HERI, 2000; Rajagopal & Bojin, 2003). A 4-point Likert scale, ranging from *poor* to *excellent* was used in this section of the questionnaire for the respondents to rate of their ability to use the Internet. The items listed below were adopted from Jackson's et al. (2001) survey.

- Accessing the Internet
- Using Internet search engines, such as Yahoo, Google
- Downloading files from the Internet
- Creating WebPages
- Programming in hypertext based software
- Maintaining WebPages.

This section of the questionnaire ended with two separate questions about difficulties facing respondents in using the Internet. Items listed were taken from previous research and understood to be applicable to Saudi university students. For example: *'difficulty accessing a computer or the Internet, connection is very slow, Internet access is expensive, privacy and security concerns, and family restrictions'.*

The fifth section of the questionnaire covered respondents' perceptions and views of the Internet for academic study. It consisted of seven questions designed to give broad information about whether or not respondents use E-mail and the Web for their studies, if they had ever taken a course over the web or one that required using the Internet, and also if they would like to have such courses. For example:

- Do you use the Web for academic purposes? *(Yes/No/Sometimes)*
- How useful is the Web for your studies? *(Very useful, Somewhat useful, Not at all)*
- Would you like to take a course delivered entirely over the Web? *(Yes/No)*

The sixth and final section of the questionnaire consisted of four questions designed to elicit some basic background information about the respondents, namely, their age, , marital status, year in college, and their major field of study.

5.7.2 Content Validity and Pre-Test

Every attempt was made to ensure the questionnaire's validity and reliability throughout the procedure of planning, designing, and administration. A review of the literature on Internet use, combined with input from the research supervisors at Loughborough University, the researcher's own experience, and a pre-test of the instrument, suggest that the survey instrument did indeed provide an accurate assessment of Saudi student use of the Internet.

Straub (1989) recommends that experts who are familiar with the phenomena should review the instruments to ensure content validity. Thus, after the questionnaire was developed it was pre-tested by experts in academia and practice before distribution. Those experts were asked to examine carefully the instrument and give feedback on the content, wording, and clarity of the questions. Experts consulted included academic experts in methodology, information service, gender issues, as well as experts in linguistics from the University of Nottingham for the Arabic version of the questionnaire. Several revisions were made to the instrument based on feedback received. Changes were made to the format of the questionnaire, and the sequence of questions.

The process of pre-testing a questionnaire instrument has been recommended by several authors in the field of research methodology. For example Oppenheim (1992)

states that "piloting can help us not only with the wording of questions, but also with procedural matters such as the design of letter of introduction (and from whom it should come), the ordering of question sequences..." (Oppenheim, 1992, p.19)

Therefore, the study's questionnaire was pilot-tested twice. First, in February 2004 the last draft was distributed to five of the researcher's colleagues from the Middle East in both the United Kingdom and Saudi Arabia. The second pilot of the questionnaire took place in April 2004, in a face-to-face meeting with fifteen volunteer students at King Saud University in Riyadh. Based on the feedback, some of the questions in the Arabic version of the questionnaire were revised. The revisions made included clarifying some of the attitude scale items and wordings.

5.7.3 Translation

Since the study was aimed at Saudi students, the original constructed English questionnaire was translated into two Arabic versions, one for female and one for male students. Every effort was made to construct an Arabic version that faithfully represented the English version as much possible. Experts in linguistics in both the United Kingdom and Saudi Arabia were consulted and offered their feedback on the Arabic version of the questionnaire. As a result their comments and recommendations were implemented where appropriate (Appendix A-2).

5.7.4 Questionnaire distribution procedures

The primary collection of the data was carried out between mid April 2004 and July 2004. In order to maximise the response rate, an introductory note was placed at the

beginning of the questionnaire. This note provided the respondents with information about the study aims and objectives, and assured confidentiality of the information they would give.

Upon arrival in Saudi Arabia, letters were obtained from AbdulMuhsin Al-Dhuwayyan, Vice Chancellor for Higher Education in King Saud University addressed to Dr. Fatimah Jamjoom, Director of the Female Scientific and Medical Departments, and Dr. Hussah Al-Mubarak, The Dean of Female Academic Study Centre. The letters (Appendix B) identified the researcher and her study, and asked the administration for cooperation in this study. This procedure is common in Saudi Arabia and such letters are normally required by government institutions.

Questionnaires were handed out during the last 20 minutes of the lecture in a general requirements course, and students were asked to fill the questionnaire and return them to the researcher when finished. Students were also made aware that their participation in the study was voluntary.

5.7.5 Response rate

A total of 1500 questionnaires were distributed in the male and female campuses of King Saud University, 793 of which were usable returns. This was a response rate of 52.8%, as described in Table 5.6. The number of questionnaires distributed in the male campus generated a relatively low response due to lack of co-operation from the University's General Relations Office. Also, the distribution of the study questionnaire had to be coordinated through a male third party, due to cultural restrictions. Some departments in the male campus were unwilling to allow the

distribution of the questionnaire, suggesting that some heads of academic departments do not see the importance of distributing questionnaires.

Table 5.6: Overall response rate

Source	Total distributed	Total Responses	Response rate
Female campus	750	532	35.4%
Male campus	750	261	17.4%
Total	1500	793	52.8%

5.8 Questionnaire Data Analysis

5.8.1 Data input and recording

Qualitative data for the questionnaire was entered into SPSS from July to October 2004. Comments made by participants on the questionnaire were coded using the same identification number used on the questionnaire and treated as qualitative data.

5.8.2 Screening and cleaning the data

It was essential to check the data for errors, since it is very easy to make mistakes when entering the data. According to Pallant (2001), checking the data before analysis is very important because errors can distort the result of correlation analysis. The data screening process involved three steps: first checking for errors (looking for values that fell outside the range of possible values), second finding the error in the data, and third correcting the error in the data.

5.8.3 Questionnaire data analysis strategy

- Exploratory data analysis (EDA)

Descriptive statistical data analysis was used to summarise and describe the study data, and to get basic information regarding the demographics of the study participants. Descriptive statistics include frequency, percentage, mean, median, and mode. For questions that had nominal values which had no underlying order among the categories (for example, gender, year in college, field of study, and marital status), the mode, which is the point with the greatest frequency, was used. In contrast, the median was the appropriate measure of central tendency for questions that had ordinal measurement where categories were ordered from high to low (Leech et al., 2005).

- Inferential statistics

The appropriate inferential statistical analyses used to explore relationships among variables were chi-square and Principal Component Analysis. In this study the majority of variables were nominal data. Thus the chi-square test was used. 'The chi-square test for independence is used to determine if two categorical variables are related' (Pallant, 2001). It compares the frequency of cases found in the various categories of one variable to the other. To describe the relationship, the Phi-coefficient was used, which indicates the strength of the relationship. The Phi value is indicative of the degree of relationship between variables with two levels 2x2, and it ranges from 0 to 1, where 0.3 is small, >0.3-0.6 would be moderate and >0.6 would be large. For variables with more than two levels such as 3x3 or 3x4 the Contingency coefficient is more applicable and interpreted in the same way as phi.

Inferential statistical tests used to compare groups included independent-samples T test, Mann-Whitney, and One Way Analysis of Variance (ANOVA). The decision to use Parametric tests and non-Parametric tests depends on the distribution of the data. Parametric test can only be used on data which has a normal distribution which can be identified by looking at the graph of the frequency of occurrence of values of a specific attribute (Herbie, 2006). If the shape of the chart is "Bell Curve", the data is normally distributed.

The independent –samples T test was used for parametric data to compare the mean score, for two different groups of subjects, for example, comparing male and female perceived control mean scores generated from the Internet attitude scale (IAS). One-way analysis of variance (ANOVA) was used to compare the variance between three or more different groups (Pallant, 2001), for example, the three academic year groups and the continuous variable of perceived usefulness. Employment of factor analysis to reduce IAS to continuous variables permitted the use of parametric test such as one-way analysis of variance, which would not normally be used with ordinal data.

Using Principal Component Analysis, the original variables of the Internet attitude scale (IAS) were transformed into a smaller set of linear combinations, with all of the variance in the variables being used (Leech et al., 2005). In this study the four sections of the amended IAS were reduced to a smaller set of components for further analysis. Figure 5.4 show a map of the relevant inferential statistical tests used in the analysis, along with a brief description of each test used.

Post hoc tests such as Games-Howell and Tukey's HSD tests were used to identify which particular combinations of groups were significantly different. One of the most common tests to measure effect size is Eta squared and it indicates the magnitude of the differences between means (Pallant, 2001). The strength of the association or the effect size was classified by Cohen (1988): 0.01 as a small effect, 0.6 as a medium effect and 0.14 as a large effect. For example, in relation to students' attitude to the Internet and their age groups (see Chapter six), η which represents the Eta value was 0.036.

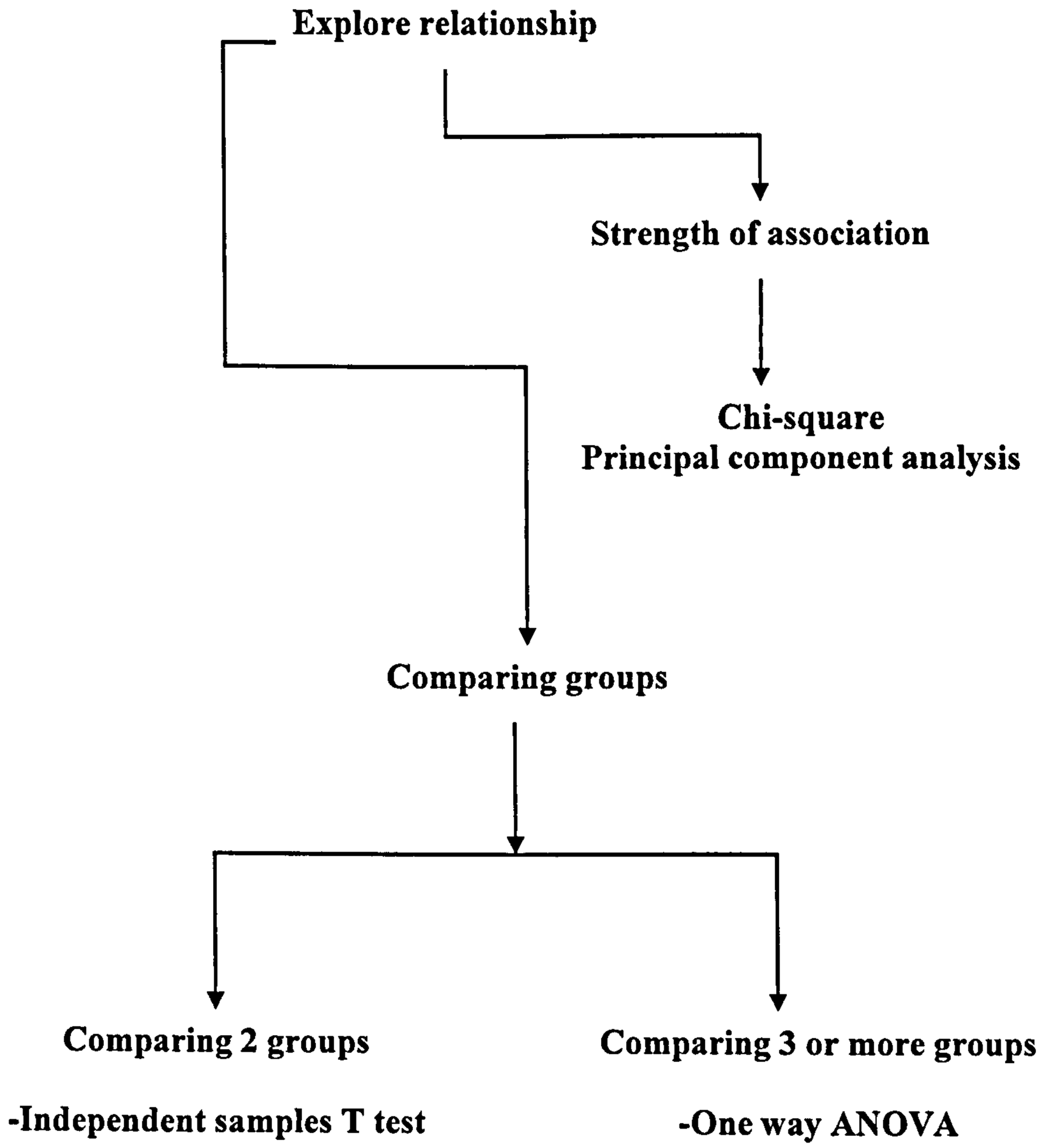


Figure 5.4 Appropriate inferential tests used in the study

Chi-square test for independence: This test is used to determine if two categorical variables are related. It compares the frequency of cases found in the various categories of one variable across the different categories of another variable.

Independent sample t-test: This test is used to compare the mean scores of two different groups of people or conditions. It is a parametric test and used for normally distributed data.

Principal component analysis (PCA): This test was used with the Internet attitude scale (IAS). The test attempts to produce a smaller number of linear combinations with all of the variance of the original variables being used.

Step 1: Assessment of the suitability of the data for PCA: the sample size should be large, at least 300 cases. The correlation matrix (the inter correlation among the items) should be greater than 0.3. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) are measures of sampling adequacy. The Bartlett's test of sphericity should be significant ($p<.05$), and the KMO index ranges from 0 to 1, with 0.6 suggested as the minimum value for the PCA to be appropriate.

Step 2: Factor extraction, using two techniques which can be used to assist the decision concerning the number of factors to retain. The first is Kaiser's criterion, known as the eigenvalue. Using this rule, only factors with an eigenvalue of 1.0 or more are retained for further investigation. Second is the Catell's scree test which involves plotting each of the eigenvalues of the factors and inspecting the plot to find a point at which the shape of the curve changes direction and becomes horizontal.

Step 3: Factor rotation, which presents the pattern of factors loadings in a manner that is easier to interpret. The method used is the Varimax method, which attempts to minimise the number of variables that have high loadings on each factor.

One Way Analysis of Variance (ANOVA): This test is used to compare the mean scores (variability in scores) of more than two groups of people and conditions. A significant F test indicates that the null hypothesis can be reject, which states that the population means are equal. To identify which group is different post-hoc tests were used. ANOVA is a parametric test and used for normally distributed data.

5.9 Focus Groups

5.9.1 Introduction

Kreuger defines a focus group as a "carefully planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment" (1998a, p.18). Focus group discussions generally last from an hour and a half to two hours, longer than this and the discussion loses momentum. Most focus groups consist of between 6-12 people. However, the number of participants will depend on the objectives of the research (Stewart & Shamdasani, 1990). For example, “smaller groups (4-6 people) are preferable when the participants have a great deal to share about the topic or have had intense or lengthy experiences with the topic of discussion” (Kreuger, 1998b, p.94)

The number of focus groups needed for a research varies. Some studies require several (3-4) groups. However, according to Morgan one group is never enough, it

enables observing the dynamics of that group and little else. Also important in determining the number of focus groups is the number of different subgroups required in the research: "if there are several distinct population segments...you may want or need to run separate groups in each" (Morgan,1988, p.42). In relation to the number of question which should be asked in a focus group interview, Kreuger (1998a) suggests that a focused interview should include fewer than ten questions, and often around five or six, while Stewart and Shamdasani (1990) propose that most interview guides consist of fewer than a dozen questions.

5.9.2 Objectives

Focus groups brought together Saudi female students who use the Internet. The focus groups provided opportunities to explore shared opinions and understanding of women's use of the Internet in Saudi Arabia. Selected individuals were included in each focus group to ensure content/rich qualitative data from student perspectives that would encompass the range of female opinions and concerns (Krueger, 1998a). The researcher chose participants in the focus groups to meet the information needs represented by the research framework.

It was decided to hold focus groups in order to have qualitative information from female university students and to investigate more about some conflicting results from the questionnaires. It was felt that this would be an effective way to probe the problems female students were facing, in particular identifying cultural barriers to their use of and attitude towards the internet.

5.9.3 Selection of participants and data collection

The four focus groups curried out in the female campus, the dates they were held, and the number of people attending are shown in Table 5.7. However, it was not possible for the researcher to curry out focus groups with male students because of religious and cultural limitations.

Table 5.7

Focus group participants

Code	Characteristics	date
(1A)	6 Students from Humanities campus	25/9/2005
(1B)	7 Students from Science campus	21/9/2005
(2B)	5 Students from Science campus	29/9/2005
(3B)	7 Students from Science campus	2/10/2005

The researcher selected these four groups from lists of names and emails provided through the questionnaire to provide opportunities for discussions about female Internet use in Saudi Arabia. However, participating in these focus group interviews was voluntary.

5.8.4 Procedure

The researcher conducted four focus group sessions with female students in both Science and Humanities campuses, designed to understand Saudi female Internet use and attitudes. These focus groups occurred in the last months of the fourth year of the study. A total of 25 students participated in these sessions, out of three hundred names and email address provided in the questionnaire survey. Four separate groups, three in

the Science campus and one in the Humanities campus, were held. Each had between five and seven participants, and the researcher as the facilitator. The role of the researcher was to guide the discussion from topic to topic, probe and encourage discussion, and ensure that all participants contributed their views.

Permission to carry out these interviews was granted by King Saud University authorities after some routine procedures which took more time than anticipated. They refered the researcher to the Students Relations Office to arrange a place to conduct these interviews. The amount of time and effort it took to plan and organize the meeting was enormous, as Gibbs (1997) noted that particularly in focus group interviews, more than any other type of interviews, planning and getting interviewees in groups can be difficult and requires a lot of time.

The interview schedule was arranged and disseminated via email and mobile text messaging a week before the meeting. The interviews lasted from an hour to an hour and fifteen minutes. For cultural reasons, permission to tape record the interviews for transcription purposes was requested before the start of the interview.

All focus group conversation was tape recorded. Each session followed the same structure with five questions (see Chapter 6 section 6.2.3). At the start of each session all participants were encouraged to introduce themselves to the group then explain their Internet use. For the first question, participants were asked to talk about the purpose of their Internet use. For most of the time the focus group dialogue followed the structure intended. However, at some points participants wandered off topic, then they were led back to the broad topic under discussion. Although most of the focus

group interviews were recorded and transcribed, the focus group interview with students from the Humanities campus was not transcribed because of recording failure, there was too much background noise and the recording was not usable, so the interview was excluded.

5.9.5 Interview questions

Focus group interviews were designed as the qualitative element in the mixed method approach (Figure 5.2) and were directly based on the outcomes of the questionnaire that needed further investigations.

The following questions were posed in the focus groups.

Q1 What do you do when you go online? Some people go online for work-related activities, some do it for pleasure, and for others it's some of each. How about you, all work, all pleasure, or a mix? How would you describe the mix, mostly work, mostly pleasure, or about half-and-half?

This question was an introductory one to start the conversation about Internet use in the lives of Saudi female participants.

Q2 What is the first thing that comes to your mind when you hear the phrase, "chatting rooms"? Why do you chat online? Is it enjoyable to chat on the Internet? Why do males chat more than females? Do you have a cyber-identity? MSN and ICQ, do you use them? Like them? Why?

This question was a key one and was asked as a direct result of the preliminary findings of the questionnaire, which led to new area of the research, to identify female use of different types of online communication.

Q3 Why do males use email more than females? What about forwarding messages to friends and family? Are you on any electronic mailing lists, sometimes called "list-servs", where people with a common interest can send messages to everyone on the list? Do Internet users believe that their e-mail activities are private and confidential?

This question was asked primarily to clarify and explain the contradictory findings about email use. It also helped with supporting evidence for the cultural effect of Internet use.

Q4 Do you think that the Internet provides endless freedom to people?

This question was suggested to understand female students' perception of online freedom and anonymity.

Q5 Do you have gender stereotype views in relation to Internet use?

This question was in direction response to Aim 3 of the research, which was to put the use of internet resources in the context of the use of all types of external information.

5.9.6 Analysis activities

Prior to each of the focus groups, the researcher developed interview questions for each session, which guided the interview process. Following each interview, the recordings were transcribed word-for-word from the audio tape. The interviews were transcribed twice. Transcribing the data was the first step in qualitative analysis; however, because the original transcripts were in Arabic it required careful effort to translate them into English.

A database was created with data from these four transcripts of the interviews and used ATLAS/ti software to manage the data collected. This software helped in making the analytic process very systematic (Krueger 1998b). Using a qualitative data analysis software package enables coding and retrieving, building theories, and conducting analyses of the data. It also organizes, categorizes, and annotates textual data (MacMillan and Koenig, 2004). ATLAS/ti was flexible and very useful in data management, such as linking the transcripts file together, selecting quotes and assigning codes. Codes can be renamed, deleted, and merged easily while coding. A set of coding categories was defined based on the actual data. This coding was then used as a means of analysing the data. During the coding process the initial codes were changed over time. Some were very general and were split into more specific codes, and others were merged because they represented similar concepts. Once analysed, these codes provided a data reduction technique to be used for chapter six (focus group analysis). The interviews questions can be found in the (Appendix C).

5.9.7 Content codes

Coding categories were used to identify key ideas in the combined focus groups. While keeping the initial objectives in mind, statements were sorted, categorized and rearranged into themes, then comments were grouped into coding categories. There were three general categories of codes developed for the focus group database. These three categories concerned the use of and attitude toward the Internet by females in Saudi context.

5.9.7.1 *Email related codes*

These codes were used for statements about email use and the gender gap between male and female in relation to usage. They also included the comments of those who agreed with the questionnaire findings and those who did not. Examples of these code are (Email-F>M, Email-M>F, Email-Privacy, Forwarding-Yes, Forwarding-No).

5.9.7.2 *Chat related codes*

These codes included aspects of online chatting, and included comments of explanation of the contradictory findings about Saudi female experience with online chat rooms. Examples of these codes are (Chat-No-Boring, Chat-Yes-Advertisement, Chat-Yes-Pleasure, Chat-Frequency-Culture, Chat-Frequency-Guilt, Chat-Time-Right Moment, Chat-Time-Access,)

5.9.7.3 *Attitude related codes*

These codes included comments about the relationship between Saudi females and the Internet with reference to comments about stereotypical views and Internet freedom. Examples of these codes are (Attitude-F-Better, Attitude-M-Better, Attitude-M-Better-why, Internet-Freedom)

5.9.8 Result reporting style

There are three models in reporting and presenting focus groups results. The first style is the *raw data model*, where the focus group questions or ideas are presented followed by participants' comments. The second style is the *descriptive style*, which starts with a descriptive summary followed by illustrative quotes. The third model is

the *interpretive* where the descriptive summary and the illustrative comments are followed by an interpretation. In this research the *descriptive* model of presenting the focus group results was deemed the most appropriate since the interpretation of the analysis will follow in Chapter 8, Discussion.

The descriptive style of reporting focus groups data "begins with a summary paragraph and then includes illustrative quotes" (Krueger, 1998a p.113). The selected quotes are intended to help in understanding the way participants answered the questions. This style of reporting has the advantage of data reduction without affecting the interpretive procedure of in depth analysis. A complete listing of specific themes, related codes within these broad categories along in a flowcharts of the codes are available in Appendix(D).

5.10 Methodological Limitations

Almost all research projects are confronted with various kind of constraints in research design and methodology. In this context, it is important to outline the limitations encountered in the current research.

- In Saudi Arabia it is common practice and sometimes necessary to gain central management approval to conduct research studies in almost all government institutions. Researchers normally need to provide official letters from their sponsor, in order to gain approval to curry the research in these institutions. In the current research, it was often necessary to expend time and effort on such bureaucracy, which was time-consuming and contributed to slowing the data collection process in both male and female campuses.

- One of the main obstacles was the difficulty of personal distribution of the research survey in the male campus together with the lack of cooperation and willingness on the part of the (male) third party coordinator and some departmental staff in the male campus.

- Another cultural constraint was the inability to conduct focus group interviews with male students and the difficulty of assigning a male third party to carry out such interviews.

- Although only female participants' views were explored during focus group interviews, the possibility of over or under-reporting, with a tendency of some participants to select desirable responses or avoid sensitive issues are two possible drawbacks of self reporting method. On the other hand, it was noticed during interviews that some female participants were hesitant and tended to avoid talking about participating in online chatting rooms.

- Finally, using a mixed method technique proved to be very beneficial in understanding the research problem, however, it was time consuming because of its sequential nature. In addition, the cost of carrying out two field trips was very high, given the fact that the research sponsor funded only one field trip.

5.11 Summary

The study employs both quantitative and qualitative techniques to investigate Saudi Arabian female university students' use of the Internet. These two techniques were used in sequential mode where the questionnaire survey preceded the focus groups.

The results from the survey were used to develop the focus group questions. They resulted in data suitable for use regarding the current study aims and objectives.

- 793 completed questionnaires were received and were suitable for analysis, including three pages of qualitative comments;
- Four focus group interviews were carried out with female participants and then analysed using ATLAS/ti software for systematic analysis.

Chapter Six

Questionnare Analysis

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Six

Questionnaire Analysis

6.1 Introduction

The aim of this chapter is to present the statistical analysis of the study questionnaire (Appendix A-1) using SPSS (Statistical Package for the Social Sciences) in a format that is consistent with the research questions.

6.2 Demographic Information

This section sought to determine the participants' personal details, such as gender, age, and study field, which are reported in the sub-sections below. However, not all the respondents answered the demographic information section of the question

6.2.1 Gender

Respondents to the questionnaire included 532 females and 261 males. The distribution of the respondents by gender is illustrated in Table 6.1.

Table 6.1: Gender distribution

Gender	Number	Percent
Female	532	67.1%
Male	261	32.9%
Total	793	100%

6.2.2 Age and marital status

Table 6.2 compares the number of participants in each gender group according to age.

The great majority of the participants (63% of females and 32.1% of males) were in the age range between 18-25 years, which is typical of university students in Saudi Arabia. As is evident from Table 6.3 the vast majority (91.2%) of the participants were not married (58.5% of females and 32.7% of males) and only 8.8% were either married or married with children (Table 6.3).

Table 6.2: Age distribution

Age group	Gender	Number	Percent	Total
18-25	Male	414	63.0%	625
	Female	211	32.1%	
26-30	Male	22	3.3%	24
	Female	2	0.3%	
30+	Male	6	1.0%	8
	Female	2	0.3%	

Table 6.3: Marital status distribution

Marital status	Gender	Number	Percent	Total
Not married	Male	216	32.7%	603
	Female	387	58.5%	
Married	Male	19	2.9%	38
	Female	19	2.9%	
Married with children	Male	7	1.1%	20
	Female	13	2.0%	

6.2.3 Year in college

Participants were asked to indicate their subject and their year in college. As is evident from the Table 6.4, students in year one were the majority (28.6%). The median year in college was year two (25%). The smallest group of students were in year five (5.8%). In Saudi Arabia, it takes five years to gain a undergraduate degree in computer science department.

Table 6.4: Year in college

Year	Gender	Number	Percent	Total
Year One	Male	22	28.6%	190
	Female	168		
Year Two	Male	58	25%	166
	Female	108		
Year Three	Male	65	23.3%	125
	Female	90		
Year Four	Male	78	17.3%	115
	Female	37		
Year Five	Male	19	5.8%	38
	Female	19		

6.2.4 Field of study

Participants in science departments comprised 54.4% of those who used the Internet in the sample, while 45.8% were in non-science departments. The distribution of students by departments in both gender groups, is illustrated in Table 6.5.

Table 6.5: Subject distribution

Subject	Gender		Total
	Female	Male	
Science	42	9	51
Health	6	5	11
Medicine	12	34	46
Pharmacy	32	33	65
Dentistry	9	29	38
Law and Regulation	0	14	14
Engineering	0	14	14
Agriculture	2	42	44
Sociology	6	7	13
Library and Information Science	0	13	13
Social Science	0	15	15
Arabic Studies	0	13	13
Sport	0	1	1
Physical Therapy	0	1	1
Building Engineering	0	3	3
Islamic Studies	21	3	24
Business Management	20	3	23
Media	0	2	2
Biology	19	0	19
Chemistry	8	0	8
Mathematics	2	1	3
Medical Science	32	0	32
Computer Science	24	0	24
Physics	1	0	1
Geography	14	0	14
Child Development	51	0	51
Art	49	0	49
Special Education	72	0	72
Total	422	242	664

6.3 Internet Use and Access

This section of the questionnaire aimed to give some introductory general information about computer ownership and use. It was intended to discover students' Internet use and access, including what might influence use such as gender, age, year in college, and experience.

6.3.1 General information about the Internet

6.3.1.1 Computer use and ownership

Table 6.6 shows the number of respondents in each gender group according to pc use and ownership; it shows that there are differences between male and female in terms of pc use and ownership distribution. In both groups, the majority of respondents (93.1% of male and 85% of female) were using computers, and (80.5% of male and 91% of female) had computers in their homes. This might suggest that the difference in computer use between male and female is not due to the availability of computers in the respondents' homes. In fact, females are more likely to own a computer.

Table 6.6: PC use and ownership

Computer	Male		Female		Total
	Percent	Number	Percent	Number	
pc use	93.1%	243	85%	452	695
pc ownership	80.5%	210	91%	484	694

6.3.1.2 Place of Internet access

Respondents were asked about their Internet use and place of access. Table 6.7 demonstrates that the majority of students used the Internet (92.7% of male and 79.1% of female). It can be seen in Table 6.8 that home was the modal place of internet access for female respondents (95.5%). Females accessed the Internet less from places such as friends' or relatives' houses (3.3%), Internet cafés (0.2%), and other places (1.0%). Although male respondents indicated that they accessed the Internet from home (66.7%), roughly one quarter were using Internet cafes (24.3%). Over 4% were accessing the Internet from a friend's or relative's house, and less than 4% accessed the Internet from other places.

Table 6.7: Internet use

Internet use	Male		Female		Total
	Percent	Number	Percent	Number	
Internet use	92.7%	242	79.1%	421	663

Table 6.8: Place of access

Gender	Home	Friend's or relative house	Internet cafés	Other	Total
Male	66.7%	4.1%	24.3%	4.9%	
	162	10	59	12	243
Female	95.5%	3.3%	0.2%	1.0%	
	402	14	1	4	421

6.3.1.3 Reasons for starting using the Internet

Figure 6.1 illustrates participants' motives starting to use the Internet. The majority started using the Internet due to their own curiosity (59.6% for male and 51.4% for female). Other significant reasons were friends' and family members'

recommendation (30.9% for male and 30.5% for female). Fewer participants indicated that they started using the Internet due to media features (2.9% for male and 2.6% for female)

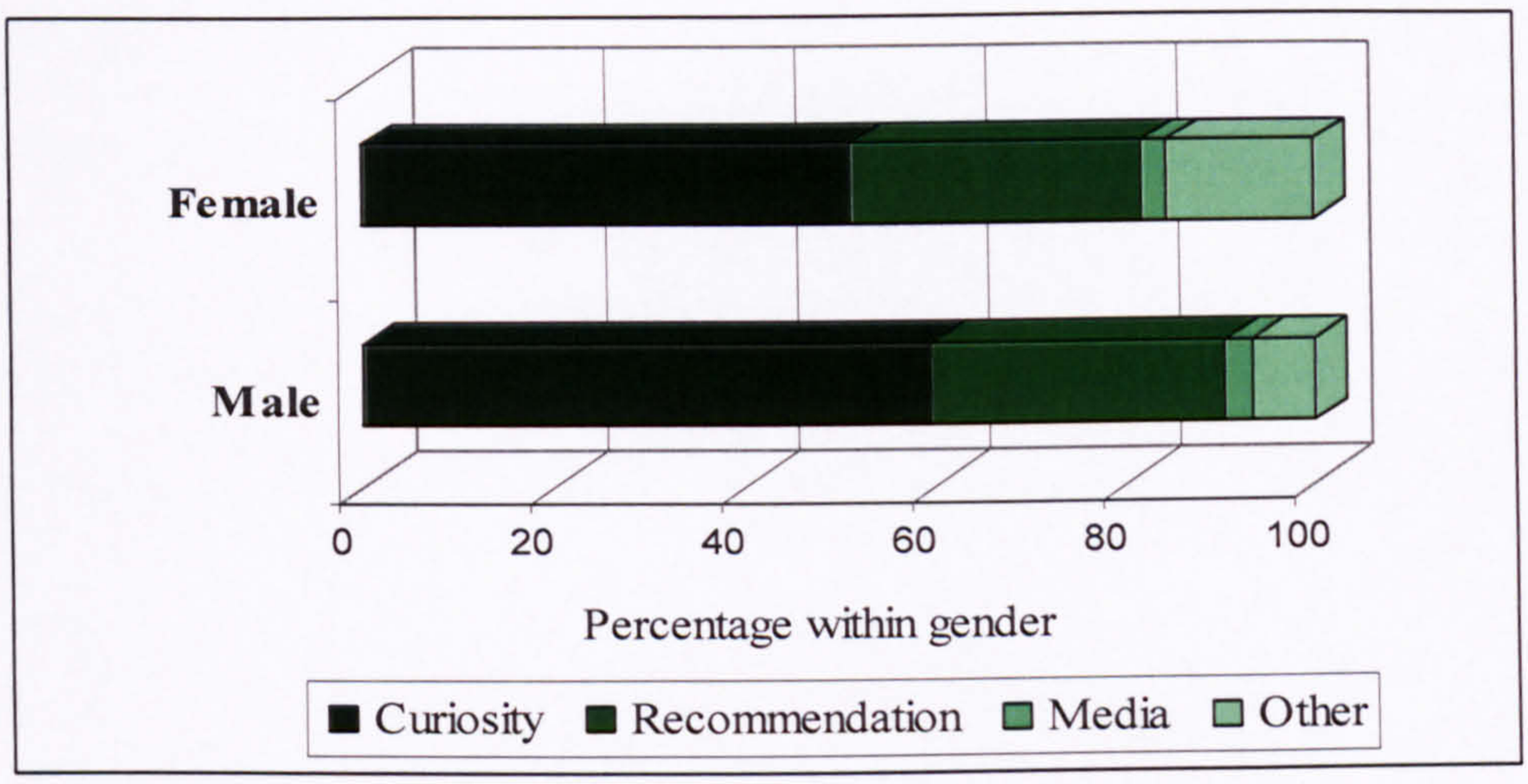


Figure 6.1: Gender and students' reasons for starting using the Internet

6.3.2 Email

This section of the questionnaire examines participants' use of email as an important component of the Internet. Participants were asked how they felt about email. This section helps to consider how attitudes to email impact on students' use and behaviour.

6.3.2.1 Email use and attitudes

Participants were asked to indicate if they used email, who they emailed as well as the reasons for choosing email for their communications. Male participants used email more (83.5% compared with 75.6% female). In relation to email contacts, Table 6.9 illustrates that the majority of male participants emailed family members as much as they emailed local friends (38.5%). In comparison with males, female participants emailed family members more (46.5%), while they emailed friends locally less

(27.1%). Other significant sized groups include overseas friends (9.8% for male and 9.7% for female), and other people locally (5.4% for male and 7.0% for female). A small number of participants indicated that they emailed other people overseas (4.9% for male and 3.1% for female). Female participants specified the other people they communicated with through email, such as university lecturers, overseas university, email groups, and international organisations.

Table 6.9: Email contacts

Contacts	Gender			
	Male		Female	
	Percent	Number	Percent	Number
Family member	38.5%	79	46.5%	148
Friends locally	38.5%	79	27.1%	86
Friends overseas	9.8%	20	9.7%	31
Other people locally	5.4%	11	7.0%	22
Other people overseas	4.9%	10	3.1%	10
Others	2.9%	6	6.6%	21
Total	202		318	

In relation to motives behind email usage, Figure 6.2 demonstrates that the majority of students (31.7% for male and 37.0% for female) used email for their communications because it is more convenient, whilst approximately one third used email because they could send pictures and sounds (18.0% for male and 14.3% for female). It also emerged that 9.3% of male and 11.0% of female respondents used email because they could express their feelings better, 18.8% of male and 20.5% of female used it because it is quicker than other means of communications, and 21.4% of male and 13.5% of female used it because it is less expensive than other means of communication. Participants also cited other reasons for using email (0.8% for male

and 3.7% for female) such as, it is the only possible means to communicate with some people.

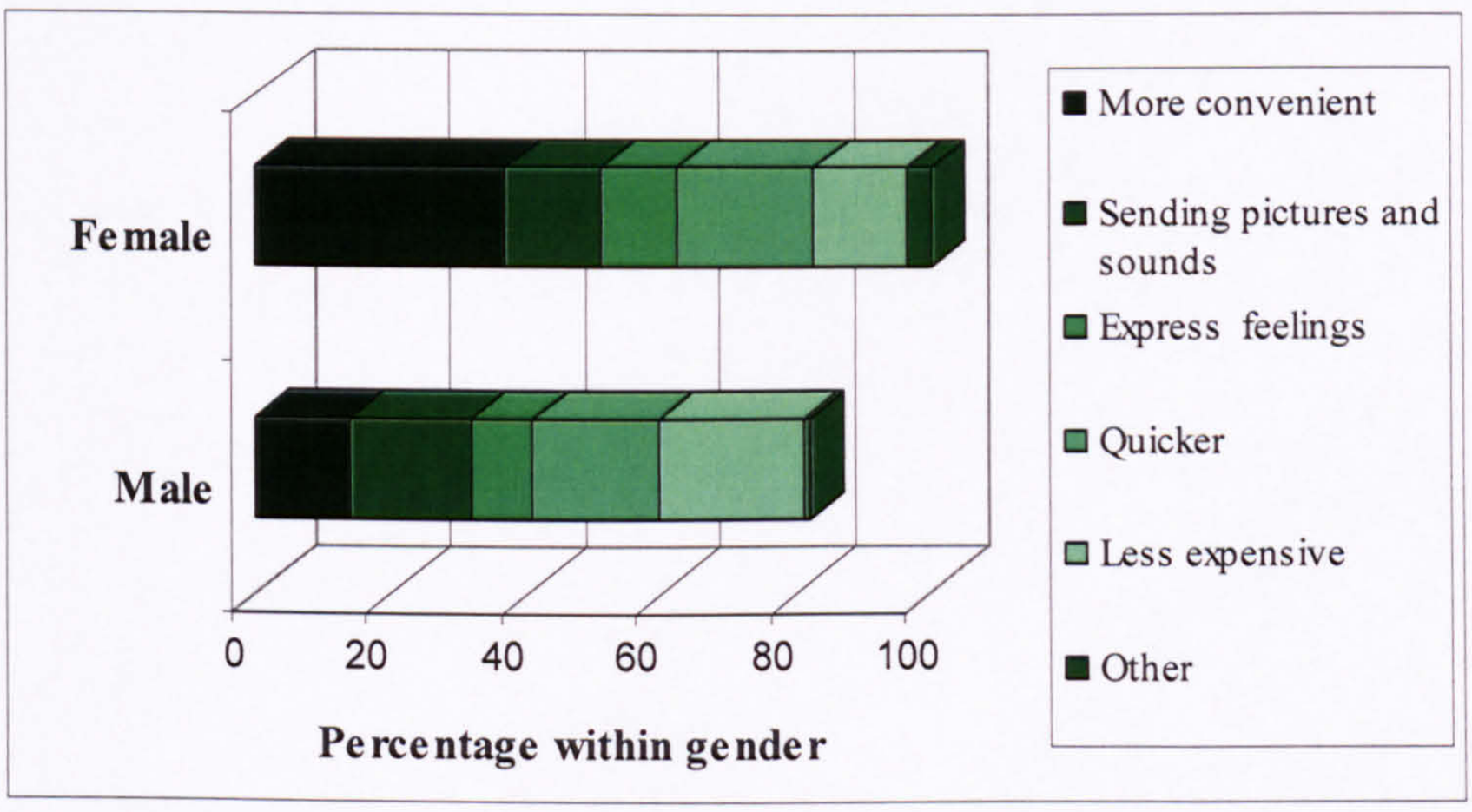


Figure 6.2: Reasons for using e-mail

The majority of participants sent emails very often, several times a week (51.2% for male and 33.8% for female). Sending emails on a weekly basis was also common (23.9% for male and 29% for female). Male participants reported less occasional use of emails on a monthly basis (13.7%), while more than 23% of females indicated that they used email about once a month (Table 6.10). About one quarter of participants reported even less frequent use of email, about once in a semester (11.2% for males and 13.4% for females).

Table 6.10: Frequency of email use

Email use	Gender			
	Male		Female	
	Percent	Number	Percent	Number
Very often (several times a week)	51.2%	23	33.8%	43
Often (about once a week)	23.9%	28	29.0%	76
Occasionally (about once a month)	13.7%	49	23.8%	93
Rarely (about once a semester)	11.2%	105	13.4%	108
Never	0%	0	0%	0
Total	185		320	

The median feeling in relation to email use was to *like it,* with the majority of those answering feeling that way (38.9% for male and 39.0% for female) (Figure 6.3). Over one third of males (35.8%) and over one fifth of females 22.5% felt more positive about email and indicated they *like it a lot.* Those with negative feelings about using email constituted less than 13% of both genders in total; 4.6% felt they *dislike it a lot* and only 8% felt they *dislike it*. Participants indicating that they *neither like it nor dislike it* were 19.6% of males and 31.6% of females.

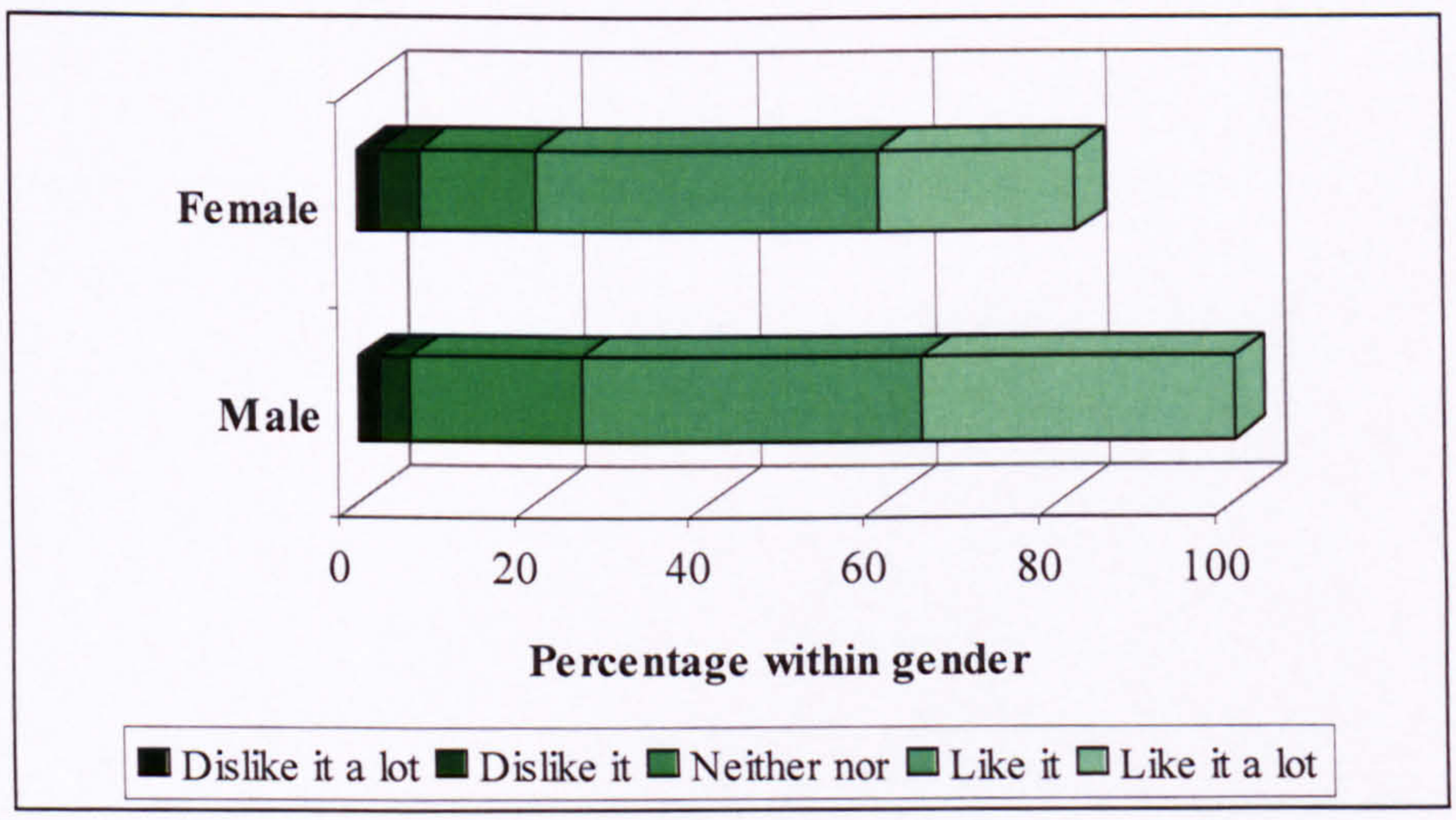


Figure 6.3: Feeling about email use

6.3.2.2 Influence on email use: an analysis

Table 6.11: Chi-square analysis of email use

	Email use	Frequency of e-mail use	Feelings about e-mail use
Gender	$\chi_2 = 5.75, p < .017$	$\chi_2 = 17.54, p < .001$	$\chi_2 = 17.04, p < .002$
Study field	$\chi_2 = 5.49, p < .019$	$\chi_2 = 8.13, p < 043$	ns
Academic year	$\chi_2 = 7.89, p < .020$	$\chi_2 = 24.64, p < .000$	$\chi_2 = 25.54, p < .001$
Age	ns	Ns	ns
marital status	ns	Ns	ns

ns, non significant, *p*, probability.

To investigate whether gender was associated with e-mail use, a chi-square test was used. Table 6.11 shows the Pearson chi-square result and indicates that there is a significant difference between males and females. The findings suggest, that males are more likely to use email ($\chi_2 = 5.75$, $df = 1$, $N = 661$, $p < .017$), although the strength of the association measured by the phi statistic (-.093) is considered to be small according to Cohen (1988). There was also a significant association between gender and frequency of email usage, ($\chi_2 = 17.54$, $df = 3$, $N = 525$, $p < .001$), and feelings about email ($\chi_2 = 17.04$, $df = 4$, $N = 603$, $p < .002$).

Science students differed significantly from non-science students in email usage, ($\chi_2 = 5.49$, $df = 1$, $N = 658$, $p < .019$), and in the frequency of usage, ($\chi_2 = 8.13$, $df = 3$, $N = 523$, $p < .043$). Students in science departments used email more and on a more frequent basis than non-science students. However, students in all study fields did not significantly differ in their feelings about emails (Table 6.13). In the case of female students, field of study was significantly associated with email usage; females in

science departments reported using email more than females in non-science departments ($\chi_2 = 3.99$, $df = 1$, $N = 416$, $p < .046$)

The Chi-square test also revealed that students' academic year was significantly associated with email usage, ($\chi_2 = 7.89$, $df = 2$, $N = 658$, $p < .020$), as well as frequency of email use ($\chi_2 = 24.64$, $df = 6$, $N = 523$, $p < .000$). Students in year three were found to use email on a more frequent basis than students in years two and one. Third year students felt more positive about using email than students in other academic years ($\chi_2 = 25.54$, $df = 8$, $N = 601$, $p < .001$). Amongst female students, academic year was not significantly associated with email usage. Students' age and marital status were not significantly associated with their email use, even among female students themselves (Table 6.13).

6.3.3 World Wide Web

This section of the questionnaire aimed to discover how Saudi university students use the World Wide Web. Participants were asked to indicate how long they had been using the Web and the frequency of their usage. This section also includes students' use of the web for studies, as well as their perception of web usefulness for academic purposes. It is divided into subsections as follows;

6.3.3.1 World Wide Web use and attitudes

The vast majority of students used the Web (99.2% male and 99.8% female). The median length of time students had been using the Web was longer than two years (52.5% for males and 42.5% for females). Almost 17.1% of students indicated that they had used the Web for a longer period, between four and six years (Table 6.12).

Approximately one fifth of the participants (20.2% male and 17.4% female) had been using the Web for one to two years, whilst more than one tenth had used the Web for a shorter period, between six months and one year (7.9% of male and 12.6% of female). 10.7% male and 17.9% female students indicated that they had used the web for less than six months.

Table 6.12: Length of time Students have been using the Web

Time period	Gender			
	Male		Female	
	Percent	Number	Percent	Number
Never used it	0.4%	1	0.7%	3
Less than six months	10.7%	26	17.9%	75
Between six months and one year	7.9%	19	12.6%	53
One to two years	20.2%	49	17.4%	73
More than two years	52.5%	127	42.5%	178
Other	8.3%	20	8.8%	37
Total	234		419	

In relation to website visits, participants were asked to indicate the most frequently visited Websites. It emerges that students visited *entertainment* websites most frequently (19.9%), followed by *study related* websites (19.3%), and d*iscussion lists* (15.7%). Students visited *women's* related websites (13.4%), *health* websites (11.2%), and *news* websites (10.2%). The least frequently visited websites were *sports* websites (4.6%), and *children* related websites (3.3%).

Figure 6.4 demonstrates gender difference in relation to the websites most frequently visited. Male students visited *study related* websites the most (21.4%), followed by *entertainment* (19.8%), and *discussion lists* (18.3%). They also indicated that they visited *news* (16.9%), *health* (10.4%), and *sport* websites (10%). Male students visited *women* related (2.2%) and other (1%) websites including scientific, technical, Islamic,

search engines, and sex websites less frequently. In contrast female students reported visiting *entertainment* website most frequently (20%) followed by *women* related websites (19.2%) *study* related websites (18.1%), *discussion list* (14.4%), and *health* websites (11.7%). *News* (6.7%), *children* related (5%), and *sports* websites (1.8%) generated less frequent visits. Approximately 3% of female students indicated that they visited other websites such as literature, art, commercial, fashion, international organizations, shopping, and education websites. No female students reported visiting sex websites.

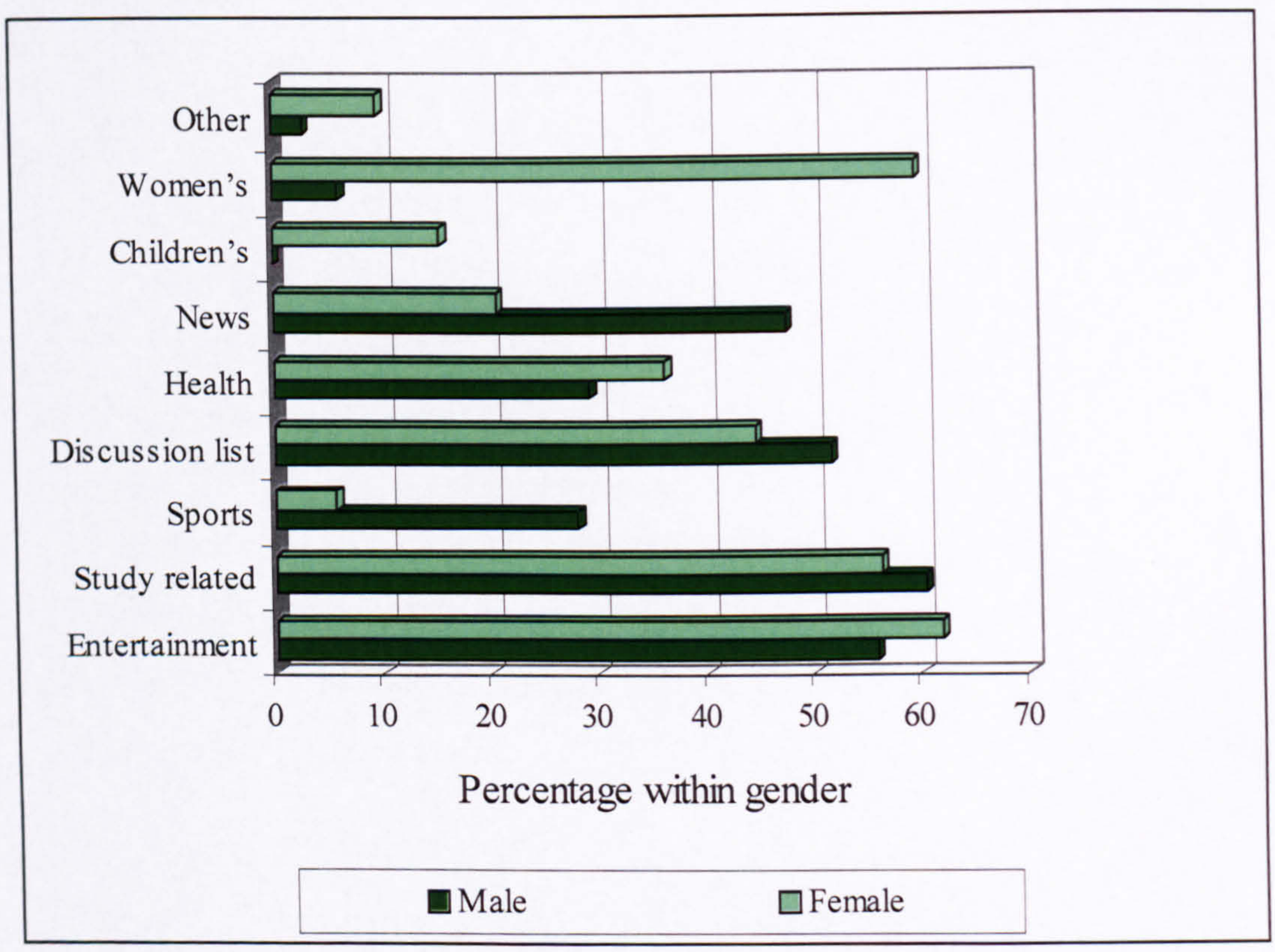


Figure 6.4: Websites frequently visited

Participants were asked to indicate how often they used the Web for study-related activities, for personal interest, for job related activities, or to satisfy their curiosity about something. Table 6.13 demonstrates that the majority of students used the web for school related activities *rarely* (36.6% for male and 33.7% for female), or

occasionally (29.9% for male and 34.7% for female). Around a quarter of participants used the web on a daily basis, or more than once a day (26.4% for male and 24% for female). Fourteen per cent of students said they had *never* used the web for such activities (7.1% for male and 7.6% for female). Using the Web for personal interests (e.g. hobbies) on a daily basis or more than once a day was reported by almost half of students (47.9% for males and 41.1% for females), while more students cited less frequent use on a weekly and monthly basis (47.5% for males and 54.4% for females). Nine per cent specified that they never used the Web for personal interests (Table 6.14).

More students used the Web for job-related activities on a weekly and monthly basis (52.9% for male and 40% for female) than on a daily basis (12.3% for male and 17.5% for female); whilst only 6% of males and 6.7% of female students indicated that they used the Web more frequently than once a day (Table 6.15).

Students also frequently used the Web to satisfy their curiosity about something, the majority on a weekly or daily basis (73.5% for males and 73.4% for females). Approximately a quarter of male and female (26.5% and 26.6%) reported that they used the web for this purpose less frequently, including 18.9% of males and 23.3% of females who indicated that they *rarely* used it and 7.6% of males and 3.3% of females who *never* used it to satisfy their curiosity about something (Table 6.16). The majority of participants used the King Saud University (KSU) website on a weekly or monthly basis (74.4% for males and 64.1% for females). Less frequent use of the website on a daily basis was cited by 15.1% of male and 12.8% of female students. Approximately 11% of males and 23% of females had never use the KSU website (Table 6.17)

Table 6.13: Web for Study related activities

Frequency	Gender			
	Male		Female	
Never	7.1%	17	7.6%	32
Rarely (about once a month)	36.6%	87	33.7%	142
Occasionally (about once a week)	29.9%	71	34.7%	146
Often (about once a day)	17.2%	41	14.3%	60
Very often (more than once a day)	9.2%	22	9.7%	41

Table 6.14: Web for personal interests

Frequency	Gender			
	Male		Female	
Never	4.6%	11	4.5%	19
Rarely (about once a month)	18.5%	44	20.9%	88
Occasionally (about once a week)	29%	69	33.5%	141
Often (about once a day)	30.3%	72	27.8%	117
Very often (more than once a day)	17.6%	42	13.3%	56

Table 6.15: Web for job-related activities

Frequency	Gender			
	Male		Female	
Never	31.9%	76	38.5%	161
Rarely (about once a month)	31.5%	75	22.2%	93
Occasionally (about once a week)	21.4%	51	21.8%	91
Often (about once a day)	9.3%	22	10.8%	45
Very often (more than once a day)	6%	14	6.7%	28

Table 6.16: Web for satisfying curiosity

Frequency	Gender			
	Male		Female	
Never	7.6%	18	3.3%	14
Rarely (about once a month)	18.9%	45	23.3%	98
Occasionally (about once a week)	29.4%	70	30.4%	128
Often (about once a day)	27.3%	65	25.2%	106
Very often (more than once a day)	16.8%	40	17.8%	75

Table 6.17: KSU website

Frequency	Gender			
	Male		Female	
Never	10.5%	25	23.1%	97
Rarely (about once a month)	49.6%	118	51%	214
Occasionally (about once a week)	24.8%	59	13.1%	55
Often (about once a day)	10.1%	24	8.3%	35
Very often (more than once a day)	5%	12	4.5%	19

Participants were asked if they chatted online and the length of time they spent chatting. The majority of male students indicated that they chatted online (73.9%), compared to approximately 62.2% of female students. However female students who chatted online reported spending longer chatting than male students. Figure 6.5 compares gender groups according to the time they spent chatting.

In both gender groups the majority of students spent less than one hour a month chatting (41% for males and 31.2% for females), while approximately a quarter of male participants chatted for one to ten hours a month (24%) compared to almost a fifth of female participants (18.8%). Fourteen male students and thirty nine female students indicated that they spent less than an hour a day chatting, while a combined total of 23.1% of male and 23.3% of females students chatted for one to three hours

every day. At the extreme of the scale 3.8% of male and 12% of female respondents chatted for more than three hours every day.

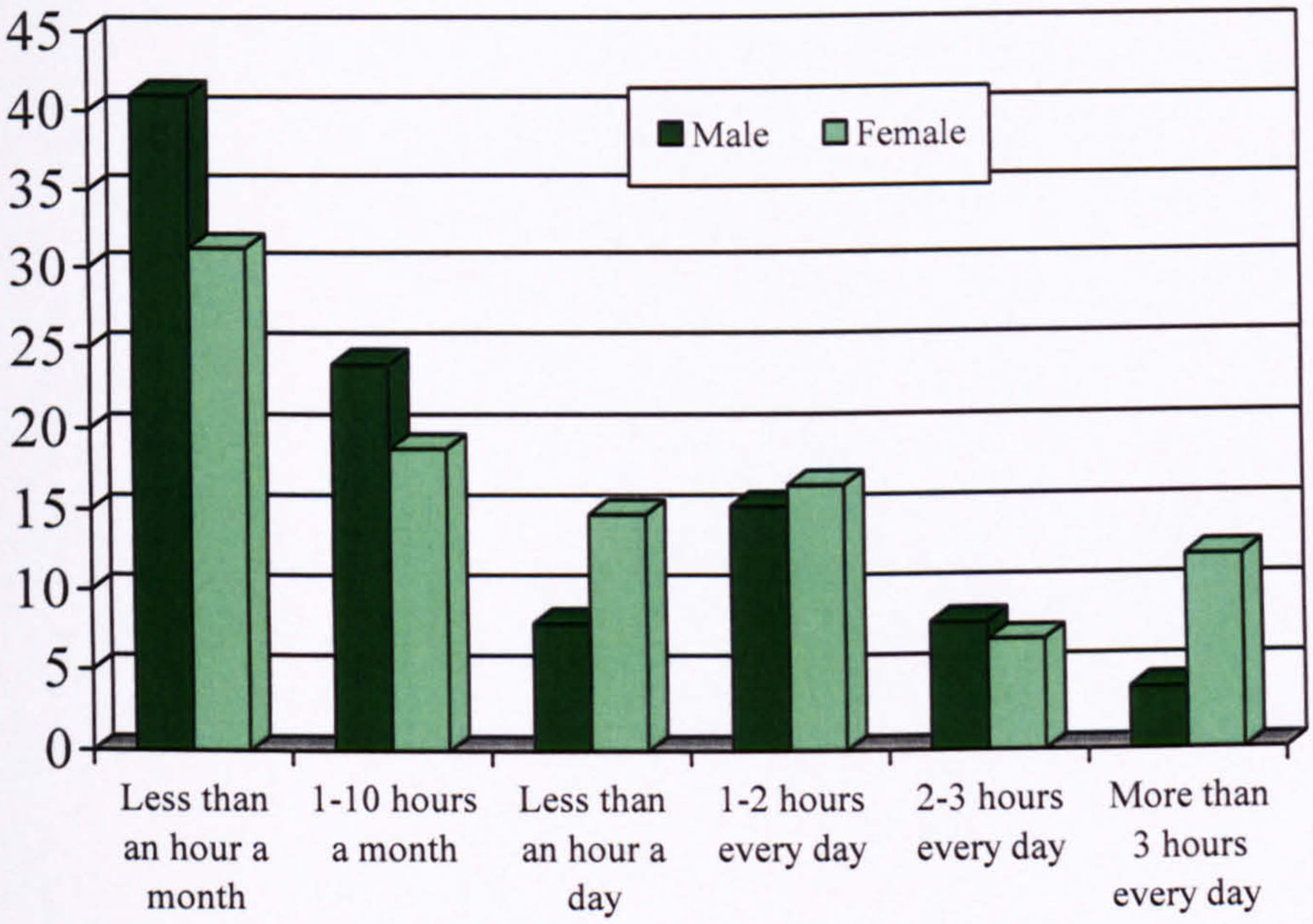


Figure 6.5: Length of time students spent on chatting rooms

The median feeling in relation to Web use was *like it,* with the majority of those answering feeling that way (45.8% for male and 48.2% for female) (Figure 6.6). Over a third of males (37.1%) and a quarter of females (25%) felt more positive about web use citing that they *like it a lot.* Those with negative feelings about web use constituted less than 8% of both genders in total; 5.3% felt they *dislike it a lot* and only 2.5% felt they *dislike it*. Participants indicating that they *neither like it nor dislike it* were 12.5% of male and 23.6% of female respondents.

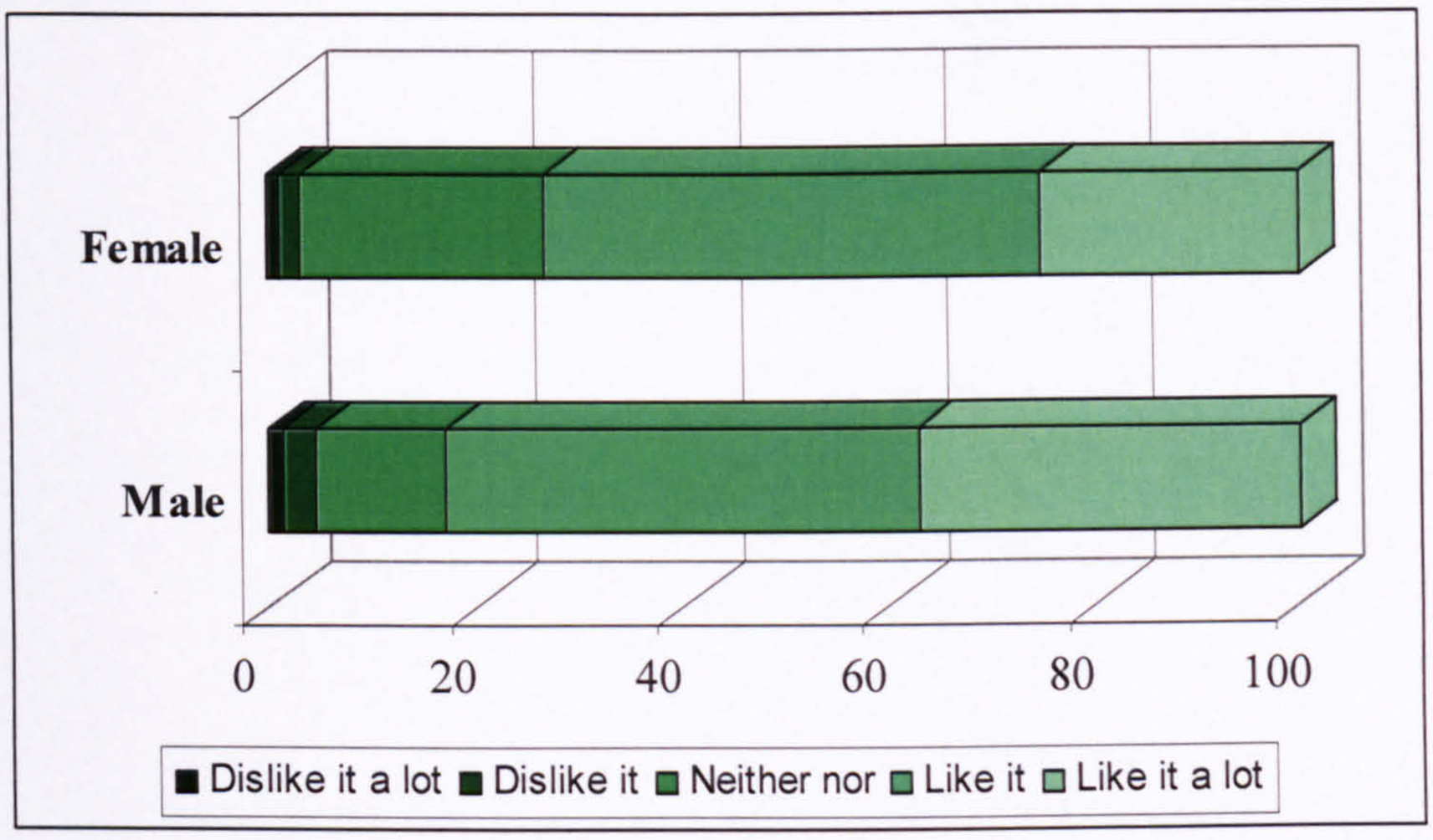


Figure 6.6: Feelings about the Web by Gender

6.3.3.2 Barriers to greater Internet use

Participants were asked to indicate if they encountered any obstacles when using the Internet. The majority of students indicated that they face difficulties (73.6% male and 67.5% female). Figure 6.7 illustrates that male participants reported more difficulties accessing a computer and the Internet (19.2% of males compared to 9.8% of females). Similarly male participants indicated more difficulties in using computers (12.6% compared to 10.5% of females).

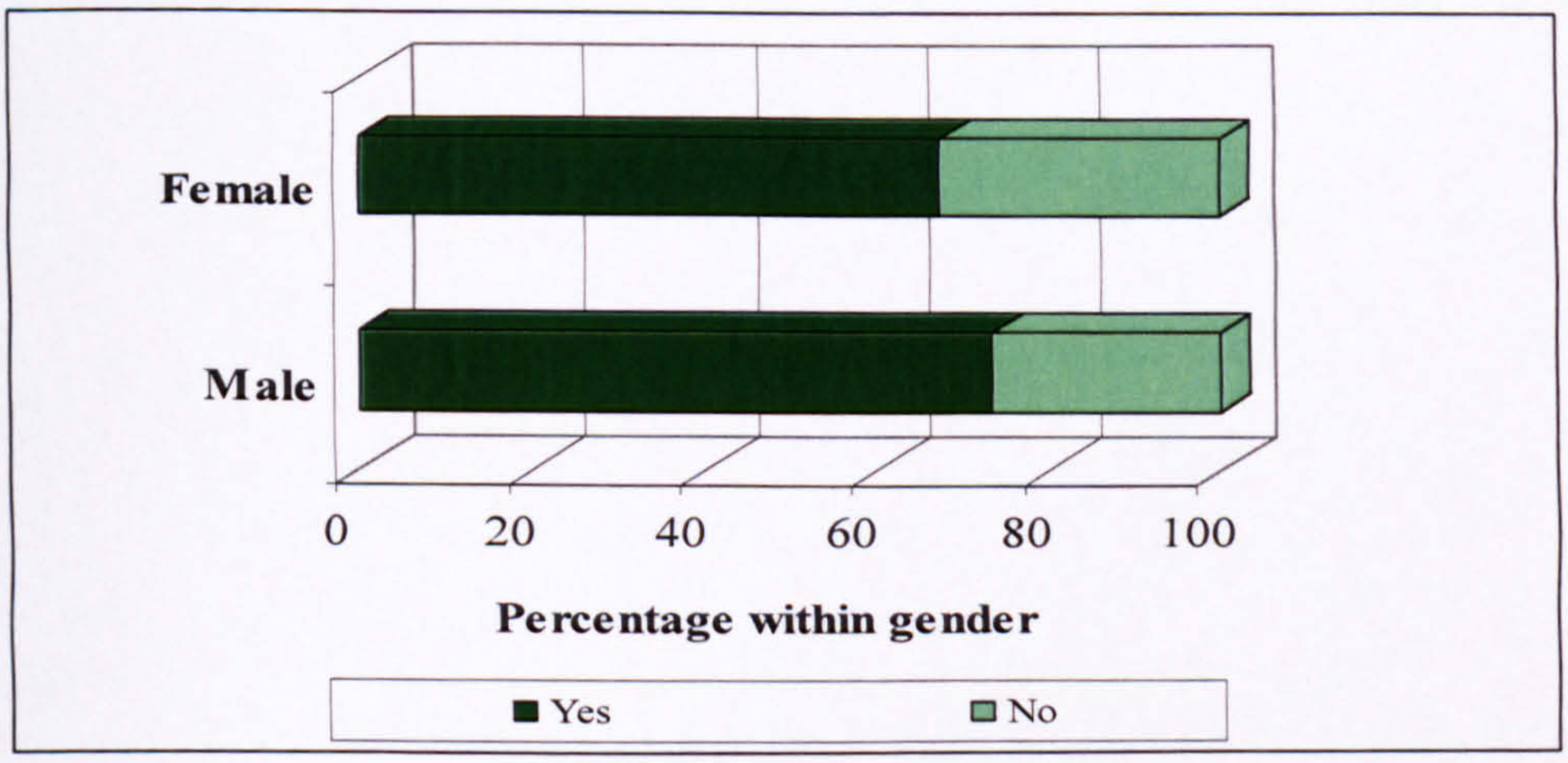


Figure 6.7: Difficulties Percentage within gender

Figure 6.8 shows that slow Internet connectivity was reported as a problem by the majority of students (65.4% male and 63.3% female). Whilst female participants cited family restrictions more (23.9% female compared to 12.1% male), male participants complained more about Internet access being expensive (46.5% male compared to 29.8% female). Lack of free time was cited by female students more frequently 42.8%, while fewer male students (38.5%) cited it as a problem. Less than 16% of male participants worried about the privacy and security of the Internet, whereas approximately a quarter of female participants had concerns regarding Internet privacy and security. The Internet being too complicated to use was reported by female participants (13.7%) whereas less than 8% of male participants reported facing this problem.

A few female students (5.6%) faced other difficulties when using the Internet such as government access restrictions, meeting unwanted people, Internet viruses, censorship, language, worries about Internet addiction, difficulty finding information and lack of experience. Some, male participants (7.1%) also indicated that they faced other barriers when using the internet such as technical problems, frequent disconnections, feeling bored, Internet viruses, and the language.

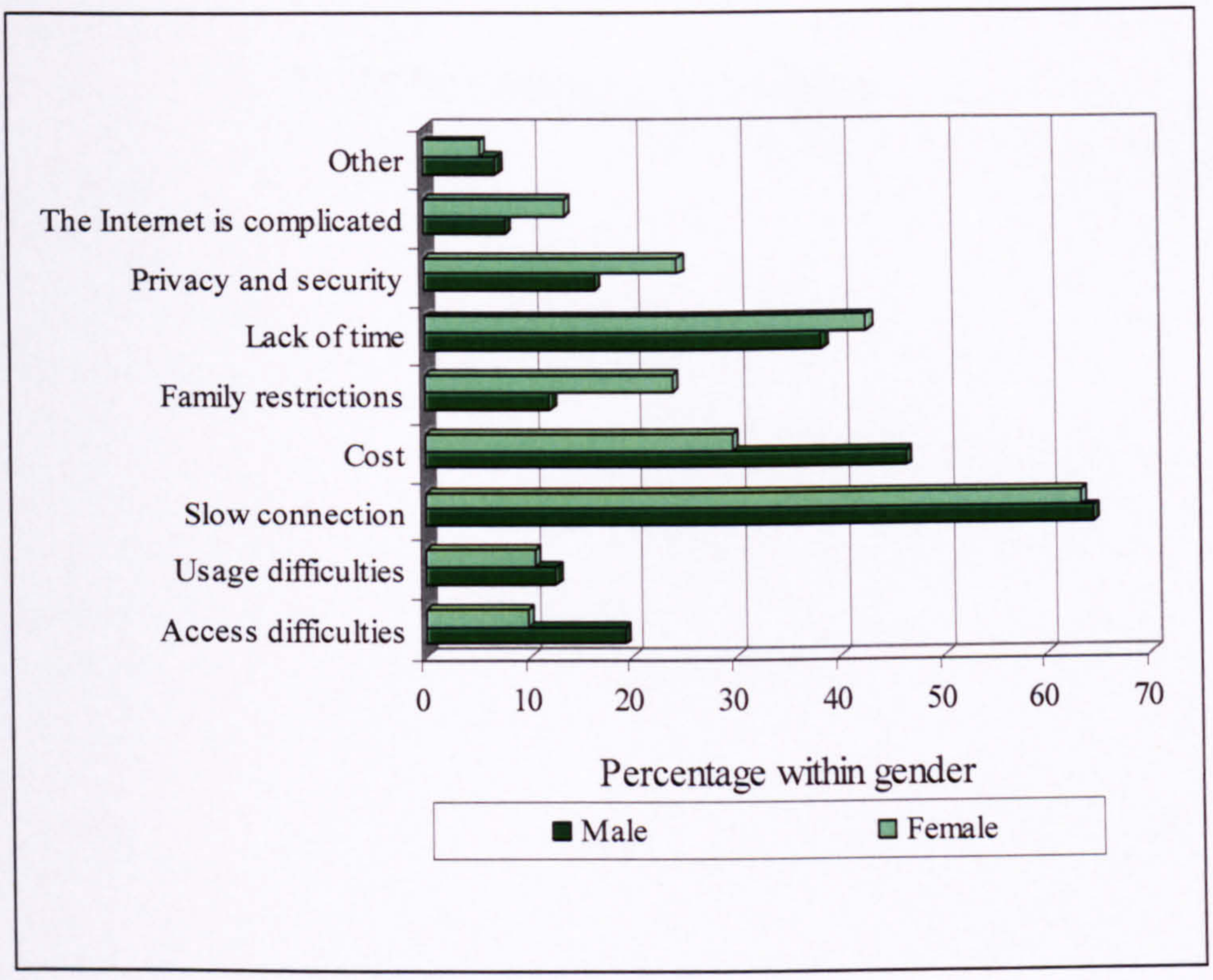


Figure 6.8: Barriers to Internet use

6.3.3.3 Influences on Web use: an analysis

This section considers the research questions of the study in relation to students' Internet use, including what might affect usage such as gender, age, year in college, and subject of study. Details of the significant outcomes are reported but the full implications are examined in a later chapter (8).

Analysis revealed that students' age was not associated with their usage of the web. To investigate whether gender is associated with web use, a chi-square test was used. Table 6.18 shows the Pearson chi-square result and indicates that male and female students were not significantly different in terms of their usage of the Web for study, job, and personal activities. However, male students were found to be significantly different from females in their usage of KSU webpage ($\chi_2 = 17.14$, $df = 2$, $N = 657$, $p < .000$).

Table 6.18: Chi-square analysis of web use by gender

	Significance
Web for school activities	ns
Web for personal interest	ns
Web of job related activities	ns
Web for ones curiosity	ns
KSU Webpage	$\chi_2 = 17.14, p<.000$
Chat rooms	$\chi_2 = 9.204, p<.002$
Time spent in chat rooms	$\chi_2 = 10.190, p<.006$
Felling about web use	$\chi_2 = 12.16, p<.002$
Web experience	$\chi_2 = 11.761, p<.003$

ns, non significant, *p*, probability.

Analysis also showed gender to be significantly associated with students' experience ($\chi_2 = 11.761$, $df = 2$, $N = 661$, $p < .003$), and their feelings about the web ($\chi_2 = 12.164$, $df = 2$, $N = 647$, $p < .002$). Male students had more experience and felt more positive than female students. Chatting online was associated with gender, with male students chatting more ($\chi_2 = 9.204$, $df = 1$, $N = 657$, $p < .002$), yet female students spending longer hours on a daily basis chatting online ($\chi_2 = 10.190$, $df = 2$, $N = 444$, $p < .006$).

Students in academic year three used the web for school and job related activities more often than students in years two and one (Figure 6.9). There was a significant association between academic year and using the web for study activities; ($\chi_2 = 30.40$, $df = 4$, $N = 657$, $p < .000$), and job related activities ($\chi_2 = 10.83$, $df = 4$, $N = 654$, $p < .029$).

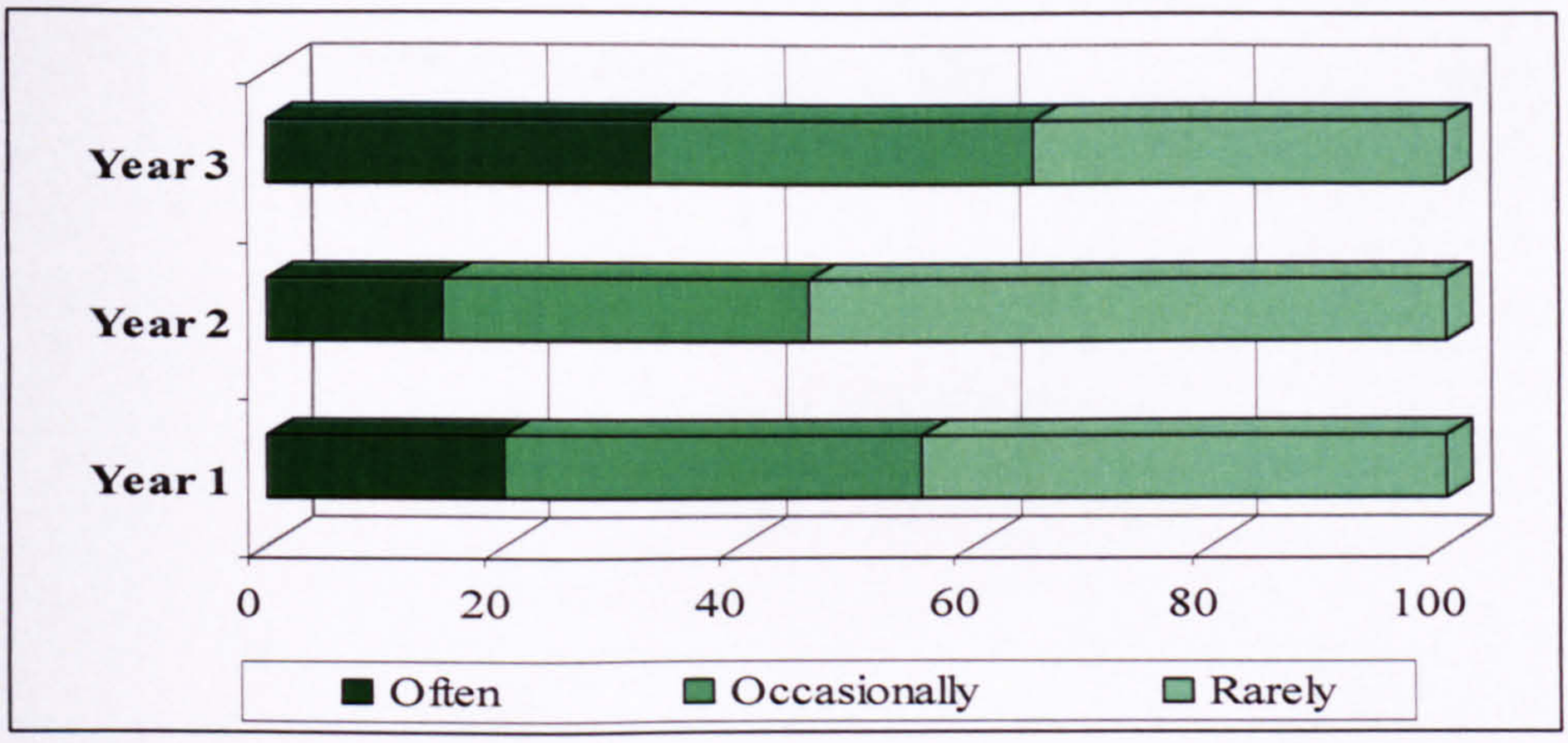


Figure 6.9: Web for study related activities by academic year

Students in academic year three chatted more on line than those in year two and one (χ_2 = 8.947, *df* = 2, *N* = 660, *p* < .011), yet the time spent chatting was not significantly associated with students' academic year (Figure 6.9). Analysis also found that there was a significant association between the length of time students had been using the Web and their academic year in college (χ_2 = 23.68, *df* = 4, *N* = 659, *p* < .000) (Table 6.19).

Table 6.19: Chi-square analysis of web use by academic year

	Significance
Web for school activities	$\chi_2 = 30.40$, $p<.000$
Web for personal interest	Ns
Web of job related activities	$\chi_2 = 10.83$, $p<.029$
Web for ones curiosity	Ns
KSU Webpage	Ns
Chat rooms	$\chi_2 = 8.947$, $p<.011$
Time spent in chat rooms	Ns
Felling about web use	$\chi_2 = 18.57$, $p<.001$
Web experience	$\chi_2 = 23.68$, $p<.000$

ns, non significant, *p*, probability.

Students' marital status was significantly associated with their usage of online chatting rooms ($\chi_2 = 6.06$, $df = 1$, $N = 659$, $p < .014$), married students used chatting rooms less than those who were not married (Figure 5.10). Moreover married students used the KSU webpage more than those who were not married ($\chi_2 = 12.9$, $df = 4$, $N = 651$, $p < .012$)

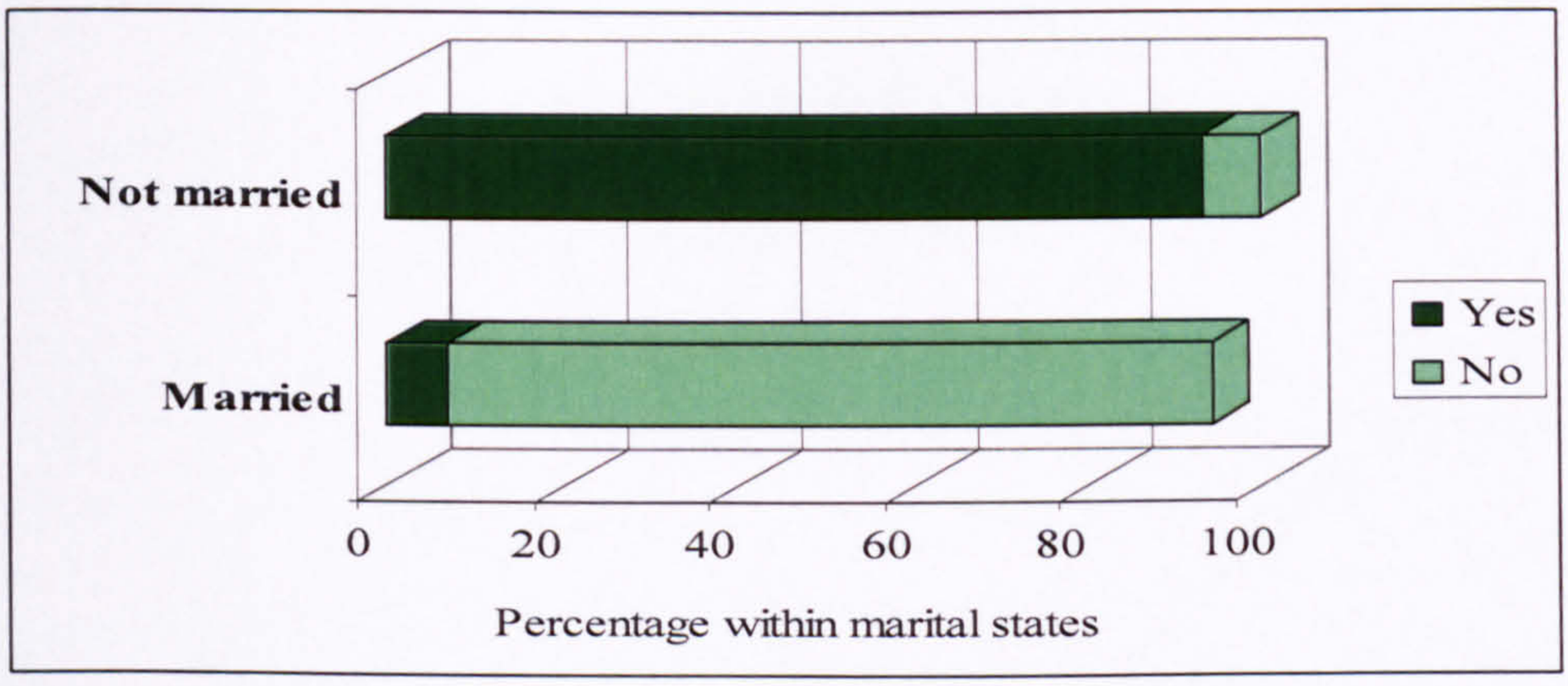


Figure 6.10: Chatting by marital states

Analysis found that there was a significant association between students' of study field and their Internet experience ($\chi_2 = 24.47$, $df = 2$, $N = 659$, $p < .000$). More science than non-science students had used the web for more than two years (Figure 6.11).

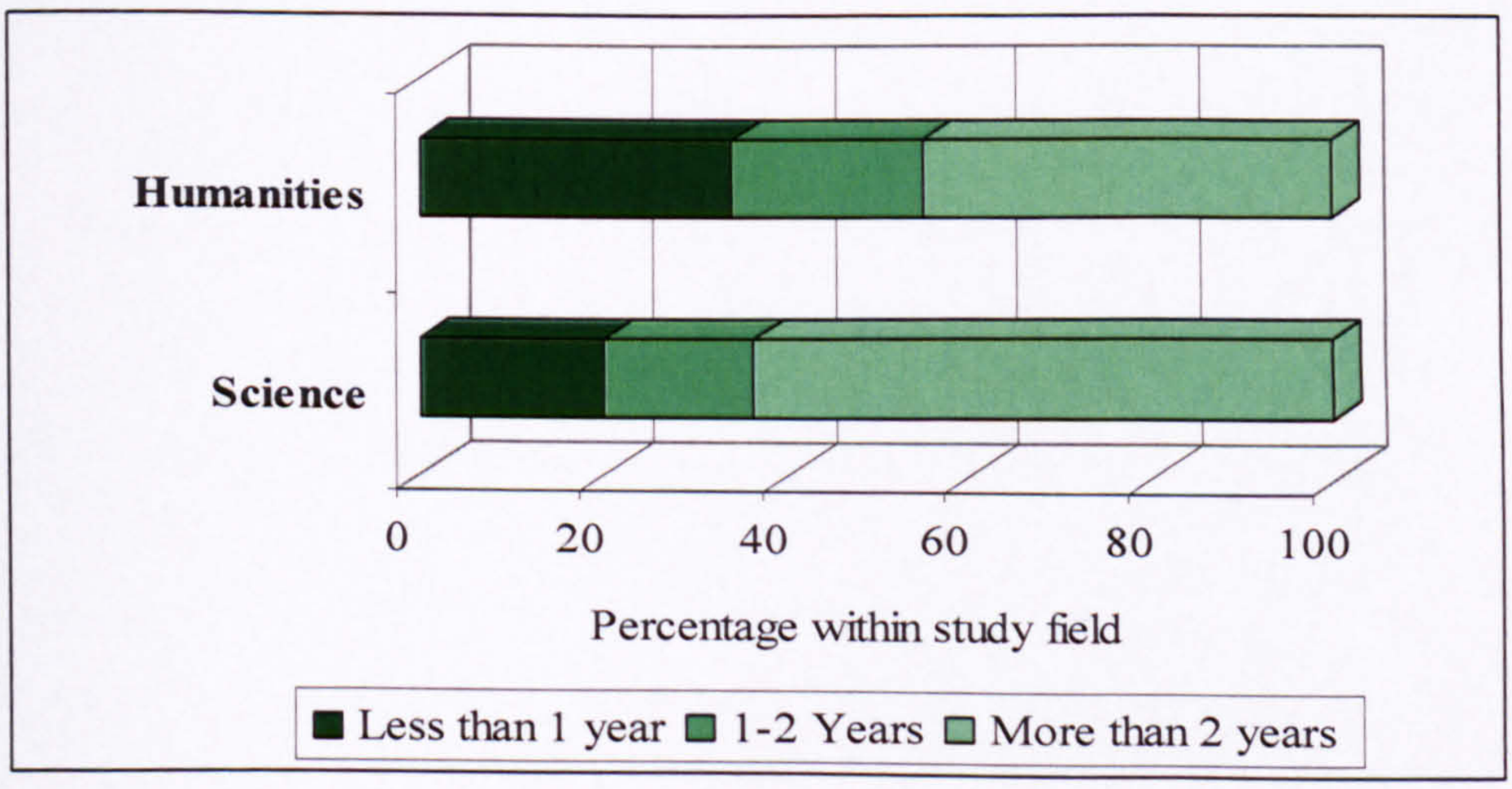


Figure 6.11: Internet experience by study field

6.3.4 Internet and education

This section of the questionnaire was intended to examine participants' use of the Internet in relation to their studies; hence this matter was only discussed briefly in earlier sections. Students were asked if they used the Web and email for their studies, and if they would like to use it more extensively. In addition, participants were requested to state their opinion of the value of the Internet to their academic life.

6.3.4.1 Internet for academic use

Participants were asked to indicate if they used the Web and email to communicate with others for academic purposes. This section, unlike previous sections, is concerned with the use of email and the web for academic reasons rather than general use. Approximately half of male students (46.1%) and more than one third of females (38.3%) used email for academic reasons. Almost three quarters of male (72.5%) and female (74.4%) students indicated that they used the Web for the same reason. Table 6.20 shows that the median rating of the usefulness of the Web for academic purposes was (2) representing *somewhat useful,* the response given by more than half the sample 54.5% of male students and 53.7% of females. Similarly, 34.4% of male students and 45.1% of females indicated that the Web is *very useful*, while a total of less than four per cent (2.1% of male and 1.2% of female) thought that the Web was *not at all* useful to their studies (Table: 6.20).

Table 6.20: Web efficacy for academic purposes

	Very useful		Somewhat useful		Not at all		Total
Male	43.4%	81	54.5%	102	2.1%	4	197
Female	45.1%	147	53.7%	175	1.2%	4	326

The proportion of participants indicating that they had taken a course which was delivered entirely over the Web was very small (14.6% for males and 12.1% for females), while a relatively larger number of participants had taken courses that required using the Web (49% for males and 43.7% of females). Both male and female participants indicated that they would like to take courses over the Web (62.7% of males and 58.8% of females), and they were keen to have a Web component in the courses they took (77.5% of males and 80.4% of females).

6.3.4.2 Influences on academic use of the Internet

This section considers the research questions of the study in relation to students' academic use of the Internet, including what might affect usage such as gender, age, year in college, and subject of study.

Analysis found that students' age and gender were not significantly associated with their academic use of the Internet. However, students' marital status was significantly associated with their use of the web ($\chi_2 = 4.86$, $df = 1$, $N = 657$, $p < .027$). Married students (n=58) used the web for academic reasons more than those who were not married, yet the two groups were not significantly different in their usage of email for academic reasons (Figure 6.12).

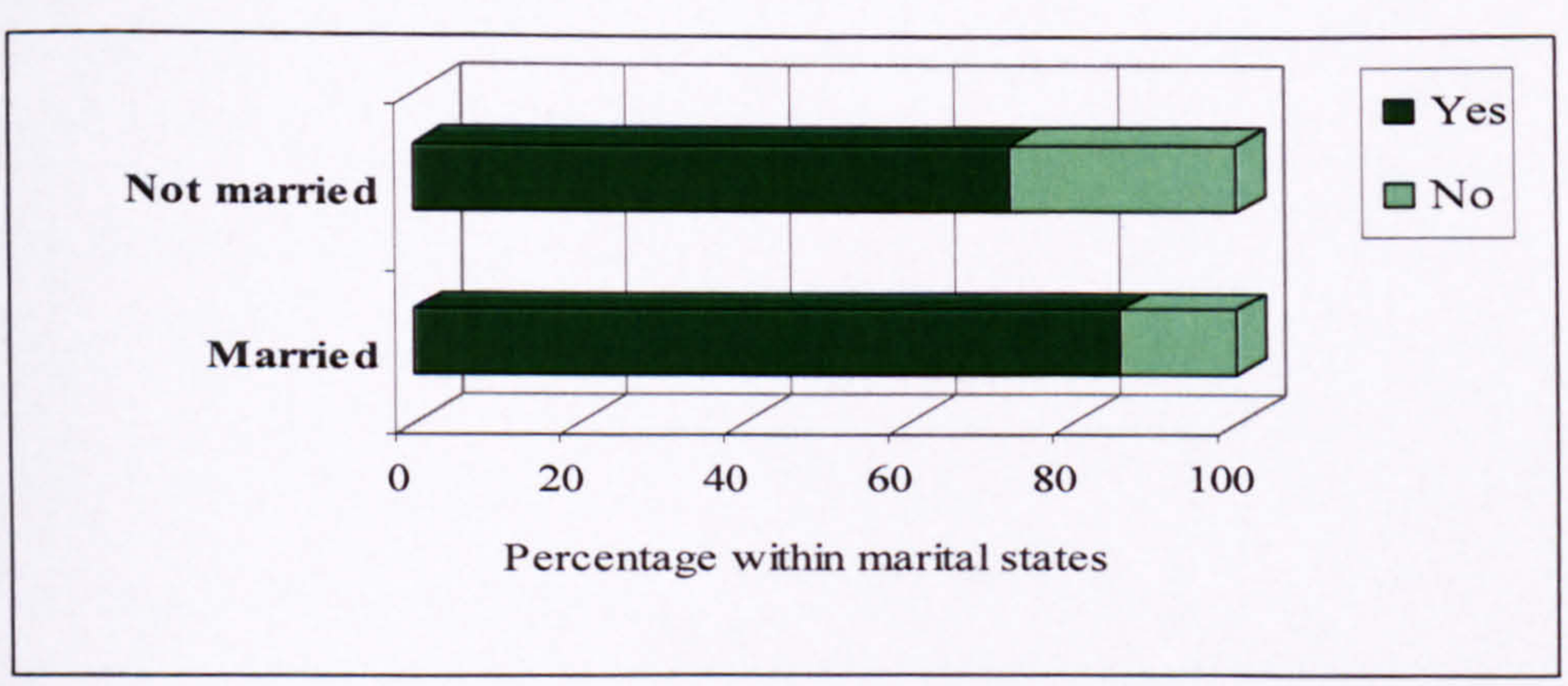


Figure 6.12: Internet for academic use by marital status

Students' marital status was also associated with the way they perceived the usefulness of the Internet for academic proposes ($\chi_2 = 6.58$, $df = 2$, $N = 512$, $p < .037$). Married students felt more positive about the usefulness of the Internet to their studies than those students who were not married. Figure 6.13 shows that married students were also more enthusiastic about taking courses that are entirely delivered through the web ($\chi_2 = 4.32$, $df = 1$, $N = 646$, $p < .038$), or courses that have a web component ($\chi_2 = 5.007$, $df = 1$, $N = 368$, $p < .025$).

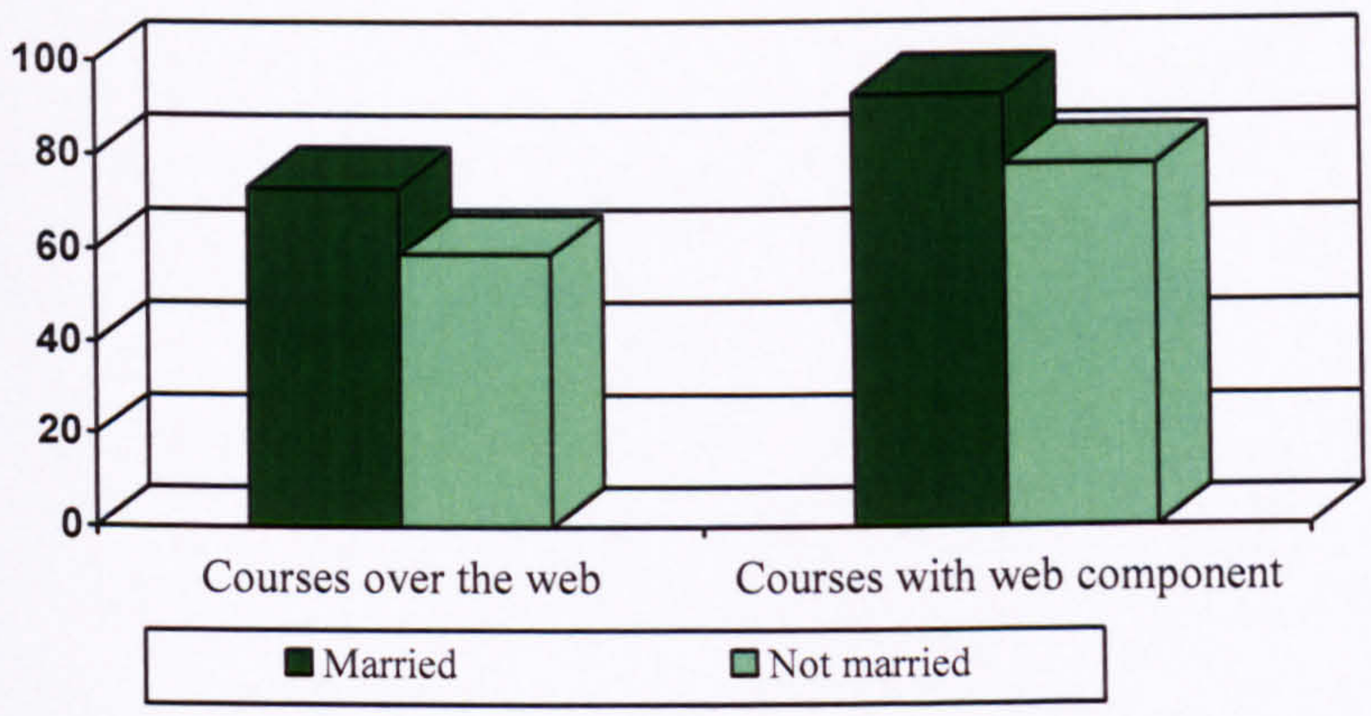


Figure 6.13: Students' feelings about taking courses over the Web

Analysis also found participants' academic year in college was significantly associated with their academic use of email ($\chi_2 = 10.53$, $df = 2$, $N = 656$, $p < .005$). Participants in academic year three used email for study more than those in academic years one and two. However, participants' web use for their study was not significantly associated with their academic year in college. Participants studying in scientific departments used email for academic proposes more than those who were studying in non-scientific departments ($\chi_2 = 5.62$, $df = 1$, $N = 656$, $p < .018$) (Fig 6.14).

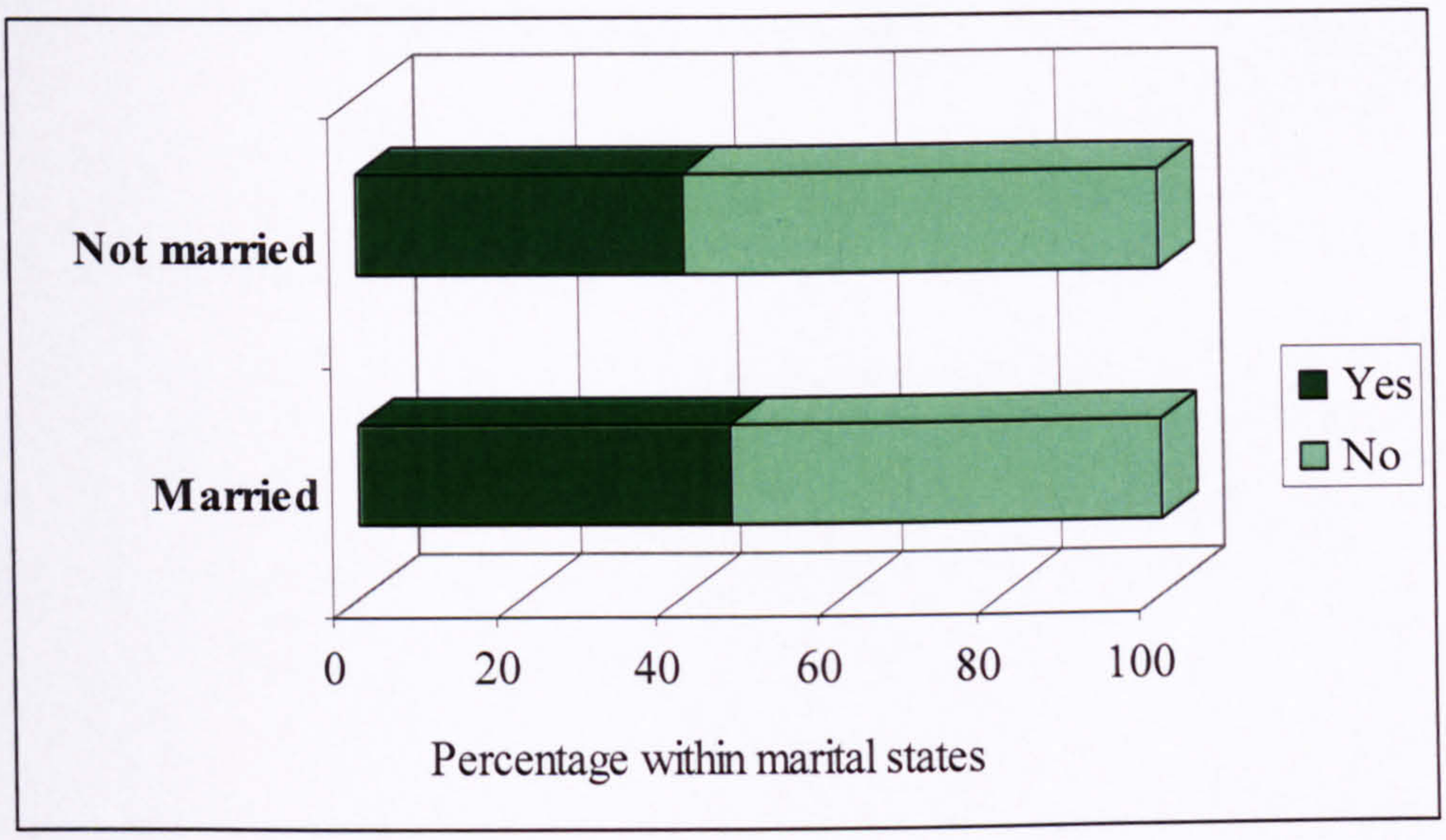


Figure 6.14: E-mail use for academic proposes

In relation to students' perception of the usefulness of the Internet to their study, students in year three were also more enthusiastic than those in year one and two (χ_2 = 17.53, df = 4, N = 512, p < .002), more than 53.4% of third year students thought that the Internet is a very useful tool. In addition, students in year three felt more positive about taking courses that are delivered over the web (χ_2 = 10.06, df = 2, N = 646, p < .007), yet there was no significant association between students' academic year in college and students' feelings about taking courses which have a web component.

6.3.5 Section summary

The use of Chi-square tests has illustrated some demographical variables that appear to be associated with students' use of the Internet. Gender was found to be significantly associated with students' email usage, chatting, and feelings about the web, with males using Internet applications more and feeling more positive than females. Yet students' gender had no association with their academic usage of the Internet. Similarly, students' age had no significant association with their Internet use.

Students' academic year in college was found to be significantly associated with their email usage, web usage, chatting, Internet academic usage, and feeling about the Web. Furthermore, students' field of study was found to be significantly associated with their email general and academic usage, and the length of time they have been using the Internet. Marital status was also found to be significantly associated with students' academic usage of the web, and their perception of the Internet's usefulness to their study.

6.4 The Internet Attitude Scale (IAS)

The section describes participants' views in relation to the perceived usefulness, affection for, perceived control, and attitudes towards using the Internet based on the calculation of a four point Likert scale score.

6.4.1 Perceived usefulness of the Internet

Scores on the four point scale were calculated to compare participants' perceptions of the Internet's usefulness by adding the number of participants for each choice with the score for each statement, where 1= *strongly agree*, 2= *agree*, 3= *disagree*, and 4= *strongly disagree*, and dividing the total by the number of scores. High scores indicate disagreement and low mean scores indicate agreement with the statements.

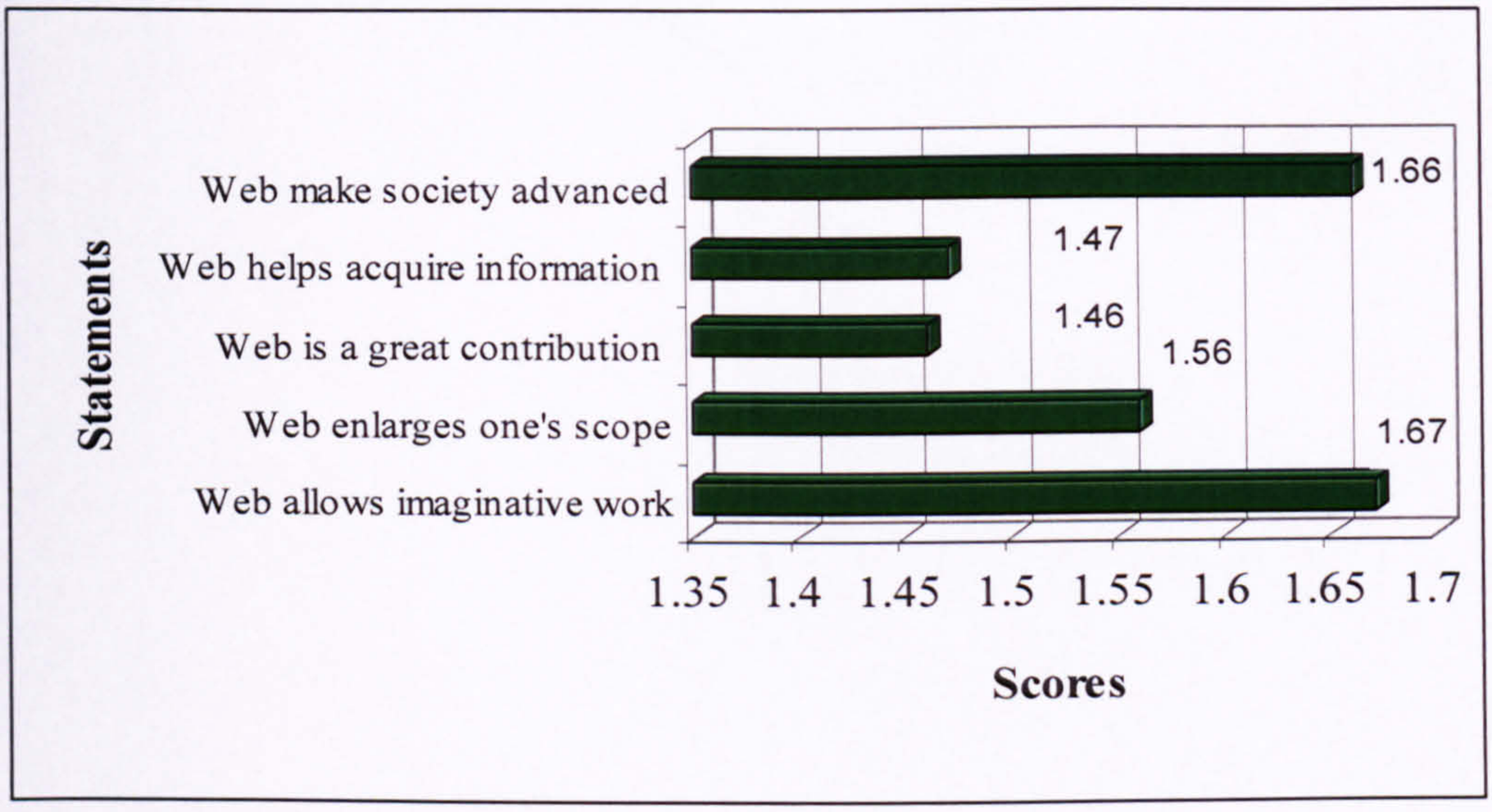


Figure 6.15: Perceived usefulness Likert scale scores

For example, statement 3: $\frac{(1x343) + (2x195) + (3x24) + (4x5)}{567} = 1.46$

The Likert scores in this section (Figure6.15), ranged from 1.46 for *the web is a great contribution to human life* to 1.67 for *the web allows doing imaginative work.* Students were more enthusiastic about the advancement that the Internet can make to society, and to individuals. The usefulness of the Internet in terms of acquiring relevant information received slightly lower averages, suggesting that students had little experience with searching the Internet. The *Internet being a great contribution to human life* was rated less favourably, with a score of 1.46. However, most scores represented positive agreement (strongly agree and agree) suggesting that students had positive perceptions about the impact of the Internet on individuals and society.

6.4.2 Internet Affection

This section of five statements assessed students' feelings and anxiety when using the Internet. Likert scale scores ranged from 3.38, for the statement about hesitation to

use the Web, suggesting low anxiety, to 3.16 for the statement, '*I feel bored when using the Internet'* suggesting agreement with previous statement. In addition, scores for statements '*I am afraid I might damage it in some way'* (3.32), '*the Web makes me feel uncomfortable*' 3.20, and *'I am not quite confident'* (3.27) suggest that students had the tendency to disagree and strongly disagree with these statements. In this subscale, students expressed positive attitudes and showed low anxiety toward using the Internet (Figure. 6.16)

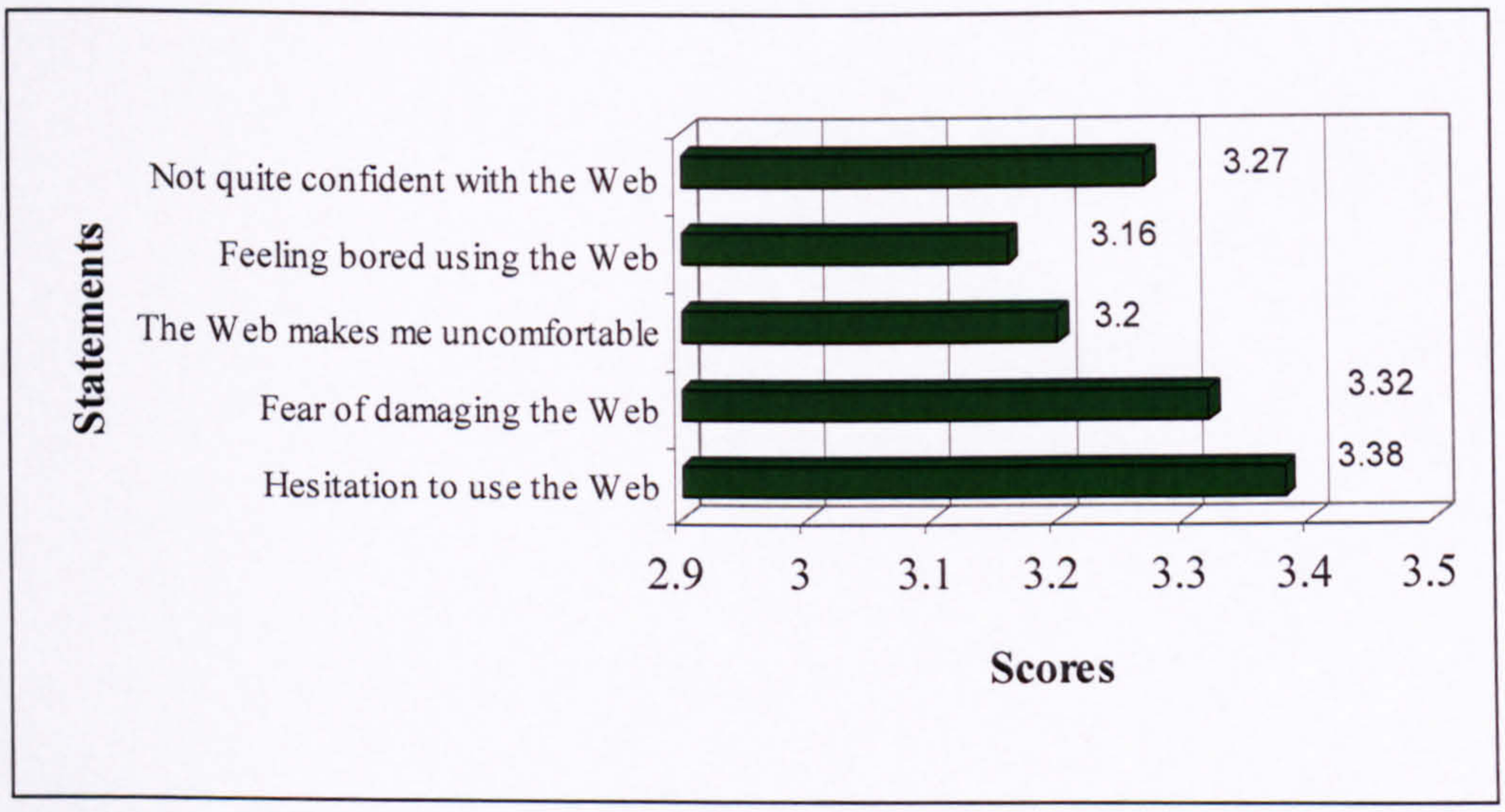


Figure 6.16: Internet affection Likert scale scores

6.4.3 Perceived control

In relation to perceived control (Figure. 5.17), participants' Likert scores ranged from 2.6 to 2.54. the scores for statement '*I can teach myself most of things I need to know about the Web'*, (2.06) suggests that students felt positively about learning how to use the Web independently, which was supported by the last statement of the subscale *I can use the web independently* 2.14 and the statement, '*I can usually solve my Web problems'* 2.26. However, students were slightly doubtful about other people's help in using the Internet, giving the highest score in the subscale (2.54) to the statement, '*I do not need someone to tell me the best way to use the web'*. Although students showed high confidence regarding their control over using the web, the scores in this

subscale were lower than the scores of the affection subscale (Figure 6.16) suggesting that participants might have had either some real or perceived difficulties in controlling the Internet.

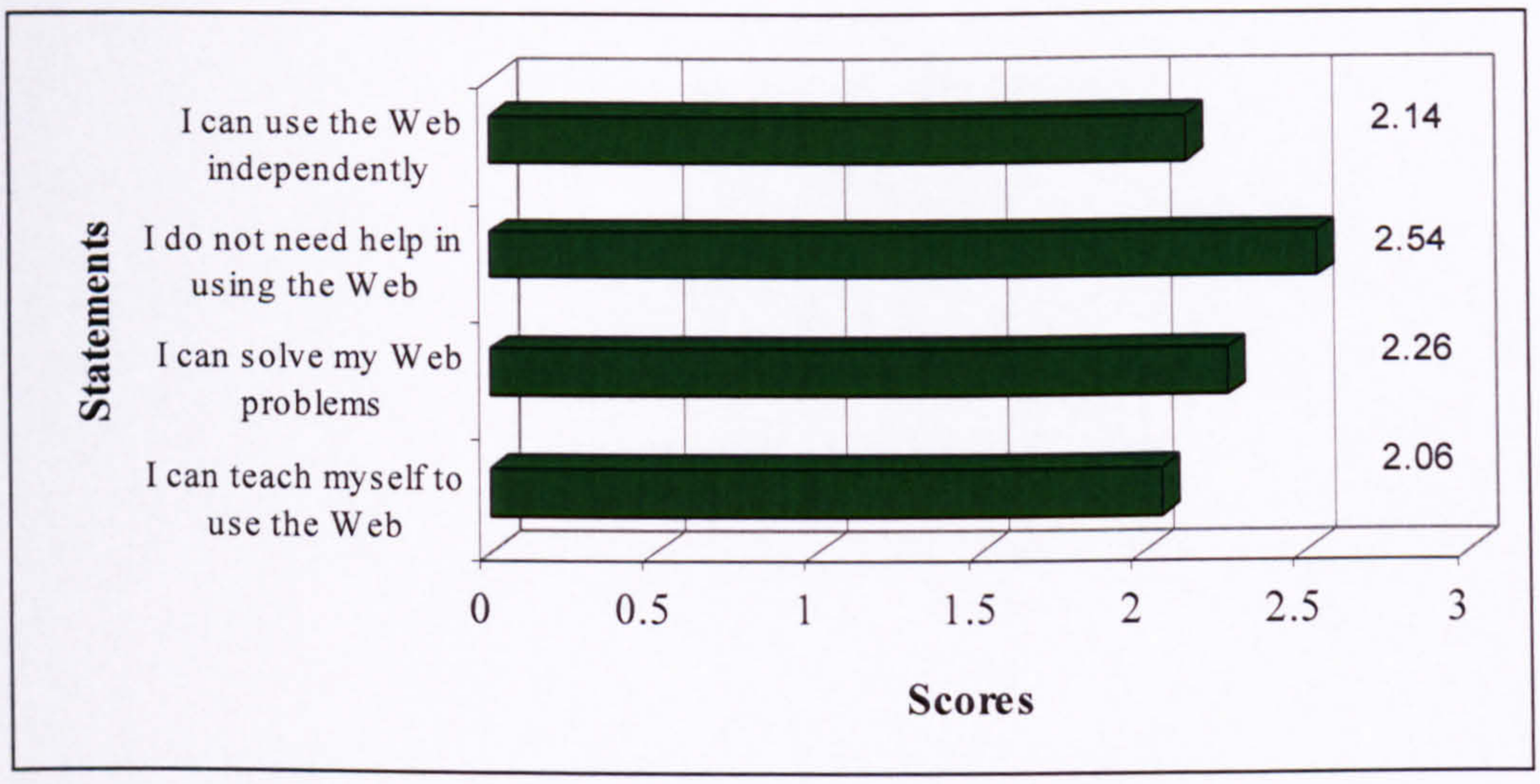


Figure 6.17: Perceived control Likert scale scores

6.4.4 Behaviour

Three statements in this subscale asked participants to consider how often they used the web for school related activities and the length of time they spent online. Likert scores were 2.9 for the statement '*I only use the web for school when told to'*, and 2.48 for the statement '*I use the web regularly for school'*, suggesting mixed feeling. However, students had a tendency to agree with the statement '*I spend much time using the Internet'* , scoring 2.38 (Figure 6.18).

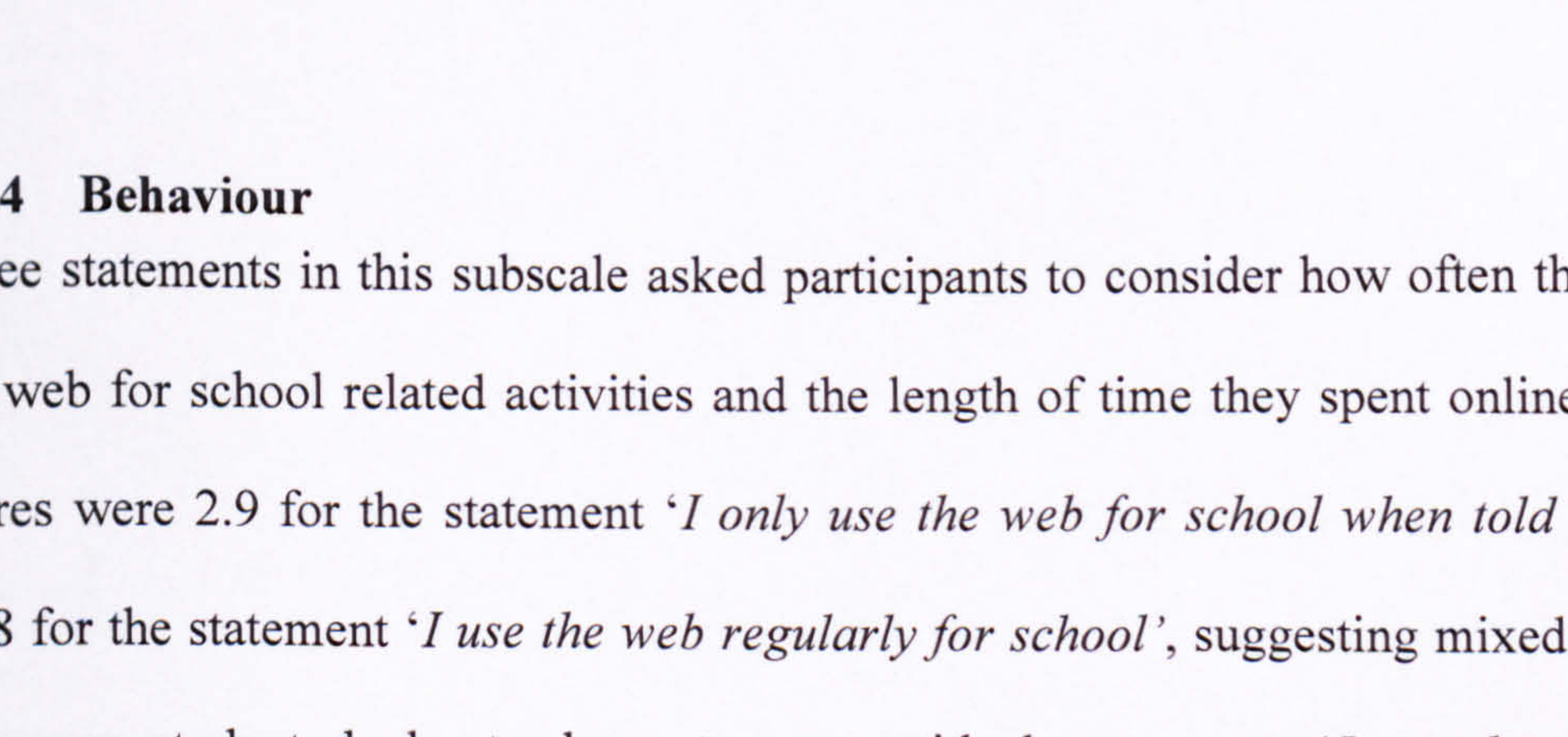


Figure 6.18: Behaviour Likert scale scores

6.4.5 IAS scale reliability and Principal Components Analysis

Cronbach's coefficient alpha was used to compute the IAS scale statements' internal reliability. Alpha measurement shows the consistency of multiple statements scales and it is widely used in social science literature (Leech et al., 2005). According to Tsai et al., (2001), the Internet attitude scale adapted for this study has good internal consistency, with a Cronbach alpha reliability coefficient reported of .81. In the current study, the Cronbach alpha coefficient was similar at .80. However, the behaviour subscale with three statements (*I only use the web for school when told to*, *I use the web regularly for school*, *I spend much time using the Internet*) gave a low alpha value (-.46) which may have been caused by the relatively small number of statements (three statements). As the value of the alpha coefficient was not high enough to convincingly support this behaviour subscale (this was also the case in Tsai et al. (2001) 0.49) the removal of this subscale was considered as the most satisfactory solution to establish a well-validated IAS scale. Table 6.21 illustrates the Cronbach's coefficient alpha for the three subscales (perceived usefulness, affection, and perceived control) of the IAS for the current study compared to that found in Tsai et al. (2001) for comparison purposes.

Table 6.21: Reliability of the IAS subscales

IAS subscales	Tsai et al. (2001) study	Current study
Perceived usefulness scale	0.82 (5 statements)	0.80 (5 statements)
Affection scale	0.71 (5 statements)	0.74 (5 statements)
Perceived control scale	0.68 (5 statements)	0.73 (4 statements)
Behaviour scale	0.49 (3 statements)	0.46 (3 statements)

The fourteen items of the Internet Attitude Scale (IAS) were subjected to principal components analysis (PCA) using SPSS. Prior to performing PCA the suitability of

data was assessed. The correlation matrix should show at least some correlation of r=.3 or greater. In the current study, analysis revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .81, exceeding the recommended value of .6 (Pallant, 2001) and the Barlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of three components with eigenvalues exceeding 1 (Table 6.22), explaining 29.4%, 13.6%, and 11.5% of variance respectively. An inspection of the screeplot revealed a clear break after the third component (Figure 6.17). Based on Catell's (1966) scree test, it was decided to retain these three components for further investigation.

Table 6.22: Eigenvalues above one

Component	Initial Eigenvalues		
	Total	%of Variance	Cumulative %
1	4.126	29.472	29.472
2	1.910	13.644	43.116
3	1.622	11.585	54.701

Extraction Method: Principal Component Analysis.

Varimax rotation was then performed to aid in the interpretation of these three components. The rotated solution Figure 6.19 and Table 6.23) revealed the presence of a simple arrangement with components showing a number of strong loadings, although not all variables loaded on only one component. The three factors solution resulted in a total of 54.7% of the variance, with component 1 contributing 20.7% component 2 contributing 18.14%, and component 3 contributing 15.85%. The interpretation of the three components was consistent with previous research on the IAS scale by Tsai et al, (2001). The first principal component represents perceived

usefulness statements, the second principal component represents the affection statements, and perceived control statements load on the third principal component. The results of this analysis support the use of perceived usefulness, affection, and perceived control statements as subscales of the IAS.

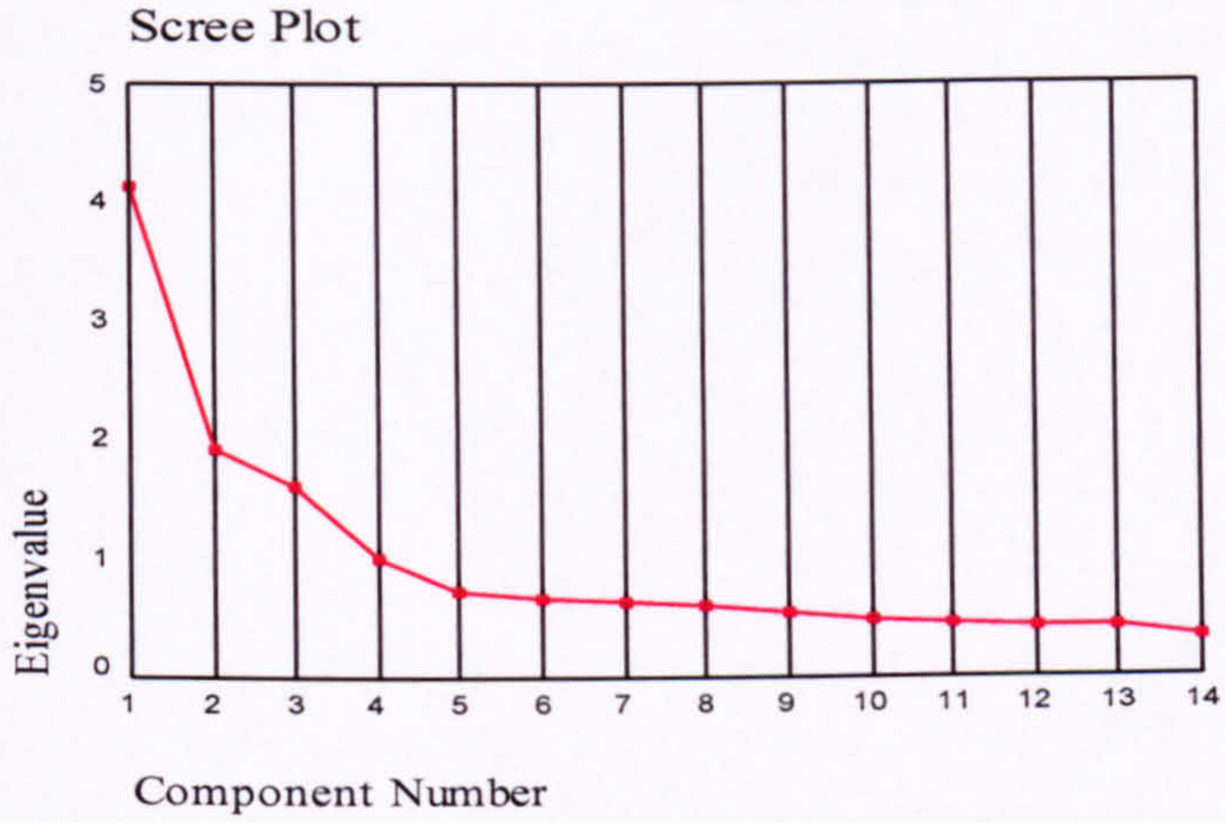


Figure 6.19: Screeplot of the eigenvalues of the principal components analysis

Table 6.23: Varimx of three factor solution for IAS statements

Statements	Component		
	1 Usefulness	2 Affection	3 Control
Web makes society advance	.760		
Web is great contribution	.732		
Web enlarge one's scope	.716		
Web helps in reviling relevant information	.708		
Web helps in doing imaginative work	.699		
I am not comfortable using the Web		.740	
I might damage the Web if I use it		.738	
I am not confident using the Web		.710	
I hesitate to use the Web		.664	
I feel bored when using the Web		.605	
I do not need people's help with the Web			.835
I can use the Web independently			.788
I can solve my Web problems			.706
I can tech myself how to use the Web	.395		.503
% of variance explained	**20.70%**	**18.14%**	**15.85%**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

6.4.6 Influences on attitudes toward Internet use: an analysis

This section is concerned with the research question relating to students' attitudes to Internet use, including what might affect attitudes, such as Internet experience, year in college, age, gender, marital status, and subject of study. Factor scores in each subscale were calculated during principal component analysis. Scores were computed for each subscale as well as a total score. High scores on the IAS represent negative attitudes toward Internet use. The discussion is divided into three subsections according to the subscales. Although only the result from parametrical test were reported here, both parametric and non- parametric test gave the same result in relation to finding significant of variables. Details of test outcomes are given, followed by a summary of effects. The full implications of the results are discussed later.

6.4.6.1 Influence on perceived usefulness subscale

Gender has no influence on participants' perceived usefulness scores. There was no significant difference in scores for males ($\underline{M}$ = 2.5477, $\underline{SD}$ = 0.4090), and females [$\underline{M}$ = 2.4856, $\underline{SD}$ = 0.2855; t (287.7) = 1.810, p=0.071]. The magnitude of the difference in the means was very small η=0.008.

One way analysis of variance was used to explore the impact of age on level of perceived usefulness scores. This statistical method is appropriate for use with two ore more groups such as the three age grouping and one continuous variable; the factor scores calculated during factor analysis.

There was a statistically significant difference at the p< .000 level in perceived usefulness scores for the three age groups (Group 1:18-25; Group 2:26-30; Group 3:30+), [F (2,485) = 9.015, p = .000]. The effect size was η= 0.036 calculated using eta squared. Post-hoc comparisons using the Games-Howell test indicated that the mean score for Group 1 (M = 2.4962, SD = 0.3201) was significantly different from Group 2 (M = 2.8249, SD = 0.5577). Group 3 (M = 2.5588, SD = 0.2801) did not differ significantly from either Group 2 or 1 (Figure 6.20).

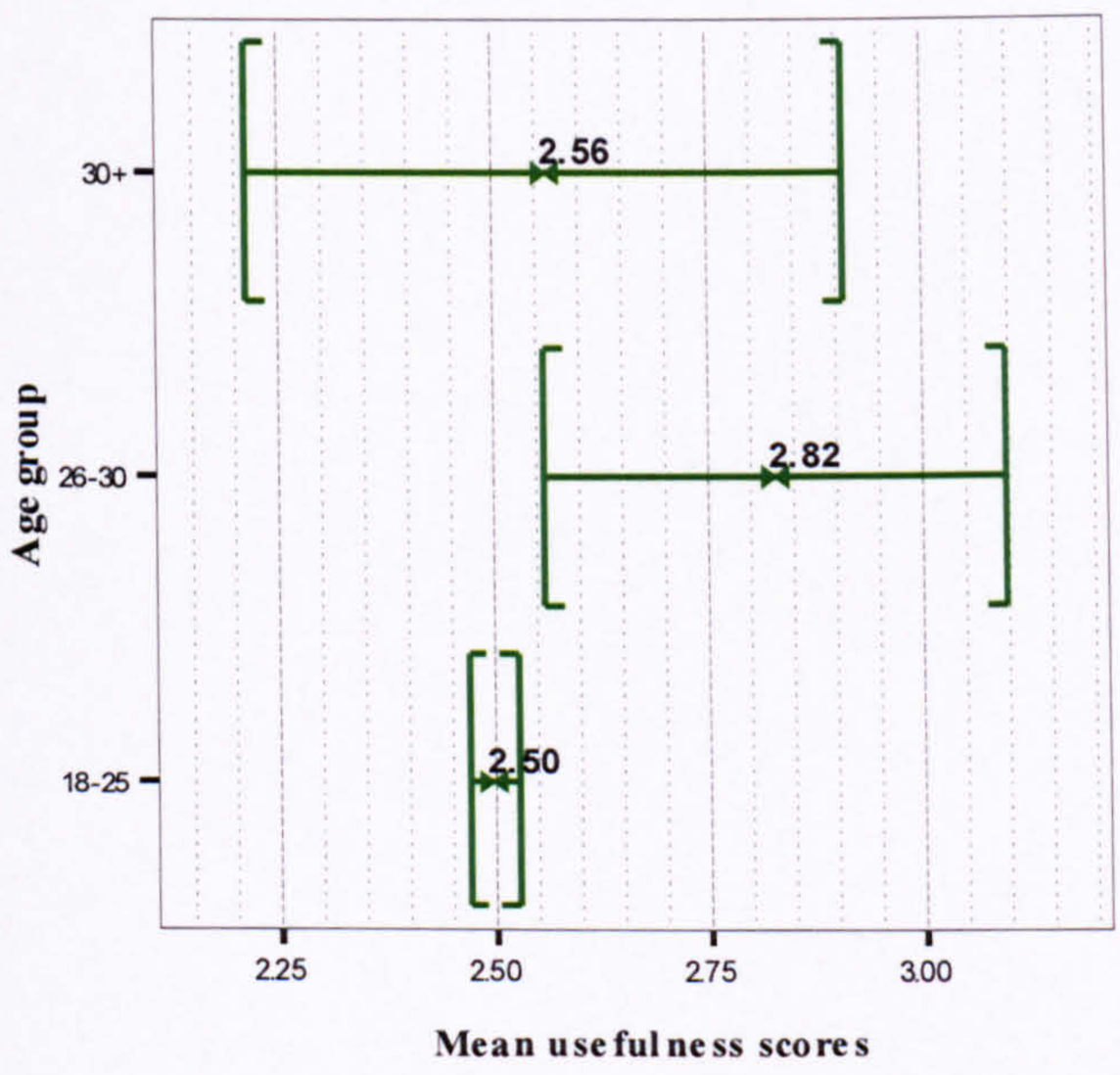


Figure 6.20: Age and perceived usefulness mean scores

Analysis found statistically significant differences in mean perceived usefulness scores in term of length of time using the Internet [F= (2.489) = 13.459, p = .000]. Post-hoc comparisons using the Tukey HSD test indicated that the mean perceived usefulness scores for participants with less than one year of experience (M = 2.6032, SD = 0.3598) and less than two years of experience (M = 2.5764, SD = 0.3437) were significantly higher than for those with more than two years of experience (M =

2.4381, SD = 0.3080). The effect size was small to medium, η= 0.052, therefore years of experience accounted for more than five per cent of variance in perceived usefulness scores (Figure. 6.21).

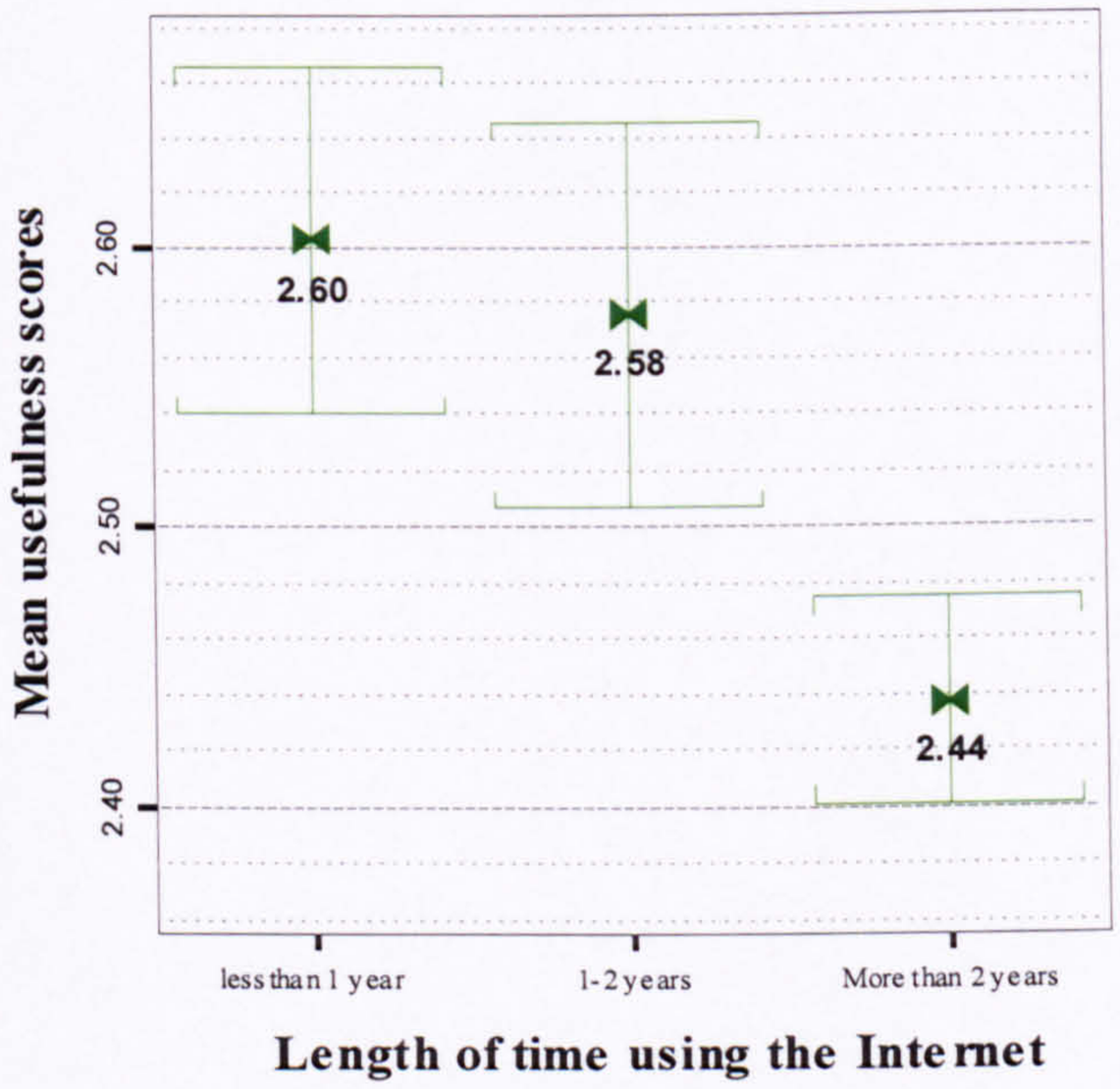


Figure 6.21: Experience and perceived usefulness mean scores

The result from analysis also revealed no statistically significant difference for the effect of academic year in college [F = (2,488) =1.065, p=0.346] or marital status [F = (2,488) =0.522, p= 0.594] on perceived usefulness scores. Table 6.24 illustrates the mean and the standard deviation of year in college, and marital status, by the scores on the perceived control scale.

Table 6.24: Means and standard deviation comparing academic year and marital states by perceived usefulness scores

	n	*M*	*SD*
a) Perceived usefulness by academic year			
Year 1	144	2.4915	0.3310
Year 2	113	2.5488	0.3306
Year 3	234	2.4998	0.3448
b)Perceived usefulness by marital status			
Not married	453	2.5.46	0.3316
Married	27	2.5410	0.4614
Married with children	11	2.5959	0.2228

Analysis revealed that field of study has no influence on participants' perceived usefulness scores. There was no significant difference in scores for science students (M = 2.5059, SD = 0.3509), and non-science students [M = 2.5122, SD = 0.3209; t (478.979) = -207, p=0.836]. The magnitude of the difference in the means was very small η=0.000.

6.4.6.2 Influence on affection subscale

Gender has no influence on participants' affection scores. Analysis found that there was no significant difference in scores for males (M = 2.4343, SD = 0.3920), and females [M = 2.4067, SD = 0.0.3265, t (380.175) = 0.862, p=0.389]. The magnitude of the difference in the means was η=0.008 which was classified by Cohen's (1988) classification as a smaller than typical effect (Figure. 6.22). Using the independent-sample t-test to compare affection scores for science and non-science students revealed no significant difference in scores of science students (M = 2.4150, SD = 0.3706) and non-science students (M = 2.4210, SD = 0.3288; t (560.480) = -0.202, p = 0.840]. The differences in mean magnitude were very small.

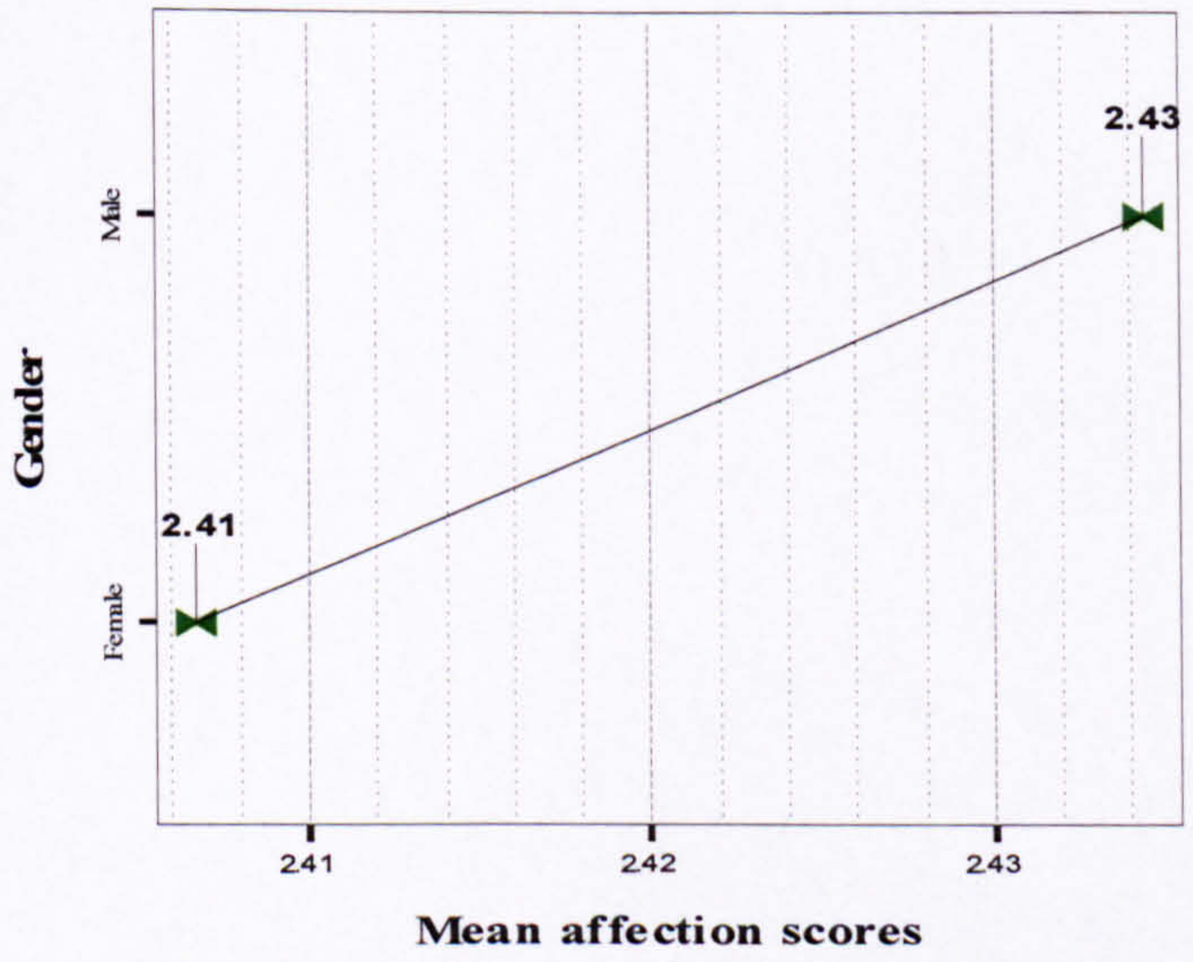


Figure 6.22: Gender and affection mean scores

Analysis found statistically significant differences at the $p<0.05$ level in affection scores for the three academic year groups [$\underline{F}$ (2,563) = 4.152, $\underline{p}$ = 0.016] using one-way analysis of variance. Post-hoc comparisons using the Games-Howell test indicated that the mean scores for students in academic year one ($\underline{M}$ = 2.4023, $\underline{SD}$ = 0.3317) and academic year two ($\underline{M}$ = 2.4910, $\underline{SD}$ = 0.3165) differed significantly from those of students in academic year three ($\underline{M}$ = 2.3884, $\underline{SD}$ = 0.3768). However, the actual difference despite reaching statistical significance, was very small η= 0.015 (Figure 6.23).

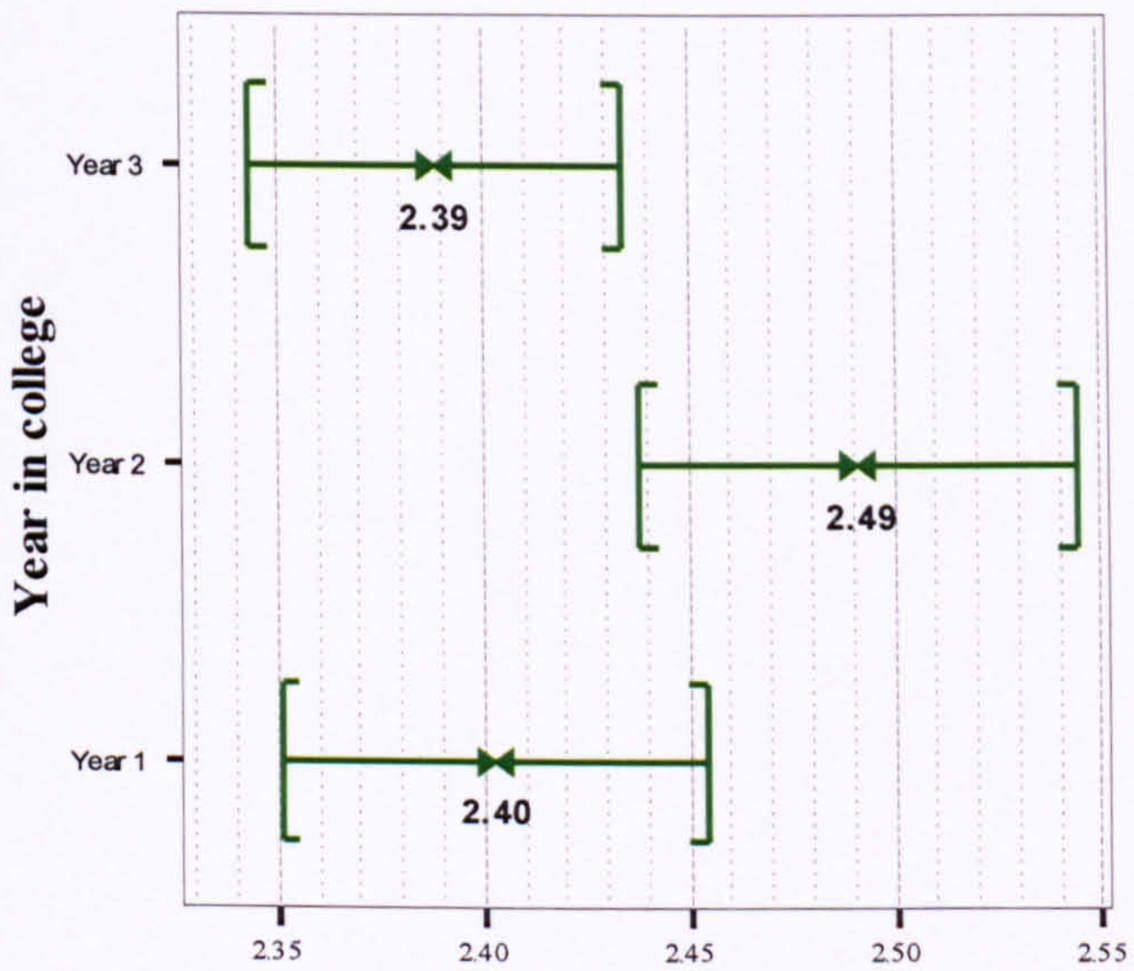


Figure 6.23: Academic year and affection mean scores

Analysis also found statistically significant difference at the $p<0.05$ level in relation to affection scores and the length of time using the Internet [$\underline{F}$ (2,562) = 23.436, $\underline{p}$ = .000]. The effect size, calculated using eta squared, was 0.077 which is a medium effect. Post-hoc comparisons using the Tukey HSD test showed that the mean score for students with more than two years of experience ($\underline{M}$ =2.3360, $\underline{SD}$ = 0.3334) was significantly different from those for students with less than one year of experience

(M = 2.5626, SD = 0.3540), and students with one to two years of experience (M = 2.4654, SD = 0.3360) (Figure 6.24).

Age had no statistically significant effect on affection scores, [F = (2,559) = 1.200, p=0.302]. Moreover marital status also had no statistical significant [F = (2,562) = 0.319, p= 0.727] on affection scores. Table 6.25 illustrates the mean and the standard deviation of age groups by the scores of the affection scale.

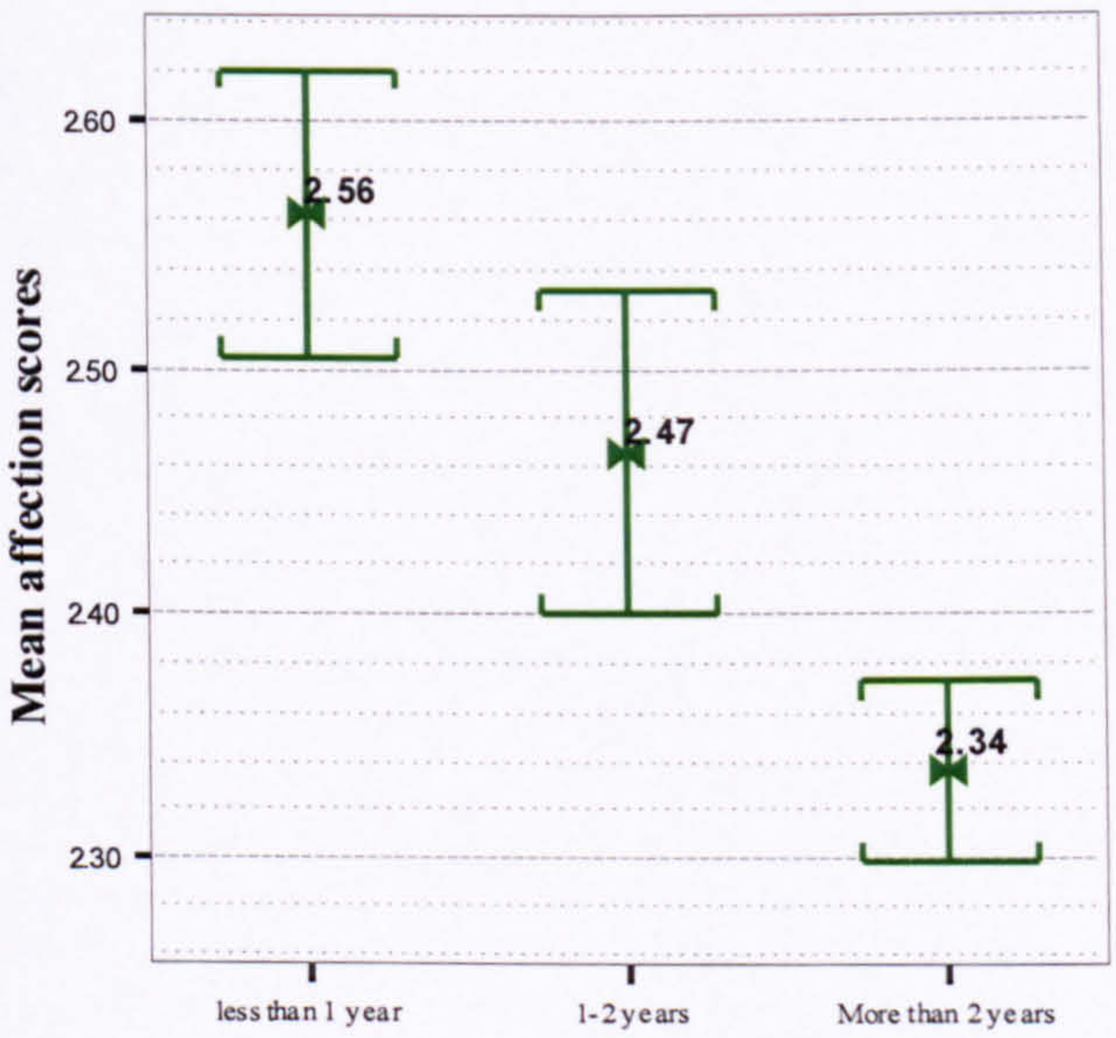


Figure 6.24: Experience and affection mean scores

Table 6.25: Means and standard deviation comparing age and marital states by affection scores

	N	*M*	*SD*
a) Perceived control by age group			
18-25	535	2.4117	0.3515
26-30	20	2.5207	0.3170
30+	7	2.3183	0.3531
b)Perceived control by marital states			
Not married	516	2.4171	0.3557
Married	30	2.4469	0.3153
Married with children	19	2.3645	0.3097

6.4.6.3 Influence on perceived control subscale

An independent –sample t-test was conducted to compare the perceived control scores for male and female student. There was a significant difference in scores of males (M = 6.0937, SD = 1.8363), and females [M = 6.5564, SD = 1.6707; t (565) = -3.06, p=0.002]. The magnitude of the difference in the means was very small (eta=0.016) which meant that only 0.16 per cent of the variance in perceived control was explained by gender (Figure 6.25).

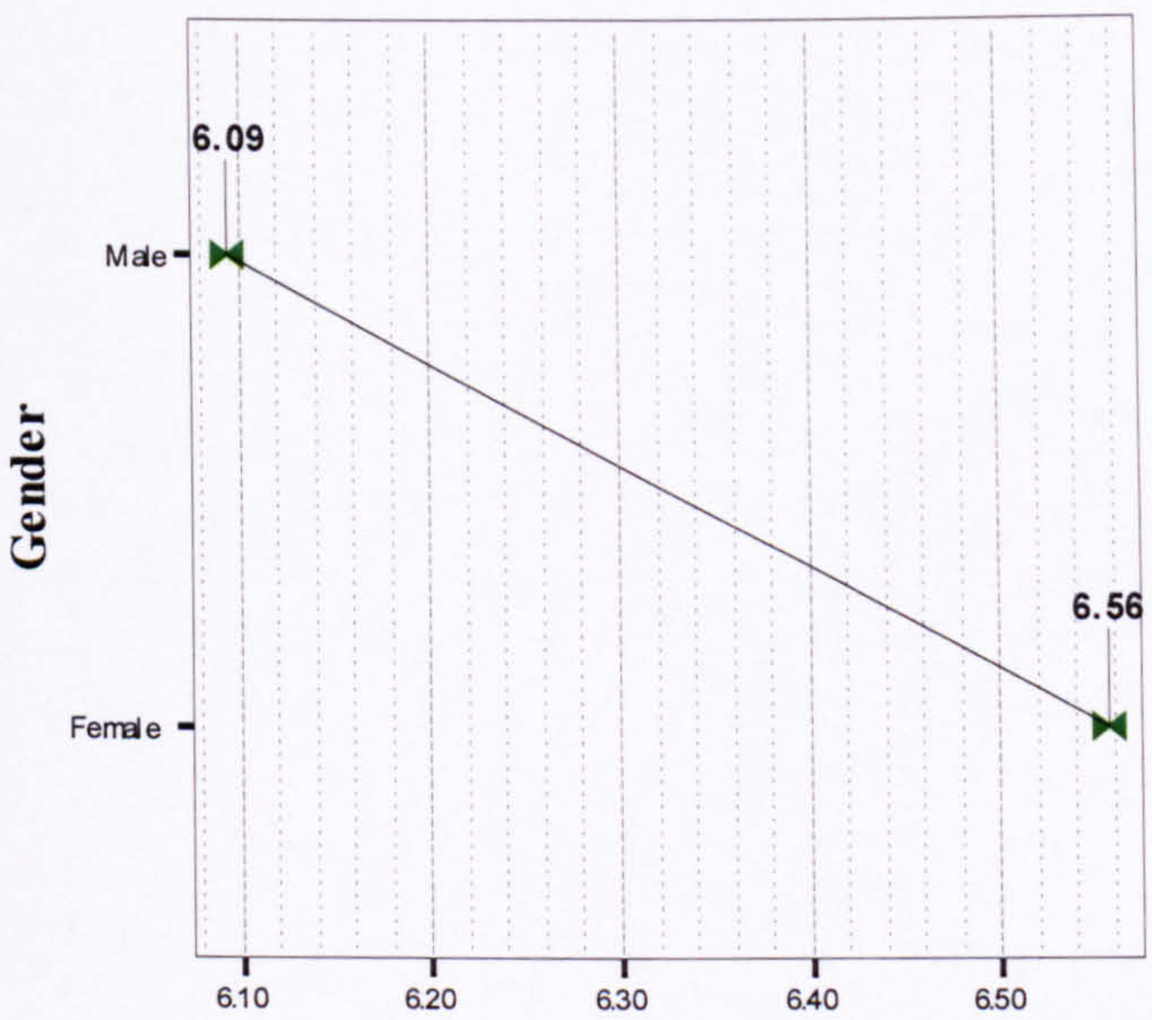


Figure 6.25: Gender and perceived control mean scores

The result of analysis also revealed no statistically significant effect of age [F = (2,558) = 0.910, p=0.403] or marital status [F = (2,561) = 2.159, p= 0.403] on perceived control scores. Table 6.26 illustrates the mean and the standard deviation of age groups by the scores of the perceived control scale.

Table 6.26: Means and standard deviation comparing age and marital states by perceived control scores

	N	*M*	*SD*
a) Perceived control by age group			
18-25	534	6.3762	1.7457
26-30	21	6.0424	1.9101
30+	6	7.1100	1.2205
b)Perceived control by marital states			
Not married	517	6.3429	1.7516
Married	31	6.6077	1.8806
Married with children	16	7.2031	1.1628

Analysis shows that there was no statistically significantly difference between students studying scientific and non-scientific fields on perceived control scores. Inspections of the two groups means indicates that the average perceived control score for science students (M = 6.2714, SD = 1.8219) was not significantly lower than the score (M = 6.5203, SD= 1.6489) for non-science students. The effect size was very small $\eta = 0.005$.

A one-way between-group analysis of variance was conduced to explore the impact of the academic year in college on the level of perceived control over Internet use, as measured by the Internet attitude scale (IAS). Students were divided into three groups according to their academic year (Group 1: year one; Group 2: year two; Group 3: year three, four, and five). There was a statistically significant difference at the $p<.05$ level in perceived control scores for the three academic year groups [F (2,562) =4.4, p=.01]. Despite reaching statistical significance, the actual difference in mean scores between the groups was quite small. Post-hoc comparisons using the Games-Howell test indicated that the mean score for Group two (M = 6.6386, SD = 1.5695) was significantly different from Group three (M = 6.1535, SD = 1.8900). Group one (M =

6.5423, SD = 1.6108) did not differ significantly from either Group two or three (Figure: 6.26).

To investigate the strength of association between academic year and the level of control over Internet use, Eta was used,. The effect size was η =0.016, which is a small effect size, according to Cohen's (1988) classification. However, students in academic year three and one perceived themselves as having more control over their Internet use than students in academic year two.

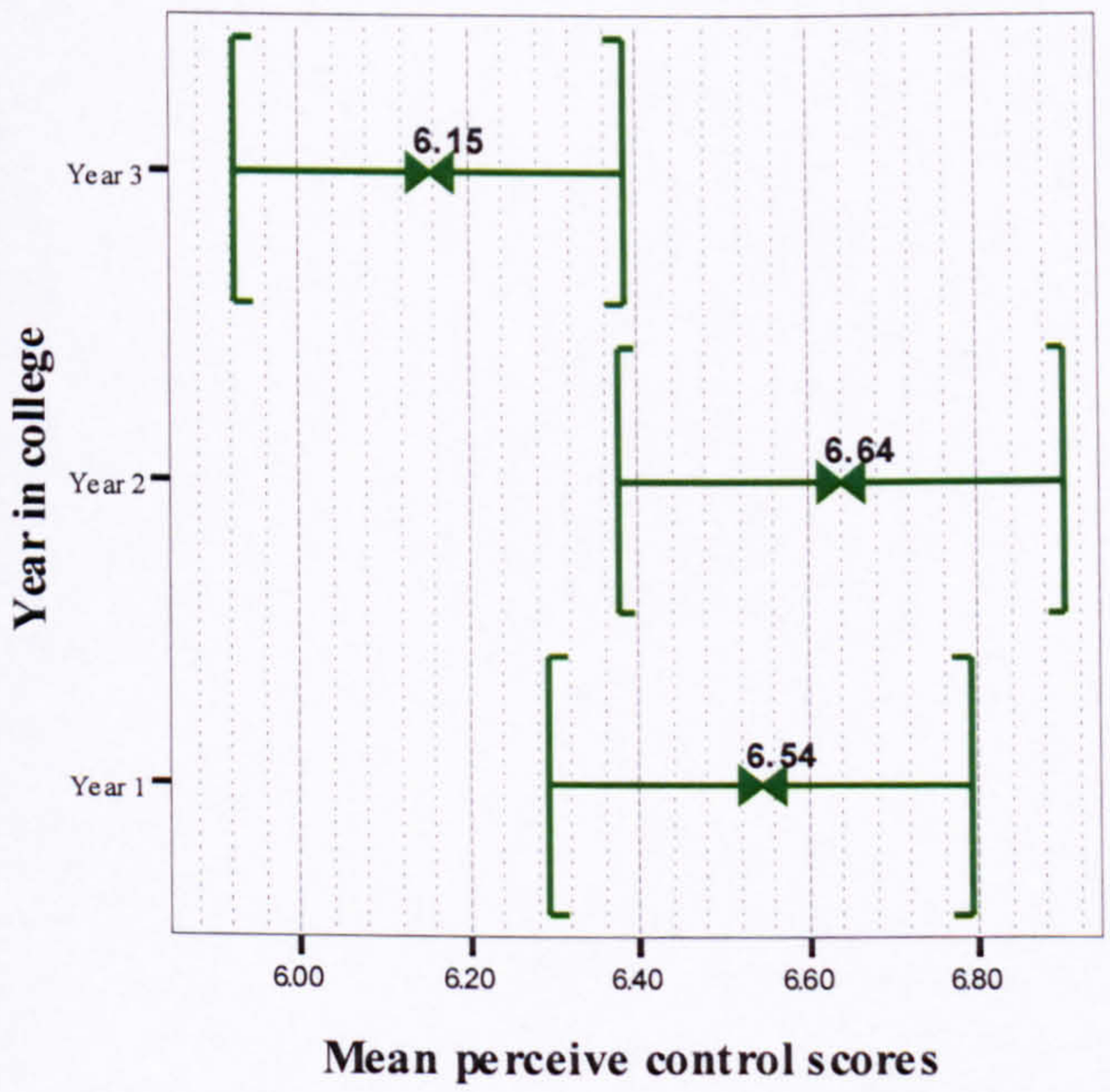


Figure 6.26: Year in college and perceived control mean scores

Analysis also found an effect of the length of time using the Internet on perceived control scores, [F = (2,563) = 39.13, p=.000]. Post-hoc comparison using the Tukey HSD test indicated that the mean perceived control score of those with more than two years of experience (M = 5.8283, SD = 1.6626) was significantly different from that of students with two years or less of experience (M = 6.7781, SD = 1.7007, M

=7.1792, SD = 1.5340). The effect size was large, $\eta = 0.12$, which means that year of experience explained twelve per cent of the variance in perceived control scores (Figure 6.27).

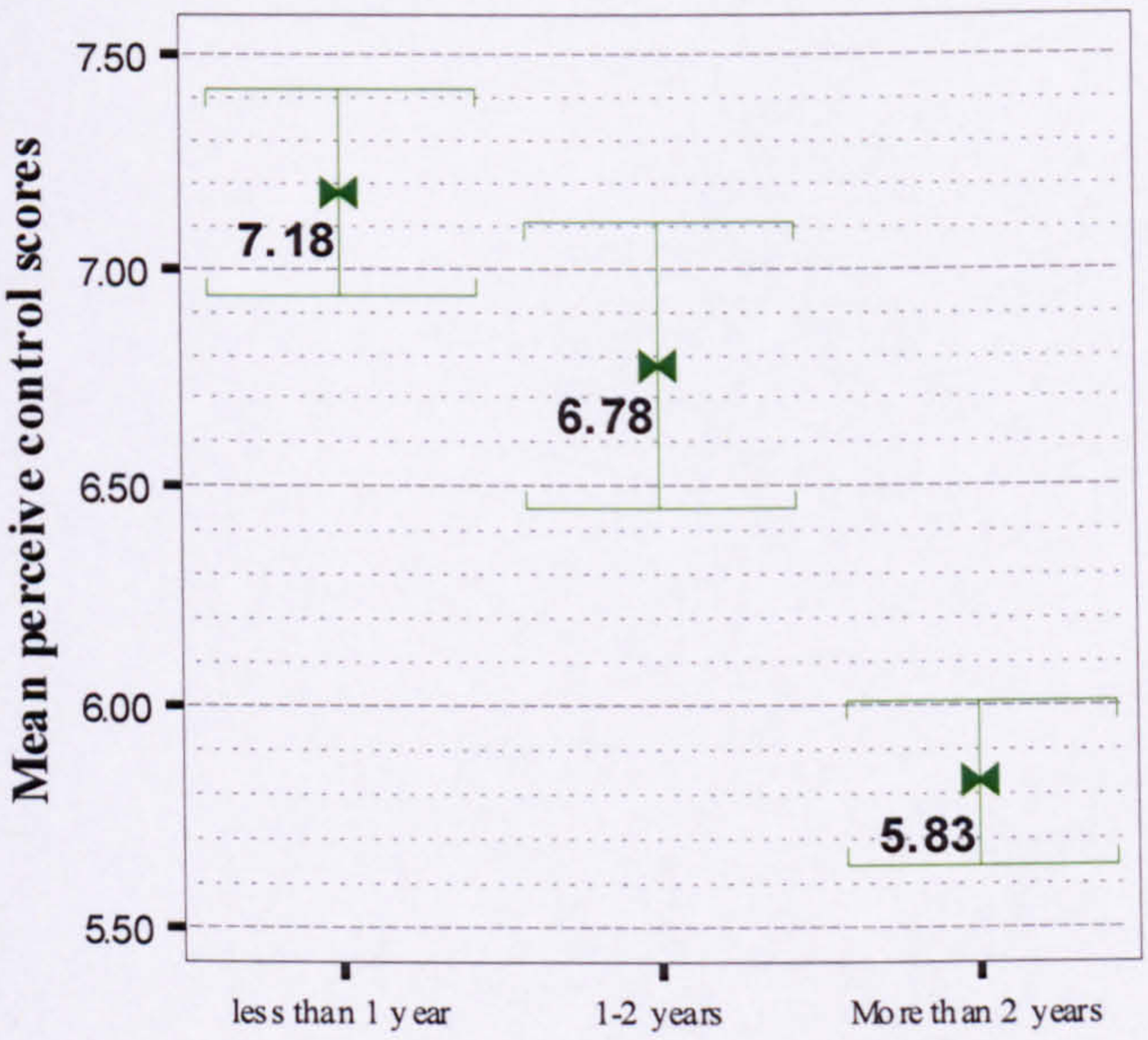


Figure 6.27: Years of experience and perceived control mean scores

6.4.7 Internet perception, anxiety, and confidence: correlation between the IAS subscales

The relationship between the Internet attitudes scales (perceived usefulness, affection, and perceived control) was investigated using the Pearson product-moment correlation coefficient. There was a medium correlation between the three aspects of IAS (Table 6.27).

The Perceived usefulness subscale accounted for 10.04% of variance on the affection subscale. Similarly, the perceived control subscale accounted for 09.87% of total affection scores, whilst perceived usefulness accounted for 15.62% of perceived control scores. The greatest correlation was between perceived usefulness and

perceived control; [r= 0.395, n= 493, p= 000]. This medium positive relationship suggested that students' high scores of perceived usefulness were associated with their high scores of perceived control.

Table 6.27: Correlation between the IAS subscales

		Total perceived usefulness	Total perceived control
Total perceived usefulness	Pearson Correlation		
	Sig (2-tailed)		
	N		
Total perceived control	Pearson Correlation	.395	
	Sig (2-tailed)	.000	
	N	493	
Total affection	Pearson Correlation	.317	.308
	Sig (2-tailed)	.000	.000
	N	434	492

6.4.8 Section summary

Using one-way analysis of variance has demonstrated some demographic influences on the average scores of students on the three factor scales, extracted during principal component analysis. Students' years of experience had the largest effect on IAS factors, in which 12% of the variance was explained by students' scores for perceived control of the Internet. However, analysis also revealed that marital status and field of study attributes had no effect on students' attitude to the Internet.

Students' gender had a small effect on their perceived control scores, but had no effect on perceived usefulness and affection scores. Similarly age had only a small effect on only the perceived usefulness score, whilst academic year in college also had a small effect, on both perceived control and affection scores.

6.5 Internet Training and Experience

This section of the questionnaire was intended to give an overview of students' training and experience of Internet use. Participants were asked to indicate if they had received any method of training to use the Internet. In addition, some details of participants' opinions on their experience and ability to undertake tasks using the Internet were included. Data in the questions about students' ability to perform activities using the Internet were derived mainly from ordinal scales where 'the median is the appropriate measure of central tendency' (Leech et al., 2005).

The majority of participants had not had any Internet training (72.5% for males and 67.2% for females). However, informal training by friends and family members was very popular amongst King Saud University students (44.9% for males and 59.6% for females). More than one third of male students indicated that they had Internet training in high school (14.5%) and in university (23.2%), whilst less than 16% of female students cited that they had Internet training at high school (9.3%), and at university (6%). Training in private institutions was more popular for female students (22.5%) than for male students (16%). (Figure 6.28)

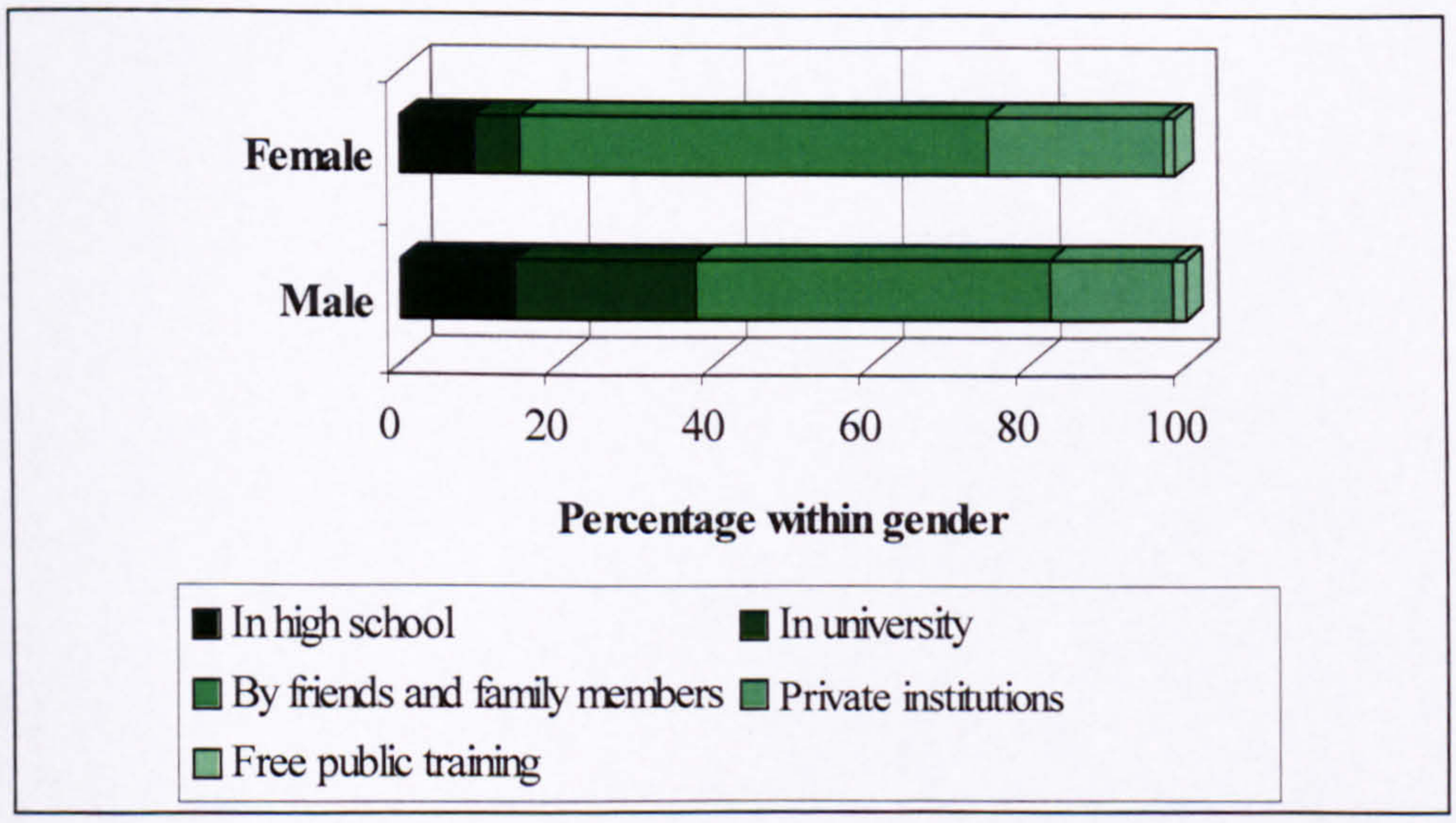


Figure 6.28: Training places by gender

Participants' ability to undertake tasks using the Internet was measured from simple tasks such as accessing the Internet, to more complicated tasks such as maintaining WebPages. Using a four-point Likert scale ranging from 1, *poor*, 2, *fair*, 3, *good*, 4, *excellent* participants were requested to state their evaluation of their skills to use the Internet. The median rating for the tasks: accessing the Internet (Figure 6.29), using search engines (Figure 6.30), and downloading files (Figure 6.31) was 3 '*good*' with more than a fifth of male and female participants expressing this evaluation of their ability. More than one third of participants thought that their ability to access the Internet, and to use search engines was *excellent*, whilst less than ten per cent thought that their ability was *poor*.

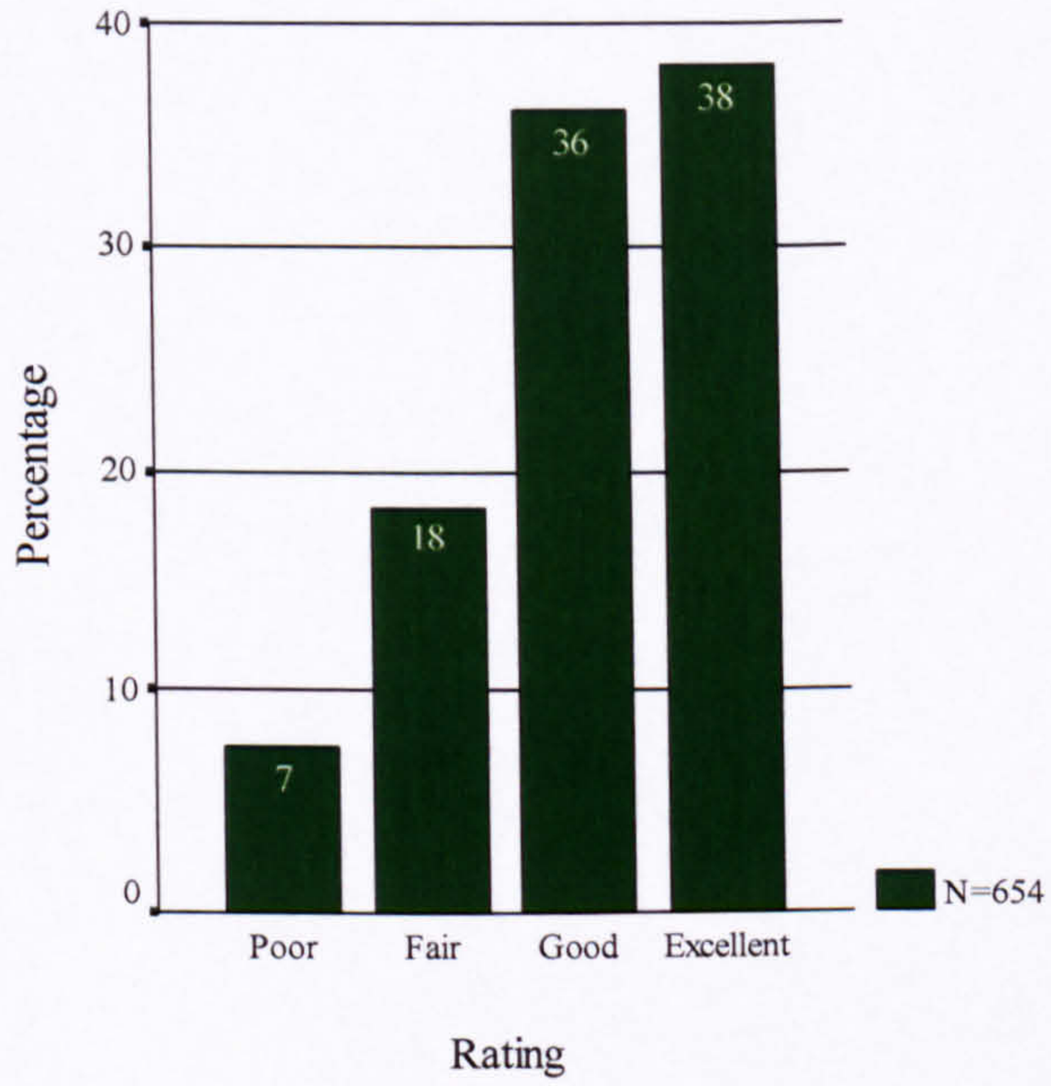


Figure 6.29: Ability to access the Internet

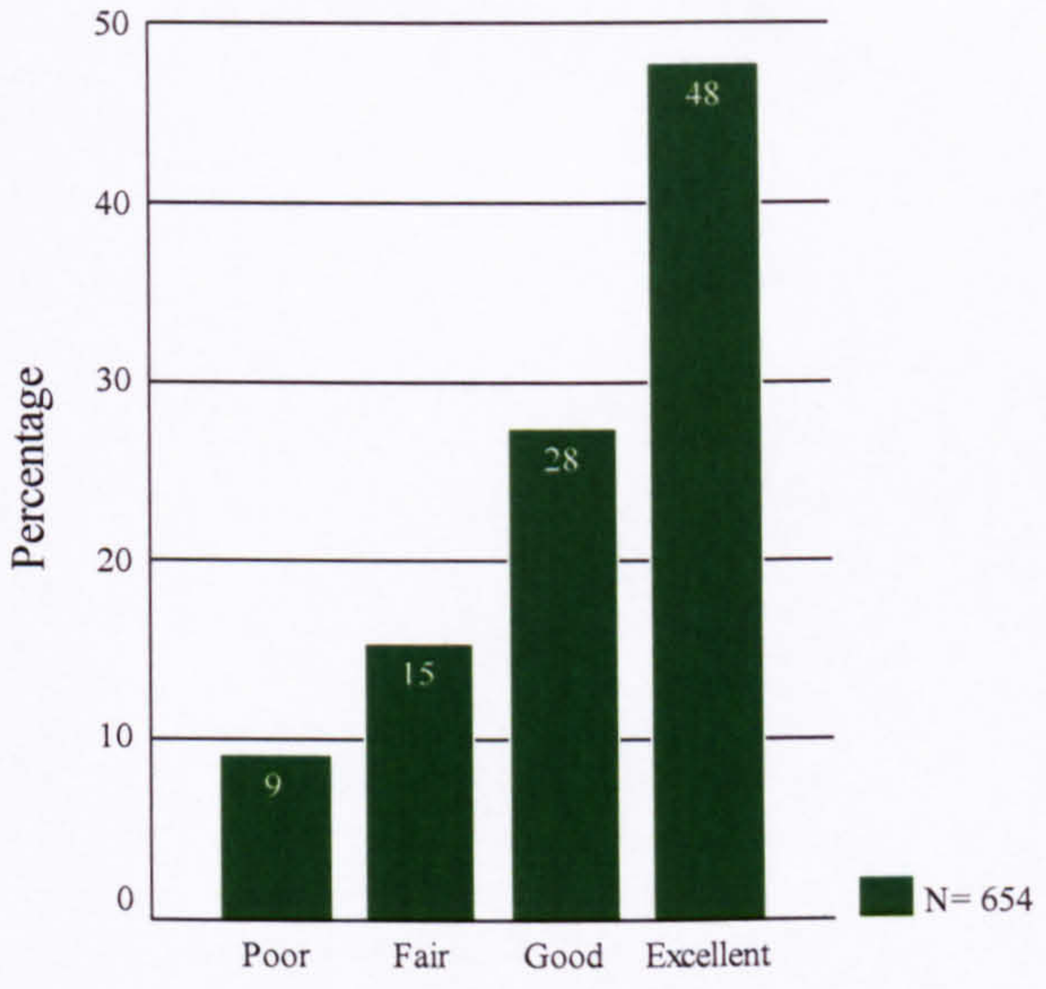


Figure 6.30: Ability to use search engines

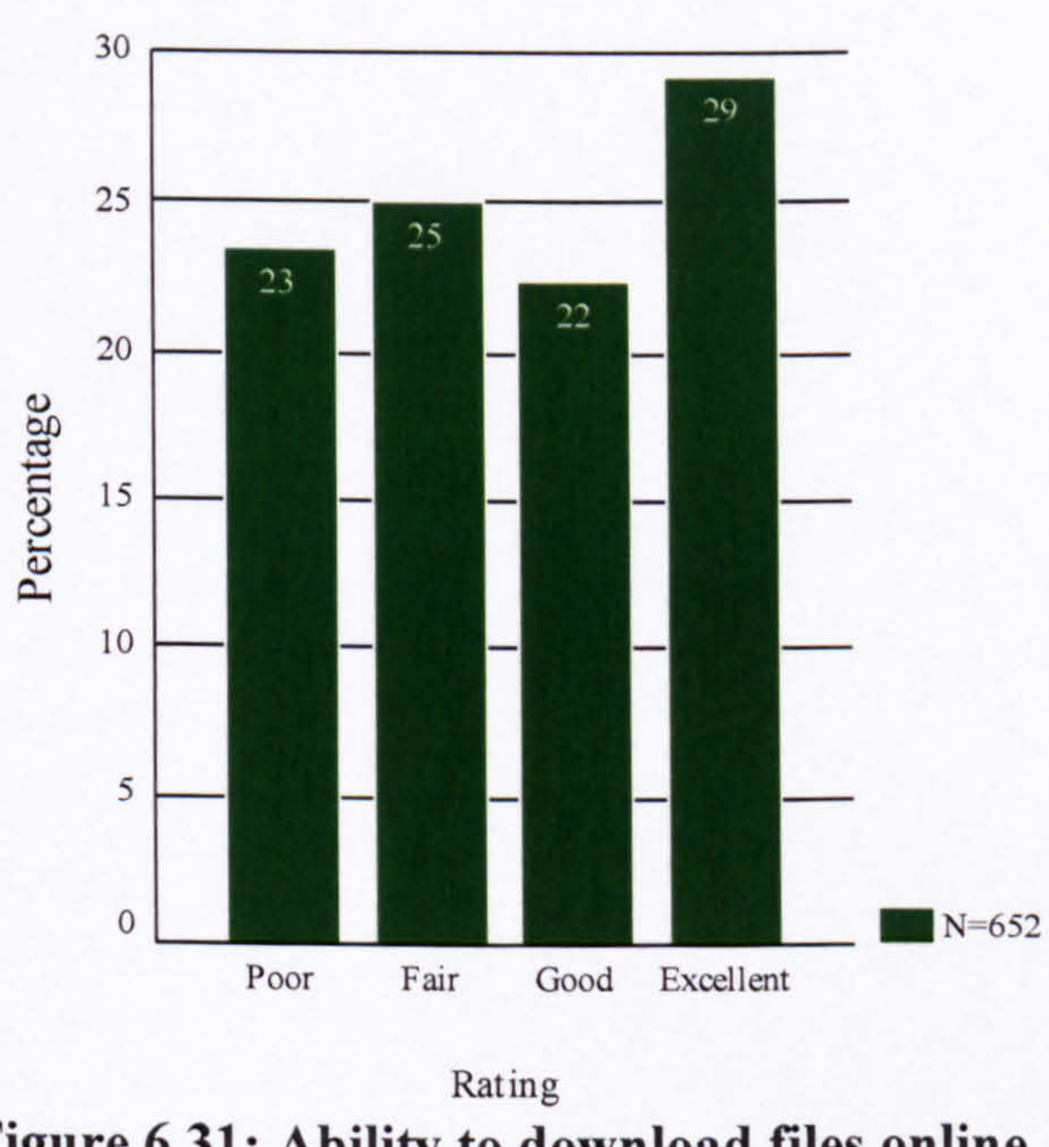


Figure 6.31: Ability to download files online

In contrast, the median rating for more complicated tasks such as creating WebPages (Figure 6.32), programming in hypertext software (Figure 6.33), and maintaining WebPages (Figure 6.34) was one, '*poor*' with more than 60% of participants expressing this evaluation in relation to their ability to undertake these tasks.

Participants indicating that their ability is '*good*' or '*excellent*' were less than eleven per cent.

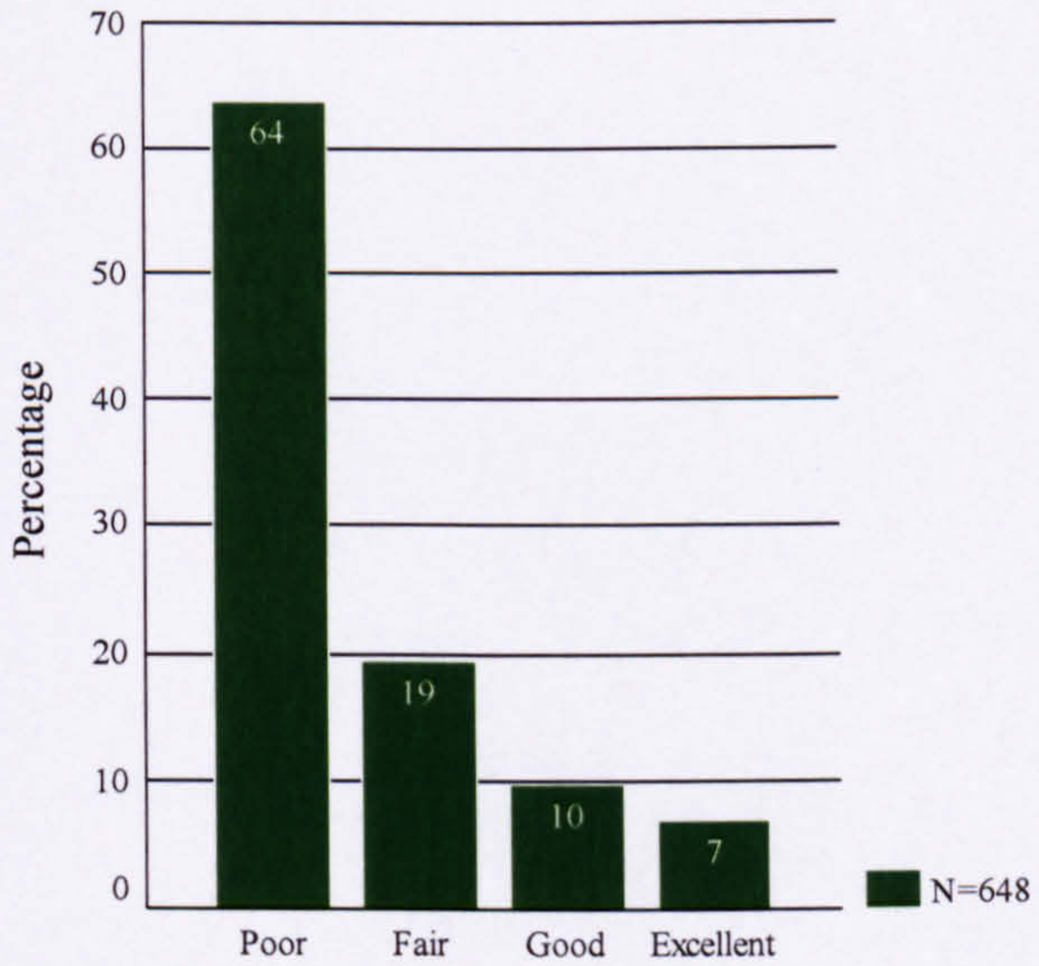


Figure 6.32: Ability to create WebPages

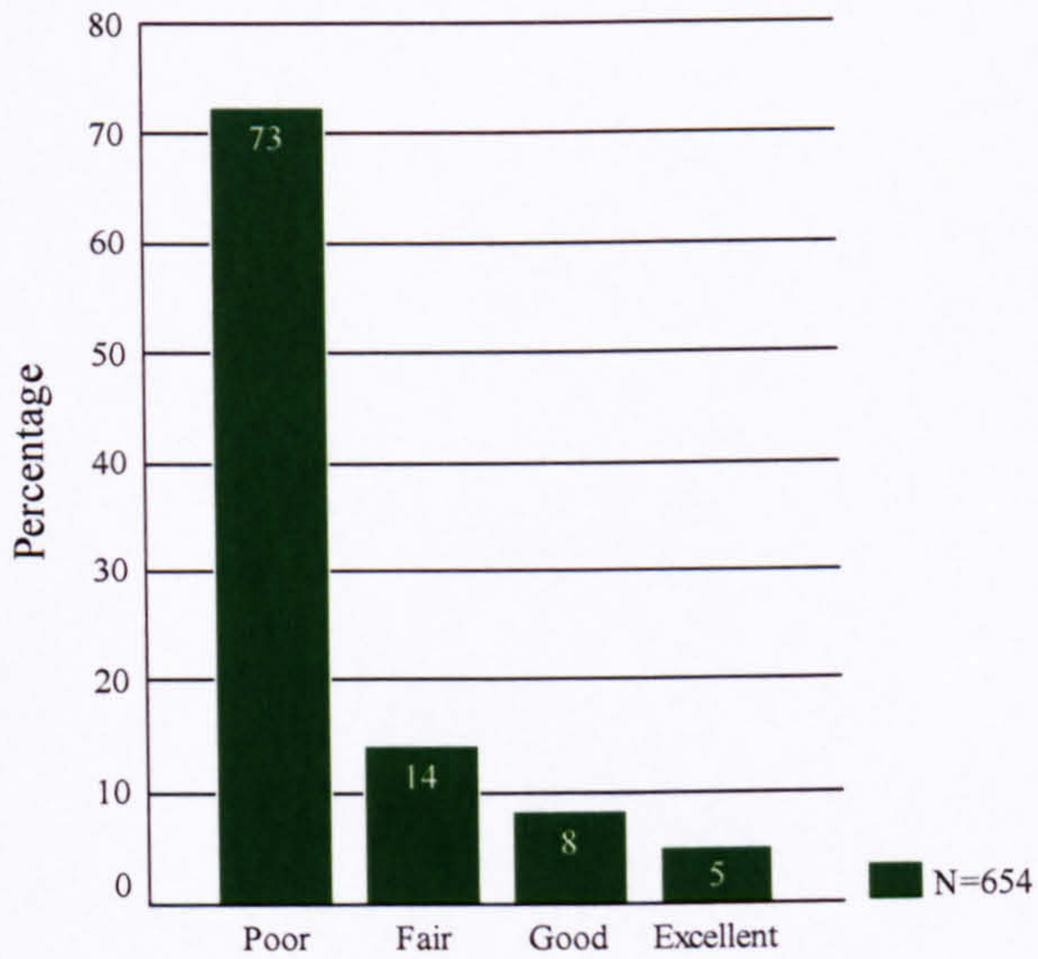


Figure 6.34: Ability to maintain WebPages

To investigate more about participants' Internet experience, they were asked if using the Internet had improved their personal and financial matters. A four point scale was designed to assess the extant of the improvement ranging from, 1, *a lot,* 2, *some*, 3, *a little*, 4, to *not at all*. The median rating for the Internet improving the participants' ability of shopping was four, representing *not at all,* with more than fifty per cent of students (51.5% of males and 52.1% of females). In contrast, less than fifteen per cent (13% of males, and 11.6% of females) indicated that the Internet improved their ability to shop *a lot*. More than one third (35.5% for males and 36.3% of females) cited that the using the Internet improved in to *some* or a *little* extent their ability to shop (Figure 6.35).

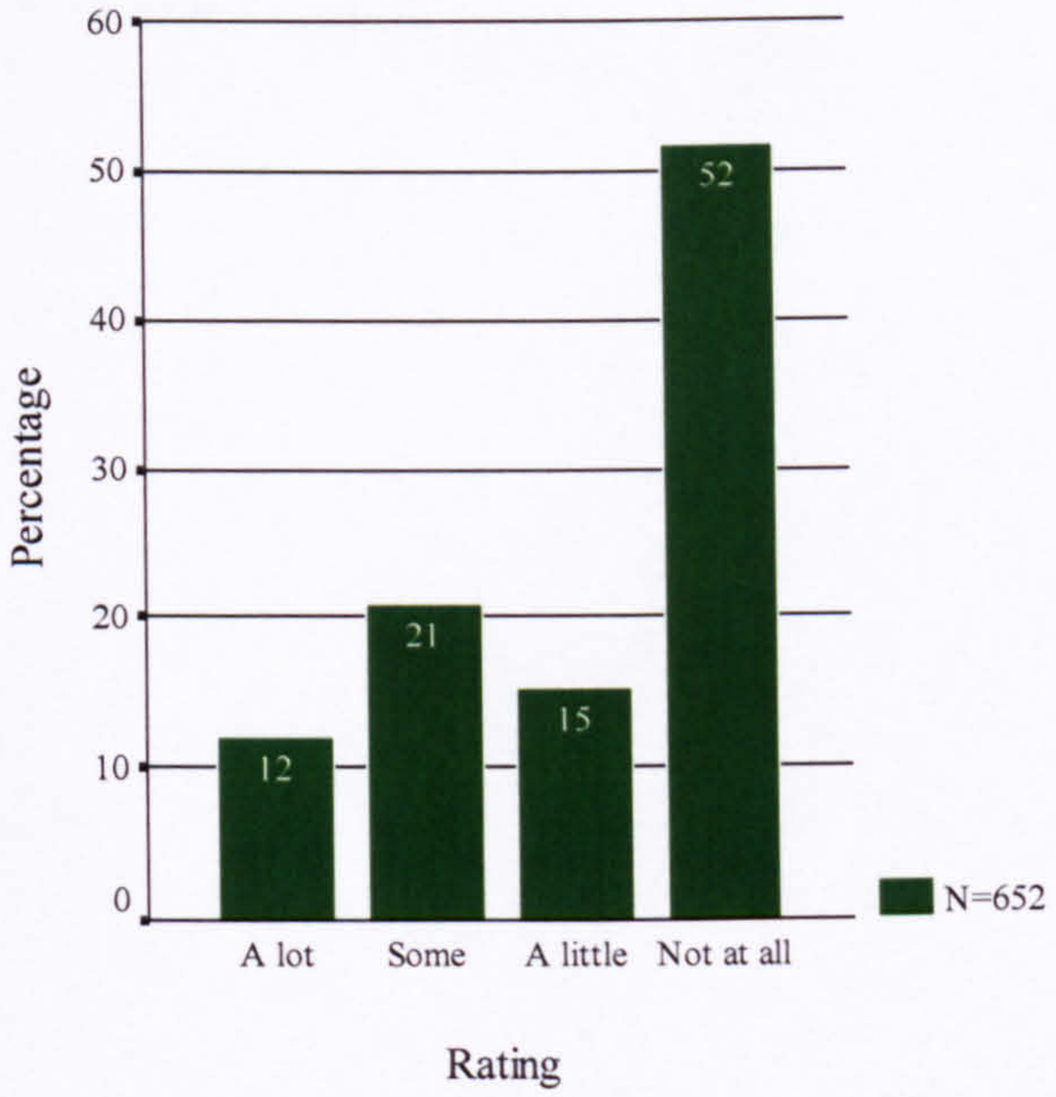


Figure 6.35: online shopping experiences

The median rate for getting information from the Internet on health care was two, '*some*', while more than one third of males (33.5%) and almost half of females (45.5%) thought that the Internet had improved it *a lot*. A total of more than 30% of males and 28% of females cited that the Internet improved only '*a little*' (23.5% for males and 20.3% for females) or '*not at all* (7.9% of males and 7.9% of females) the way they got information about health care (Figure 6.36).

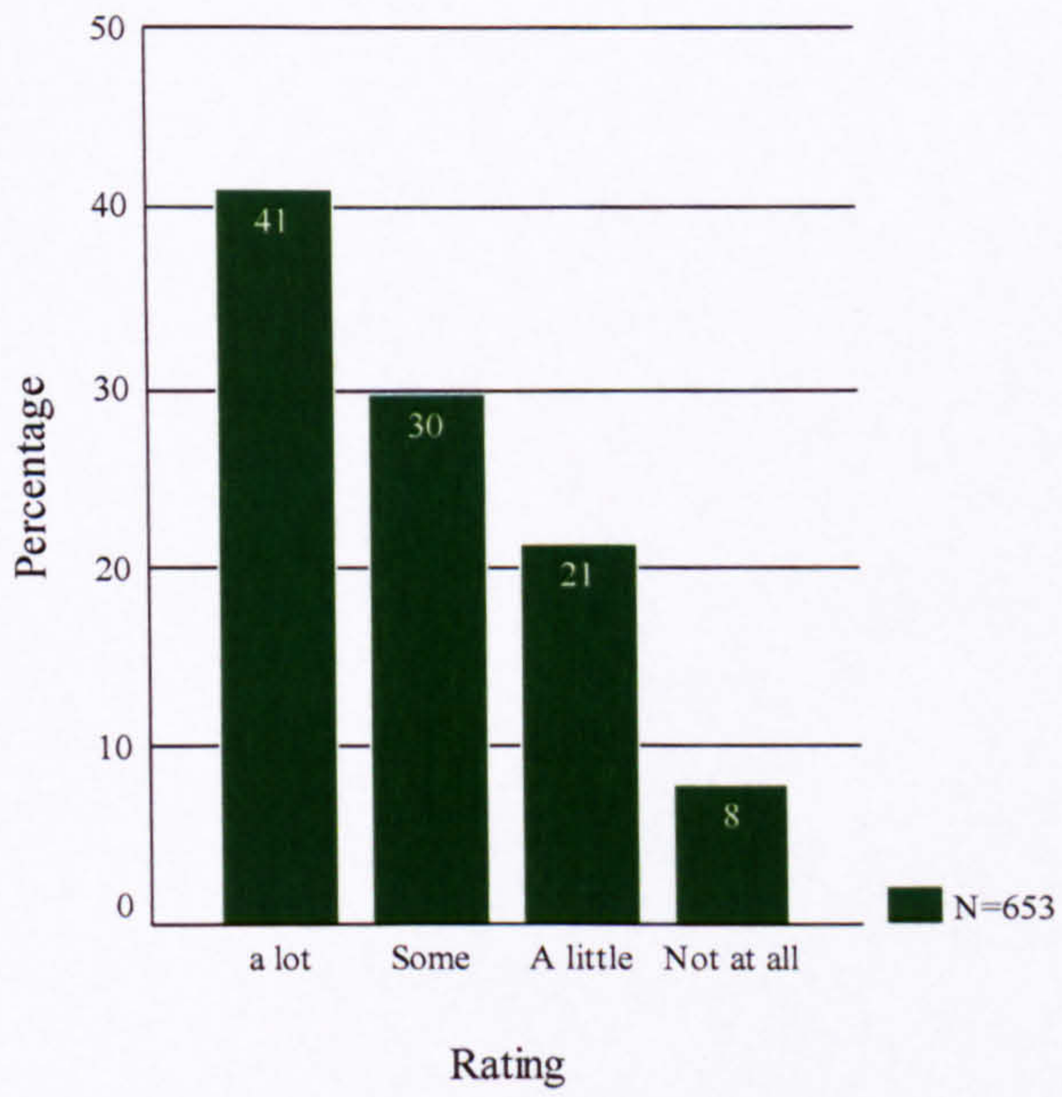


Figure 6.36: Online health information

In relation to managing personal finance, the majority of participants said that the Internet had *not at all* improved it (52.5% of male and 55.5% of female), whilst less than seventeen per cent indicated that the Internet improved it *a lot*. (Figure 6.37)

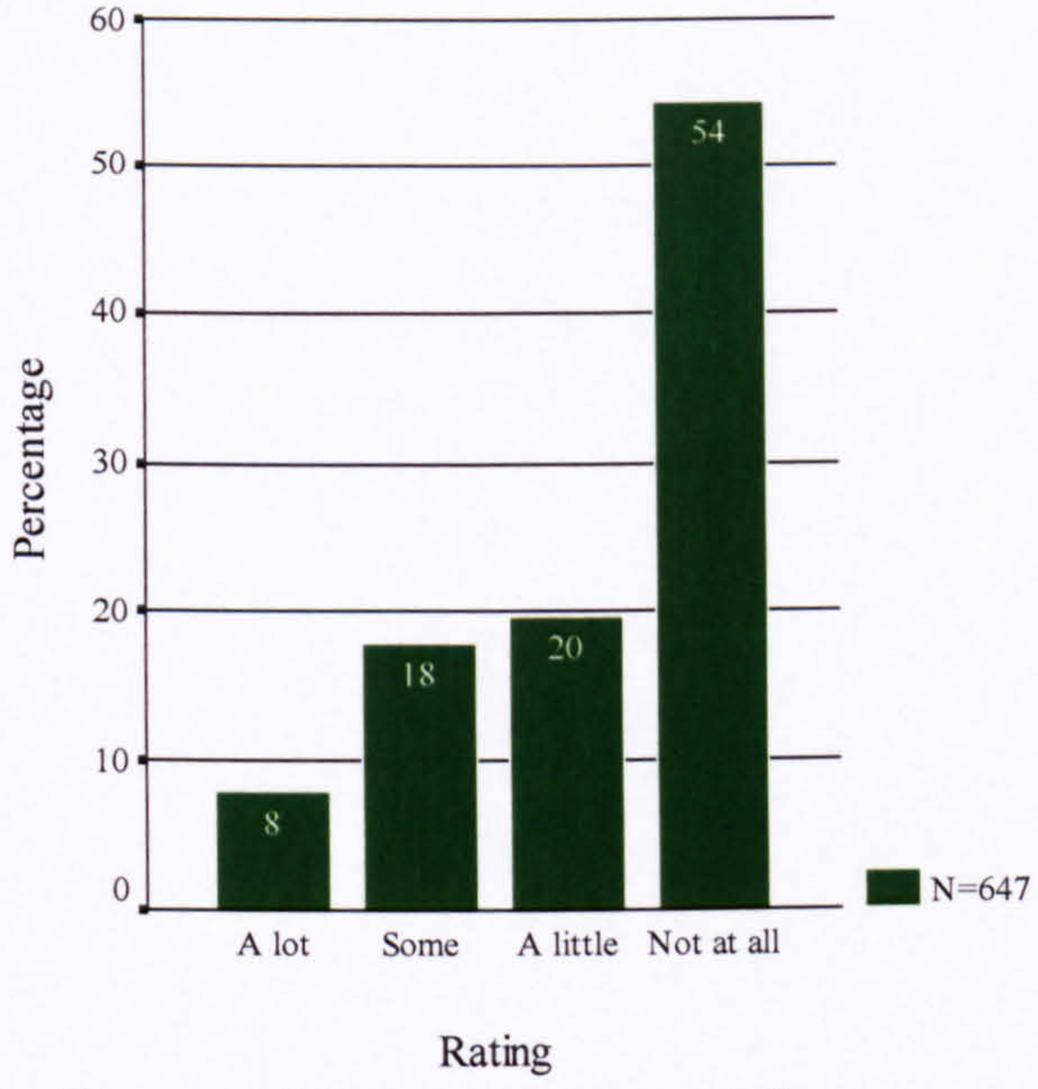


Figure 6.37: Online personal finance

Participants were also asked if the Internet had improved their friends and family connections. The median rate was two, '*some'* Participants indicated that the Internet improved their connections with friends (Figure 6.38) '*a lot'* more (43.1% for males and 48.3% for females) than those with family (23% for males and 30.1% for females). Figure 6.39 shows that more than a quarter of participants indicated that their family connections had not at all improved through the Internet, compared with less than sixteen per cent for connection with friends.

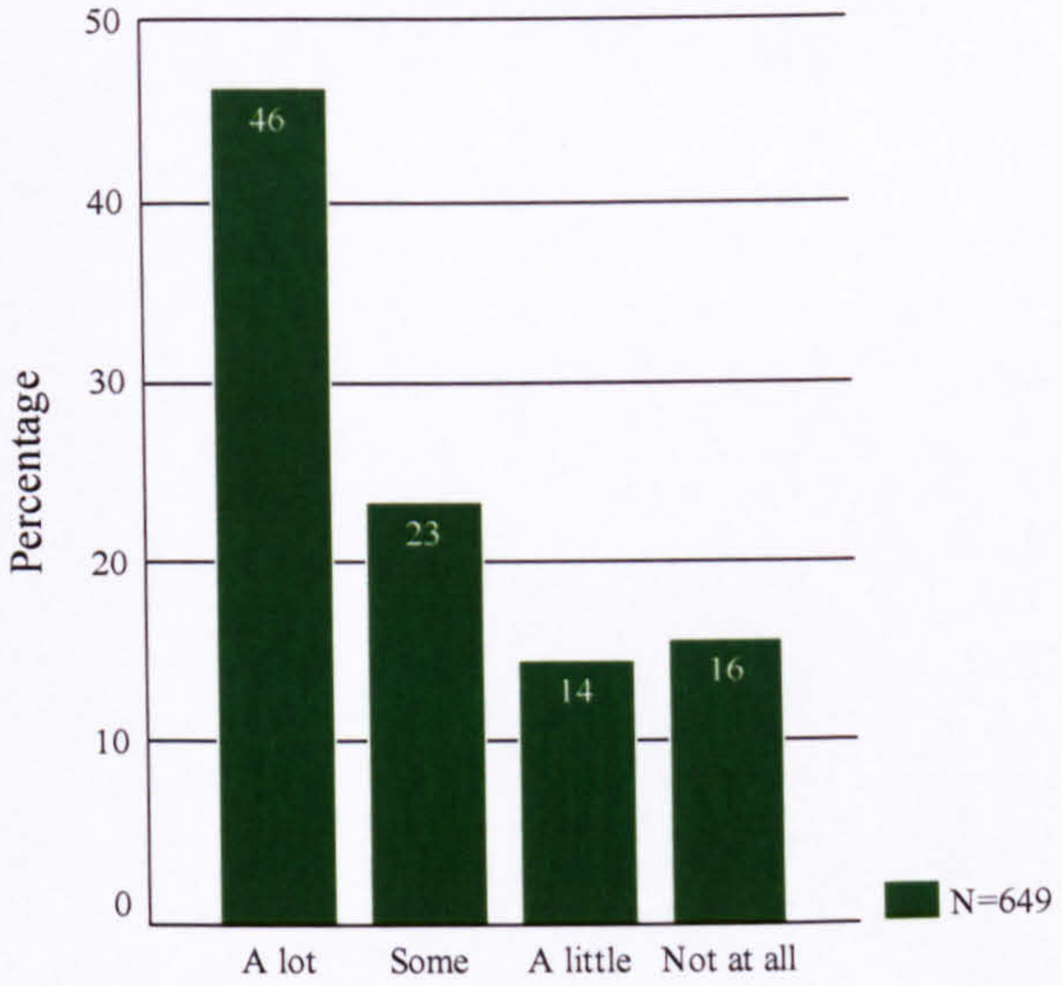


Figure 6.38: Online friends' connections

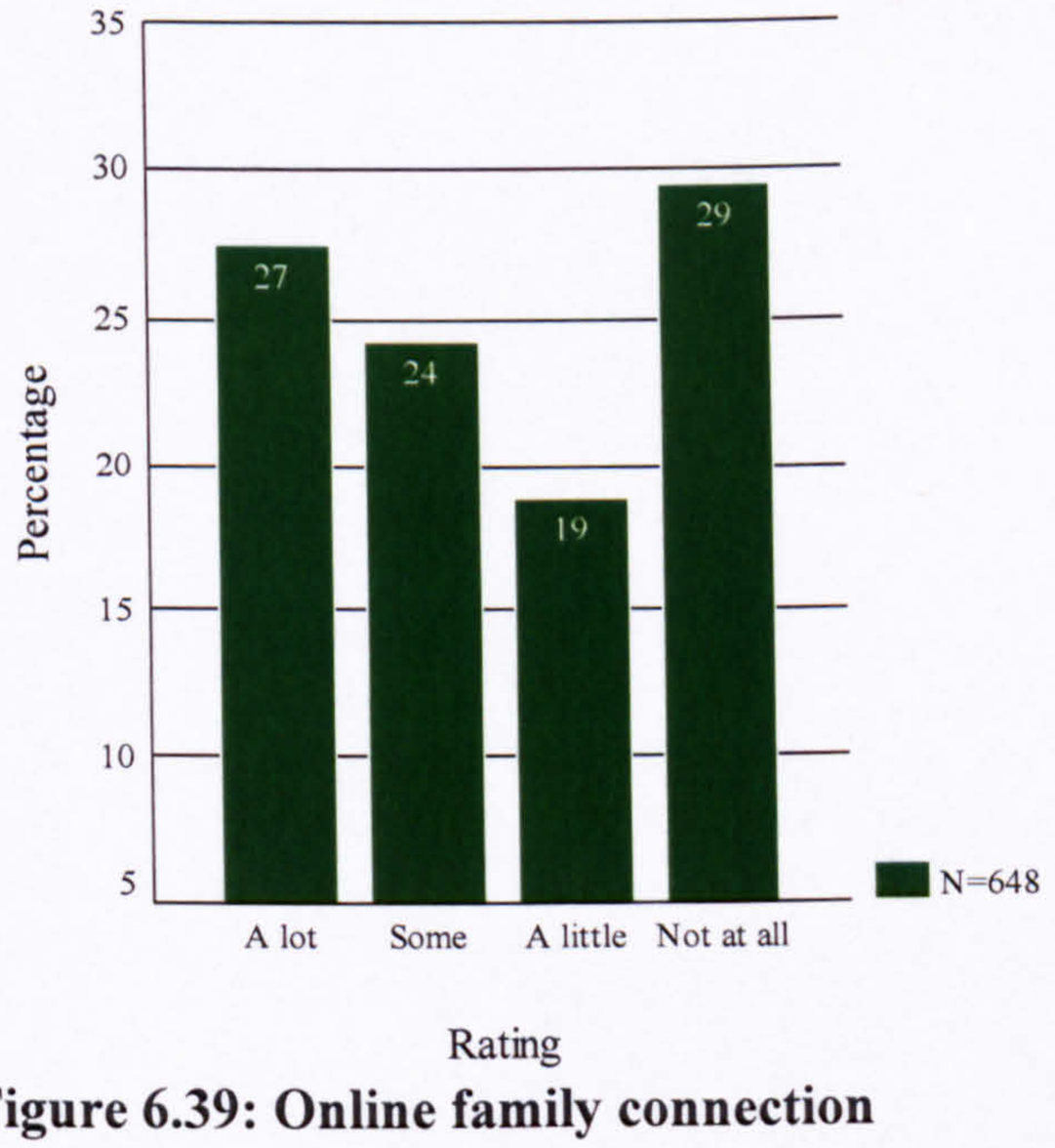


Figure 6.39: Online family connection

Learning about new things through the Internet was improved *a lot* for the majority of participants, more than half of male students (57.9%) and two thirds of female students (68.4%). Less than 17% of male and less than 12% of female students

indicated that learning new things through the Internet was *not at all* or only *a little* improved (Figure 6.40).

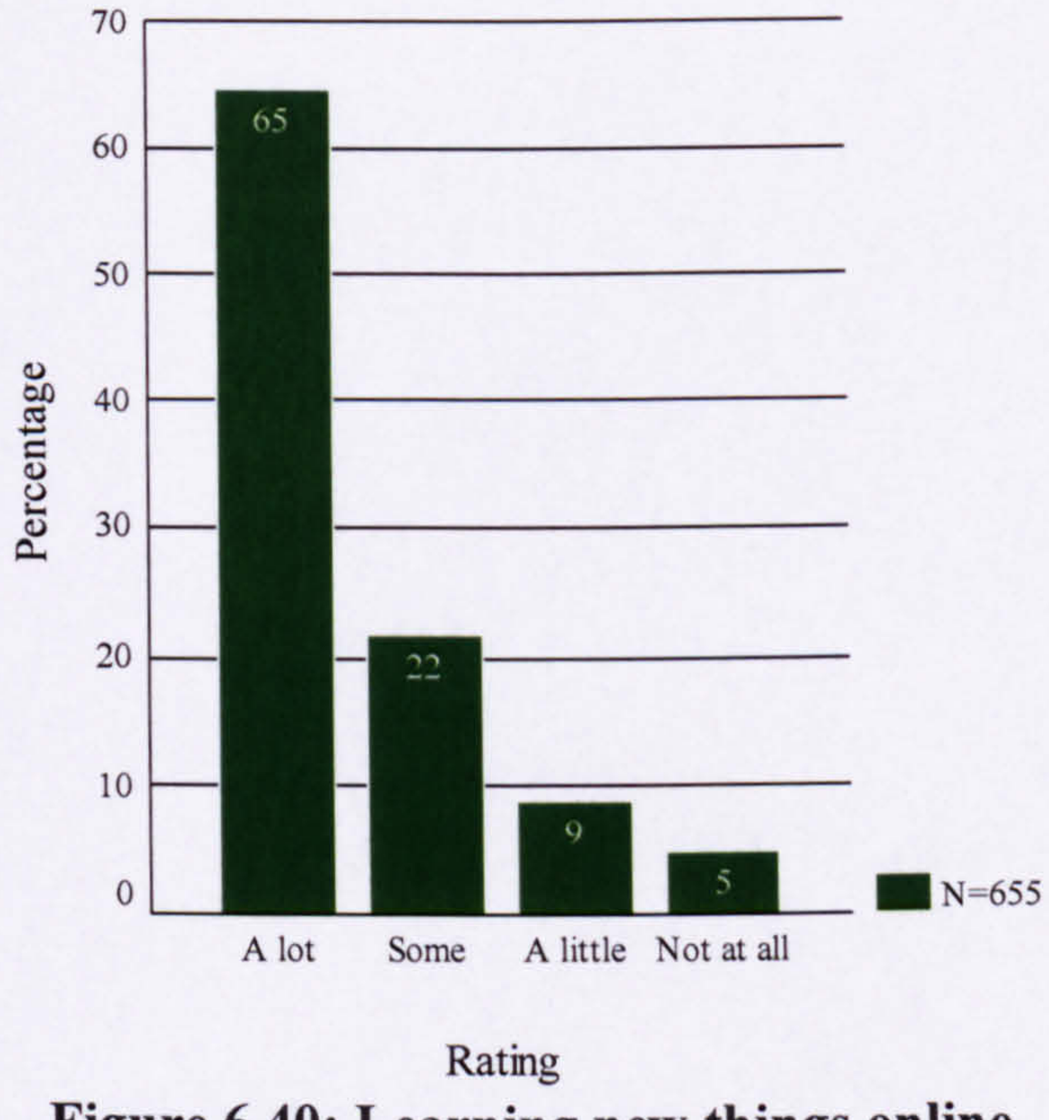


Figure 6.40: Learning new things online

6.5.1 Influences on Internet experiences: an analysis

This section aimed to ascertain which variables affected participants' ability to perform tasks using the Internet. Chi-square test was used to investigate the association between participants' demographical attributes and their ability to perform six tasks. There was a significant association between participants' gender and the ability to program using hypertext software ($\chi_2 = 8.08$, $df = 3$, $N = 646$, $p < .046$). More female students judged their ability to program using hypertext software to be *excellent*, or *good* while more male students thought it was *poor* (Figure 6.41). However, analysis found no significant association between gender groups in their ability to perform the other tasks.

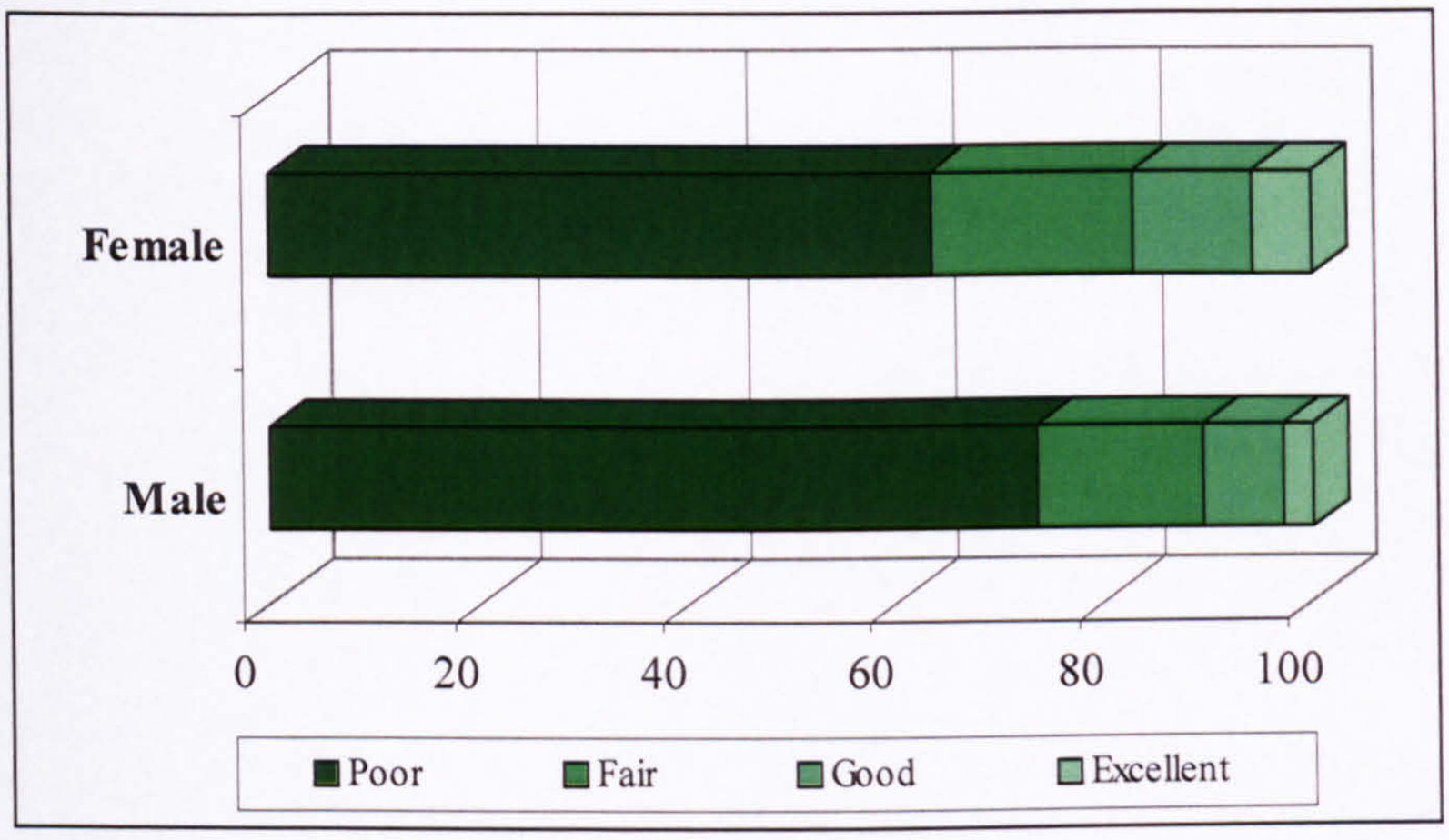


Figure 6.41: Ability to program in hypertext software by gender

Analysis found that participants' field of study is significantly associated with their ability to download files from the Internet ($\chi_2 = 15.51$, $df = 3$, $N = 650$, $p < .001$) and their ability to create WebPages ($\chi_2 = 10.88$, $df = 3$, $N = 646$, $p < .012$). More participants studying in science departments rated their ability to download files from the Internet (Figure 6.42) and their ability to create WebPages as excellent or good and more non-science students rated their ability to be poor, or fair.

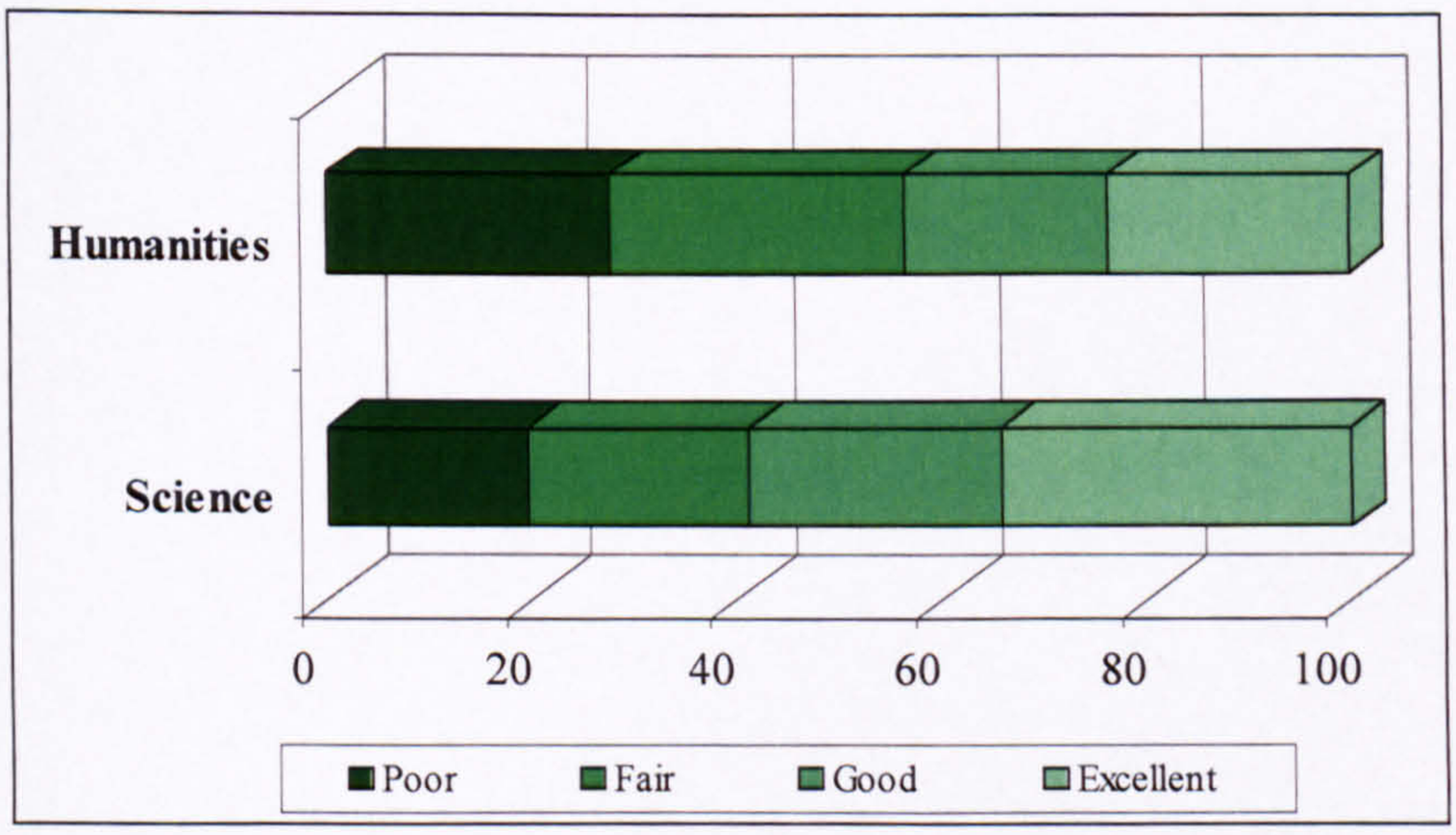


Figure 6.42: Ability to download Internet files by study field

A Chi-square test was also used to investigate if participants' year in college was associated with their ability to undertake some tasks using the Internet. Participants' ability to download files online was significantly associated with the academic year they were studying ($\chi_2 = 15.96$, $df = 6$, $N = 650$, $p < .014$). More participants in academic year three judged their ability to be *excellent* while more participants in academic year one and two thought that their ability was *poor* (Figure 6.43). However, participant ability to undertake the other tasks was not significantly associated with year in college. Participant age group and marital status was not significantly associated with the ability to undertake tasks using the Internet.

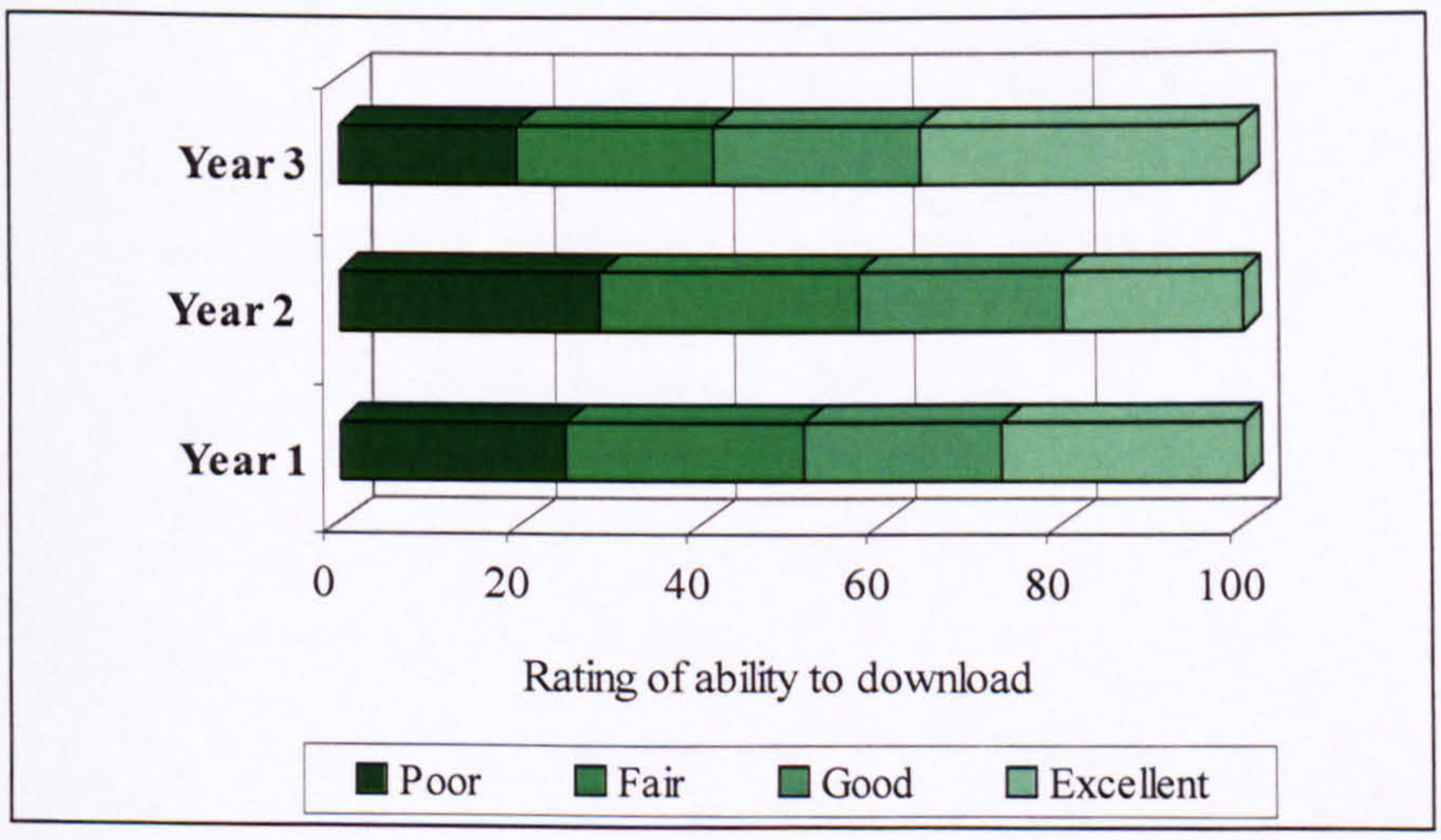


Figure 6.43: Ability to download Internet files by year in college

Analysis found that the length of time participants had been using the Internet was significantly associated with their ability to undertake tasks using the Internet. The Chi-square test ($\chi_2 = 138.7$, $df = 6$, $N = 652$, $p < .000$) found that more participants with more than two years of experience rated their ability to access the Internet as *excellent* while more students with two years or less experience thought that their ability was *poor* or *fair*. The effect size of the association was 461 using Contingency

coefficient, which indicates a moderate relationship (Figure 6.44). Participant ability to use search engines was also significantly associated with the length of time they had been using the Internet ($\chi_2 = 70.13$, $df = 6$, $N = 652$, $p < .000$). More participants with two or more years of experience rated their ability as *excellent,* while more students with two or less year of experience rated their ability as *poor*. The strength of the association was moderate (.328) (Figure 6.45).

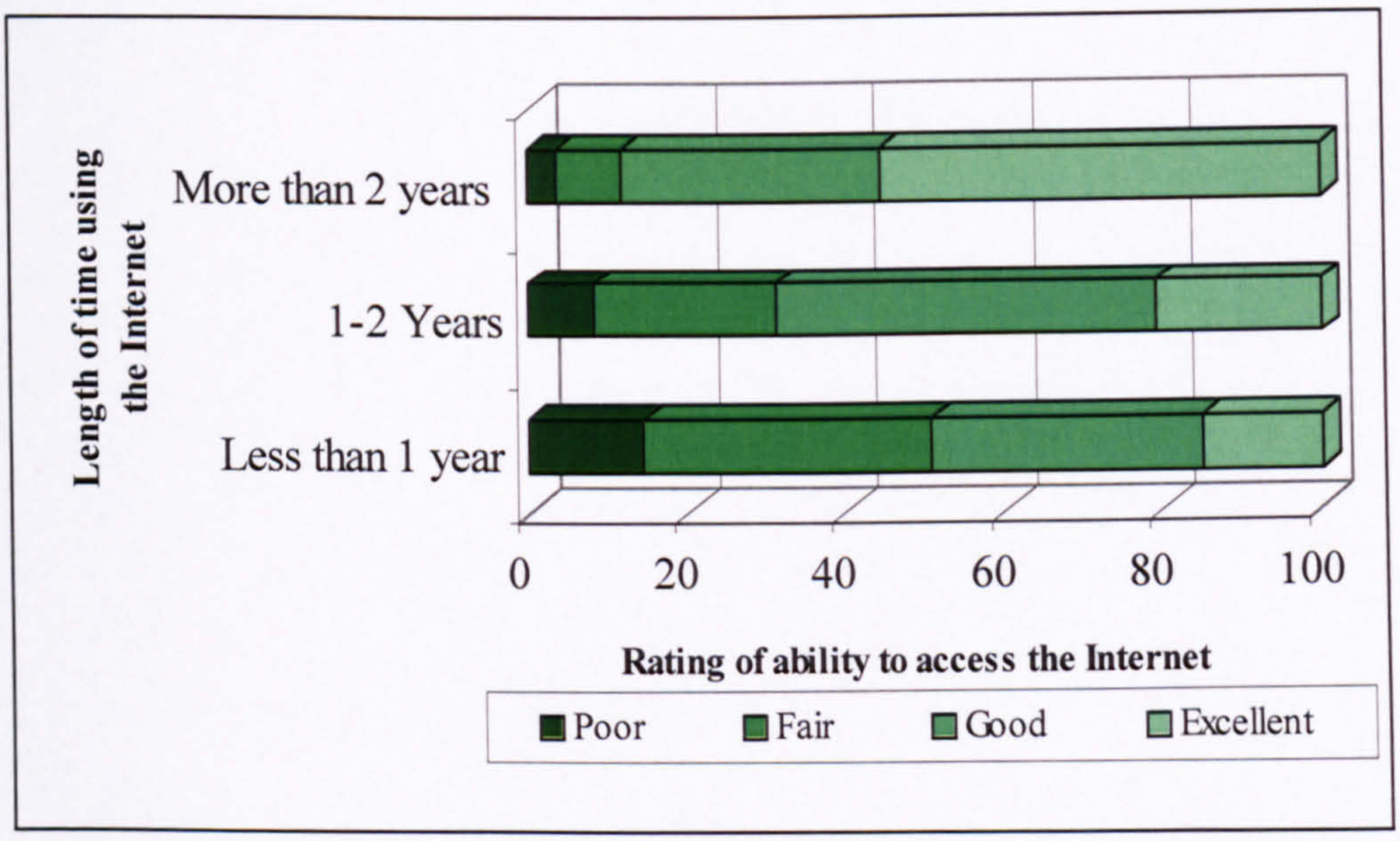


Figure 6.44: Ability to access the Internet by years of experience

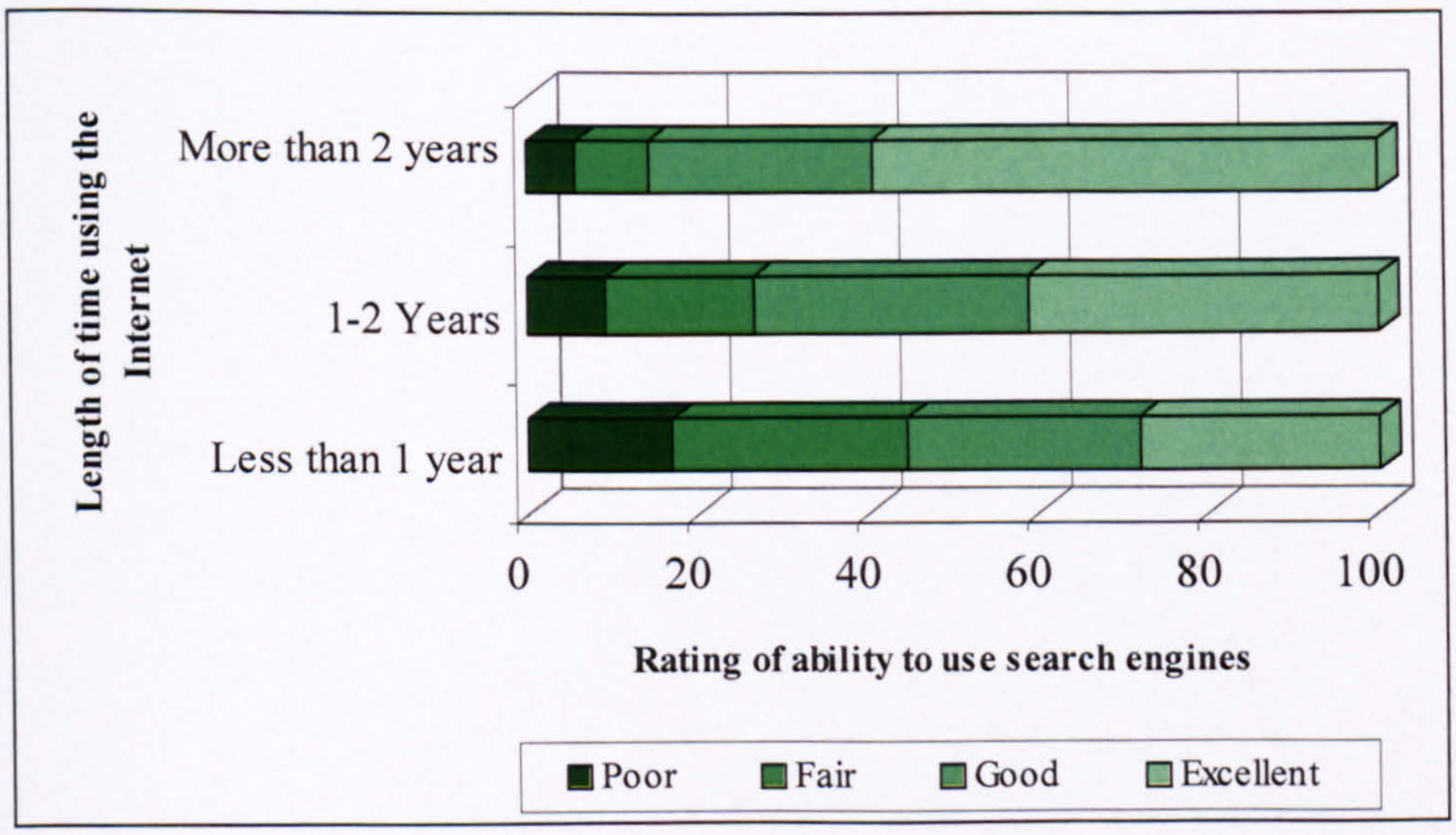


Figure 6.45: Ability to use Internet search engines by years of experience

Participants' ability to download files online was rated as *excellent* more by participants with more than two years of experience (χ_2 =101.5, df = 6, N = 650, p < .000), while more students with two or less years of experience thought that their ability was *poor* to *fair* . The effect size of this association was moderate (.395) (Figure 6.46)

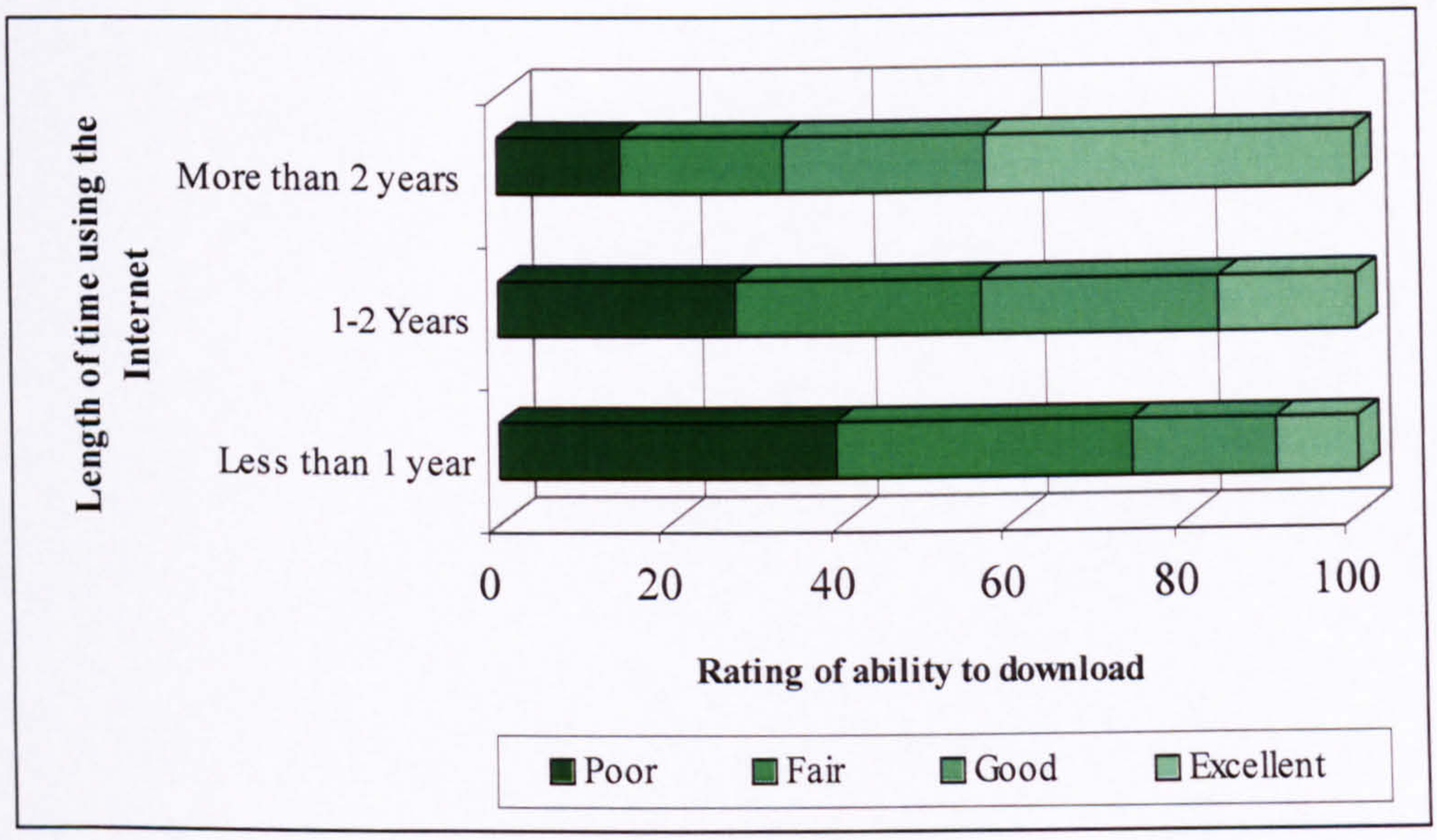


Figure 6.46: Ability to download Internet files by years of experience

In relation to more complicated tasks, analysis found that more participants who had used the Internet for one to two years rated their ability to program using hypertext software as poor (χ_2 =19.53, df = 6, N = 644, p < .003), while more participants who have used the Internet for less than one year and for more than two years rated their ability as excellent (Figure 6.47). Likewise more participants with one to two years of experience also rated their ability to maintain WebPages as poor (χ_2 =15.93, df = 6, N = 652, p < .014) while more participants with less than one year and with more than two years rated their ability as excellent (Figure 6.48).

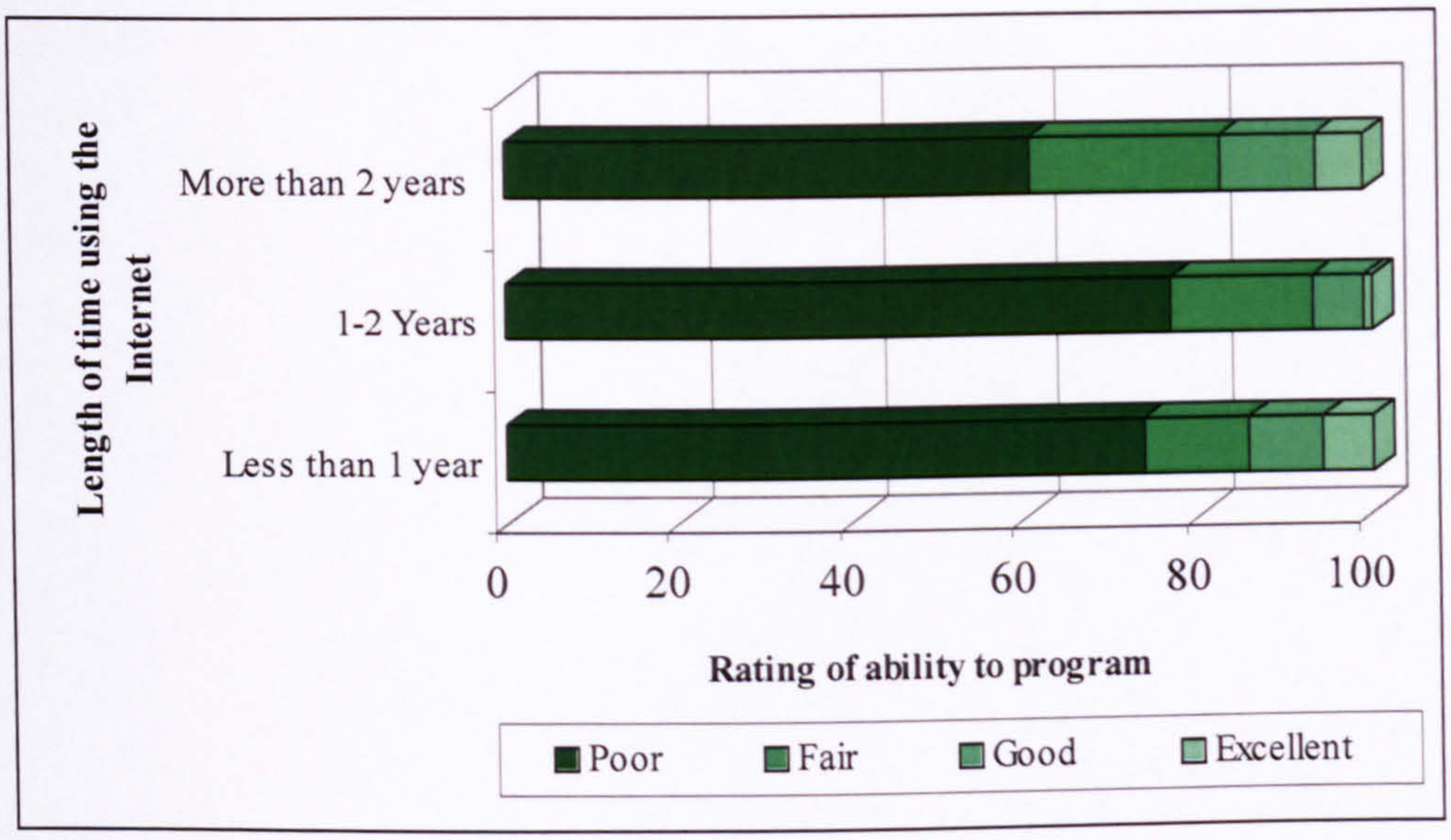


Figure 6.47: Ability to program using hypertext software by years of experience

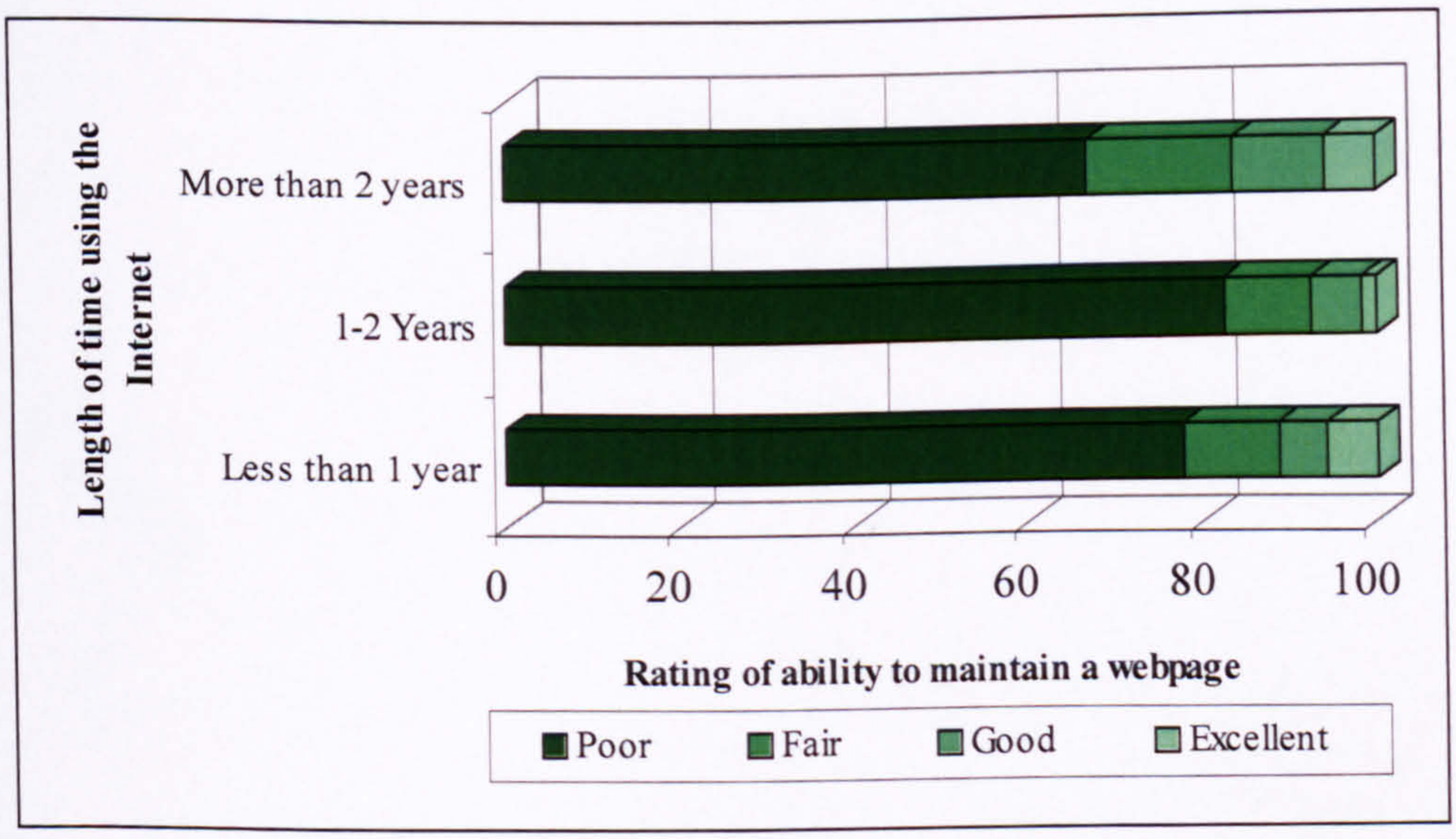


Figure 6.48: Ability to maintain WebPages by years of experience

6.5.2 Section summary

In this section the use of the Chi-square test has illustrated that a number of variables appear to affect participants' ability to undertake tasks using the Internet. Length of time participants had been using the Internet had the largest affect on students' ability, whilst age and marital status variables had no affect at all. Gender, field of study, and

their academic year in college also had an affect on their ability to undertake some tasks using the Internet.

6.6 Chapter summary

6.6.1 Internet use and access

- Numerically male students use the Web and electronic mail more than females. However, both gender groups accessed the Internet from home more than in any other place;
- Study related websites were most frequently visited by male students while female students visited entertainment websites most frequently;
- The majority of students faced difficulties using the Internet. Slow connections was the most common problem for both male and female students;
- There was a relationship between students' gender and their email usage, chatting, and feeling about the web;
- Students' academic year in college was also associated with their email usage, web usage, chatting, Internet academic usage, and feeling about the Internet;
- There was a relationship between students' marital status and their academic usage of the web, and their perception of Internet usefulness to their study;

6.6.2 Internet attitude scale

- There were some demographic influences on the average scores of students on the three factors derived from IAS scales in which students' years of experience had the largest effect on IAS factors;

- Students' gender affected their perceived control scores, but had no effect on perceived usefulness, and affection scores. Students' age has only affected their perceived usefulness score;
- Academic year in college also had a small effect on both perceived control, and affection scores;
- Students' marital status and field of study attributes had no effect on students' attitude to the Internet

6.6.3 Internet training and experience

- The majority of students had not received any Internet training, but informal training by friends and family member was very popular amongst those King Saud University students who had received training;
- Most students rated their ability to access the Internet, use searching engines, and download files as excellent. However, they rated their ability to create WebPages, program in hypertext software, and to maintain WebPages as poor.
- Using the Internet had improved students' ability to get health information, learn about new things, and their connection with friends, while their ability to shop and manage their financial matters, and their connection with family had not improved at all through using the Internet;
- Length of time students had been using the Internet, gender, field of study, and academic year in college had effects on students' ability to undertake tasks, whilst age and marital status variables had no effect at all;

6.7 Conclusion

This chapter has explored students' use, attitudes, and experience with the Internet. In general, students used email and the web for many purposes including academic purposes. The attitudes of most participants towards using the Internet were positive. However male and female usage and attitudes were different in some respects. Demographical attributes had an influence on students' perception of the Internet. Many students had not had any type of Internet training and those who had training had received it from friends and family members. Most students were able to undertake some of the easy tasks using the Internet, yet few of them were able to undertake the more complicated ones.

Chapter Seven

Focus Groups Analysis

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Seven

7

Focus Group Analysis

7.1 Introduction

This chapter analyses the results of the focus group interviews, which consisted of four focus group sessions that were designed to elicit perceptions from female students who use the Internet. These focus groups took place during the last three months of the third year of the research. Section 7.2 discusses the purpose and procedure of carrying out the focus groups, followed by demographic information about participants in section 7.3. The main interview themes are outlined in section 7.4. The final sections, 7.5 and 7.6 contain a summary and conclusion respectively.

7.2 Objectives

The focus group interviews at King Saud University female Science and Humanities campuses had two specific objectives:

1. To gain insight into the factors influencing female students' use of online chatting rooms, and email.

2. To gain insight into the views and attitudes that students have about the Internet and its effect on their lives.

7.3 Participants' demographic information

A total of 25 participants took part in these sessions. Tables 7.1 and 7.2 summarize the participants' departments at each focus group.

Table 7.1: Focus group participants by year in college

Year in college	Number of Participants in all groups
Year One	8
Year Two	10
Year Three	5
Year Four	3

Table 7.2: Focus group participant demographics

Name of Focus Group	Number of Participants	Department
Focus group 1 in Humanities campus	6	Business management, English, Special Education
Focus group 1 in Science campus	7	Computer Science, Science
Focus group 2 in science campus	5	Computer science, Medical science, Biology
Focus group 3 in Science campus	7	Pharmacy, Physics, Science

7.4 Main interview themes

The transcribed interviews were coded according to themes that coincided with the major areas of the interview questions. The five broad areas of the themes are listed below.

- Online chatting
- Email
- Internet and freedom
- Online harassment
- Internet attitude

7.4.1 Online chatting

7.4.1.1 Chat use:

Like many college students around the world, Saudi male and female university students used online chatting rooms. Questionnaire analysis showed that gender was significantly associated with students' online chatting use. In the focus group interviews attempts were made to ascertain Saudi women's' views of online chatting, seeking to understand some of the conflicting results of the questionnaire.

Asked what was the first thing that came into their minds when they heard the phrase "online chatting rooms", participants' opinions were divided between those who were in favour of online chatting and those who were against it. However, comments from those who chatted outnumbered comments from those who did not. At the start of the focus group discussion some participants, as might be expected, were reluctant to give their opinion about online chatting. In fact many of them spoke of chatting rooms being nonsense and meaningless talk. As the conversation continued, participants

began to speak of their own experience of chatting online and how some of them considered it to be an enjoyable and possibly useful experience.

Analysis of participants' responses indicated that the majority of them had used chatting rooms. Their use was due to many reasons, one of which was the publicity that surrounds online chatting rooms. This publicity consists of either online advertisements for chat rooms in websites, or people's gossip. Participants explained the effect of online advertisement on the start of their online chatting. Others indicated that their initial use was influenced by other people's talk about it. Being a teenager when the Internet was first introduced in Saudi Arabia motivated some females to use it. Similarly, while some participants started using the Internet only to chat online, others said that although they did not anticipate it, online chat rooms were the first thing that got their attention.

Illustrative quotations from the focus groups:

> *"I went to chatting rooms because it is widespread and it's advertised very well online so one goes there to see what these ads are all about"* (S: focus group 1 Humanities)

> *"when the Internet was first made available in the Kingdom I was sixteen years old and I was young, I used to go to chat rooms daily"* (M: focus group 1 Science)

> *"To be honest I have a past with chatting, I used to go there a lot when I was in high school"* (E: focus group 2 Science)

"When I first started going online, chatting was the only thing that got my attention"

(N: focus group 1 Humanities)

Participants pointed out that they were attracted to online chatting rooms because they could meet other people, and it was an unusual thing for them to be able to talk with strangers. Chatting with strangers was a remarkable thing for some participants, particularly in the case of talking to boys, which is otherwise unacceptable. Chatting rooms online proved to be useful for some participants who indicated that the usefulness depends on what chat rooms are used for. While it is pleasant and interesting to be able to chat with other people in other parts of the world, others indicated that they used it because they had nothing better to do.

Illustrative quotations from the focus groups:

"Chatting is something different than what we are used to. Were are not used to mixing with boys in our society, this is something odd for us" (N2: focus group 1 Science)

"I like to talk with people from other countries so they talk to me about their country and I tell them about mine. I am not interested in getting to know people, I just want to know countries and cultures somewhere in the world" (M1: focus group 1 Science)

"I personally have benefited. Once I have chatted with a Lebanese girl and we talked about religion. Although we were not able to convince one another it was fruitful chat" (H: focus group 2 Science)

In contrast to those who used chat rooms because they found it useful there were others who believed that there was no benefit to them, so did not participate. Online chatting rooms for some are a waste of time, rubbish and boring. For those people, chatting rooms are boring because the conversations are the same and people are also the same.

While it was also dismissed by many participants as nonsense talk, and only a joke, others had moral reasons for disliking chatting. They believed that chatting online is a bad thing and that topics discussed are against moral standards. Those who took this view were referring to the standards in Saudi culture where speaking with boys about romance is considered to be immoral. Some participants did not engage on online chatting because it sometimes involves a lot of lying and pretending. Perhaps these aspects of chatting rooms made them less attractive to some participants who went on to advise others not to use them either because they said, chat rooms are only about romance and one should avoid that sort of thing.

Illustrative quotations from the focus groups:

> *"I found people there are those who have nothing better to do but to chat. They have no aim. it only going to waste my time"* (R: focus group 2 Science)

> *"There is nothing new and is very boring the same people and same talk"* (E2: focus group 3 Science)

> *"In Saudi Arabia now chatting become very bad and the topics discussed are also morally very bad"* (E: focus group 2 Science)

"It has very bad and immoral things, I was shocked myself and what made it worse is that my young brother was with me and he saw it. I was very upset and I have stopped going to chatting rooms since." (H: focus group 2 Science)

"Every one lies to each other. My personality does not allow me to lie or pretend and I cannot accept it".(M3: focus group 3 Science)

One of the major findings of the questionnaire was that female participants were going to online chatting rooms significantly less than their male counterparts. In the focus group interviews, participants were asked about their explanation for this finding. Cultural and sociological factors appear to be the cause of Saudi female low participation in online chat rooms. Participants noted that girls do not go to chatting rooms because they are anxious while males are not subject to the same rules. If males talk with other females, it is the female who is at risk, not the male.

It is also clear that the guilt some participants felt at using the Internet to violate Saudi cultural moral standards, as well as the risks they took in transgressing social norms, stopped them from using chat rooms. Participants signified that being female in Saudi society, imposes the obligation of protecting one's reputation, as interacting with males even in online chat rooms is a way to blemish one's social standing as a respectable woman. Participants also noted another important cultural issue here, which is the general pattern of female participants' association with their families and the family schedule. Females in Saudi society are bound by different and many more rules than males, such as not leaving the house or contacting others. Such rules provide a neutral ground on which females can be subject to a closer monitoring than males.

Illustrative quotations from the focus groups:

> *"This is a psychological thing which is caused by the society, it is okay for boys to go and they would have nothing to fear. A boy can go and chat whenever he wants to, but when girls go chatting they are anxious"* (M2: focus group 1 Science)

> *"Sometimes if a girl spends longer hours she may feel guilty and not go for quite sometime and in this way her visits are fewer"* (A: focus group 1 Humanities)

> *"A girl protects her reputation more than boys, chatting online with boys is not a good thing and I am personally against it"* (E: focus group 2 Science)

> *"Maybe because girls are watched more than boys, especially when they go outside the house"* (R: focus group 2 Science)

In contradiction to some findings of the questionnaire, female participants, although less frequent visitors, were found to be spending longer hours in online chat rooms than their male counterparts. Participants' responses to the issue of long hours spent chatting were divided into reasons that relate to males and others that relate to females. Accessing the Internet from home allows females to spend a long time uninterrupted online chat sessions. Some participants may even have an Internet connection in their bedroom making it more convenient for females to chat for as long as they wish.

Participants indicated that women may feel nervous before starting to chat but finding it safe gives them the green light, spurring them to chat for long hours. Finding the

right moment for chatting drives some participants to utilize it for a longer chatting session.

Illustrative quotations from the focus groups:

> *"Girls access the Internet from home so they can spend longer time while boys access from Internet cafés so they are closed for prayers and so on"* (H: focus group 2 Science)

> *"For girls the Internet is available in their homes and in their bedrooms, and they can chat as long as they want to, there is no specific time she has to close her connection"* (N: focus group 1 Humanities)

> *"A girl would spend many hours because if she found the right time she would use the opportunity and stay longer hours"* (A: focus group 1 Humanities)

In contrast to the steady uninterrupted connection for females at home, males who may access the Internet from an Internet café are subject to the country's business opening hours. An Internet café would have to close four times for prayer during the day and have to close at three am at night. Participants pointed that out unlike males a female might sit and chat for six continuous hours because they have no outside commitments, relations or affairs.

Illustrative quotations from the focus groups:

> *"Boys, even if they use the Internet from home, have other outside responsibilities and they are outside most of the time"* (A1: focus group 1 Humanities)

"Boys may be using Internet café and not from home. These cafés close at 3 am, or maybe he has a meeting with his friends at 1 am. Girls have no commitment out side the house" (H: focus group 2 Science)

"Boys go out a lot and they do not spend all their time home and online but girls if they get used to login, they would login a lot. For example, if a girl, starts chatting at night, she may stay until five or six in the morning, nothing will stop her" (N2: focus group 1 Science)

7.4.1.2 Chatting identity

Concerning online chatting identity, participants were asked about their user names. Their responses show that they had been using both male and female names. In addition, some participants used other nicknames with which to conceal their gender. Even though most participants had used a male name at least once when chatting, the majority of them used a female name. A female nickname appeared to be appealing for most participants because it was more attractive for other chat users.

Participants described the attention they received just from using a female nickname. In fact some said that they had tried using a male nickname but they did not get the attention they used to get using a female nickname, which caused them change back to their female names. Participants pointed out that males also used female nicknames to draw attention, or to trick other male friends or to deceive some female chat users who would normally not talk to males.

Illustrative quotations from the focus groups:

> *"I use a girl's name and I tried once using a boy's name but I did not get any attention so I went back and changed it to a girl's name!!"* (R: focus group 2 Science)

> *"If you use a girl's name all sites are directed to you and you get everybody else's attention. One time I said to myself let's try to use a boy's name to see what is it like, I logged in and no one noticed I was there, so I left"* (H: focus group 2 Science)

> *"Sometimes boys use a girl's name just to mislead other girls and have a relationship with her only to discover when she adds him to her messengers and they exchange numbers that he is a boy!!"* (N: focus group 1 Humanities)

On the other hand, participants might use a male nickname for a variety of reasons such as to obscure their real identity or to stop unwanted male intention. Other participants admitted using a male nickname to be able to talk with other males and to understand the opposite sex more. Sometimes using a female nickname limited some participants to a certain style, manner and etiquette, and using a male nickname gave them some sort of freedom.

Online chat room users may choose to use a nickname that does not signify their gender but may hint at their personality. Participants noted that they used these nicknames because they did not want to be known, while others used nicknames that signified their personality more.

Illustrative quotations from the focus groups:

> *"When I first started using the Internet I used to use a male name just to conceal my identity"* (N: focus group 1 Humanities)

> *"A male name would give me more freedom and more attention. I really see the difference when I use a male than when I use a female nic names"* (M: focus group 1 Science)

> *"I am always obscure when I talk to others online so I do not show if I am a girl or a boy and even in my emails I do not state my gender"* (A3: focus group 3 Science)

7.4.1.3 IM messaging

Instant messaging is a different type of online communication that involves email and a chatting place. College students in different parts of the world are found to be intensive IM users and Saudi female university students are no exception. Female participants were also asked about their usage of MSN as part of online chatting discussion. The majority of them used it for a variety of reasons, such as its features, convenience, and the ability to have control over it. Participants pointed out that they used the Hotmail MSN messenger because it is the only software that has an Arabic version, and it is always updated. Participants expressed enjoyment in sending pictures and other files through the MSN and appreciate its convenience. It was especially appealing for those who had family and friends abroad, making communications with them much easier. Besides being relatively cheap, communications via MSN are also faster than email because they are immediate.

Illustrative quotations from the focus groups:

> *"I use the Hotmail Messenger because it is the only program that has an Arabic version. Yahoo is only English and only very recently the Arabic version was made available"* (N: focus group 1 Humanities)

> *"You can also take pictures using it and send these pictures so every time I buy something and I want my cousin who lives in a different city to see it I would just take a picture of it and send it."* (N2: focus group 1 Humanities)

> *"It has many features and you can talk with friends abroad with little cost"* (D: focus group 1 Science)

It was for some participants, the only way of communicating with loved ones. Indeed, this is generally for most Saudi females, since it is difficult for them to keep in touch with all of their friends after leaving school. Those who were reluctant to chat in online chat rooms found chatting via MSN more safe and private. Many participants expressed their comfort with not only the privacy MSN provides, but also the secure atmosphere that chatters enjoy. Users have greater control over those who can join a chat session. This feeling of having control over such chat made it feel safer for some participants.

Illustrative quotations from the focus groups:

> *"Many of my friends have gone their way in this life and we were only able to keep in touch through the Messenger"* (R: focus group 2 Science)

"My brother works with the marines and when he is at sea he cannot call us but he can access the Internet so I keep in touch with him using the Messenger" (E2: focus group 3 Science)

"You can log on any time and talk with whoever you want to talk to and you can block anybody that you do not want and unblock at any time" (N: focus group 1 Humanities)

Participants had also used MSN messenger for their studies, their use of it varied. Those who used it appreciated the usefulness of such use. They sent or received files and sometimes used it as a meeting place for those who could not meet in person.

"One time we planned a project online through the Messenger and we achieved a big section of it together online because one of the girls was not able to meet with us in person" (H: focus group 2 Science)

7.4.2 Email

7.4.2.1 Email use

Findings from the questionnaire survey analysis showed that male participants were more likely to use e-mail than female participants. In the focus group interviews with female participants they were asked about their opinion and judgment of this finding. While some participants agreed with the finding, nevertheless, the number of comments from participants who disagreed with the finding outnumbered those who agreed.

There were a variety of reasons offered for the low usage of email by female participants who agreed with the survey findings. One of the reasons stressed clearly was the overprotective traditions of some Saudi families when it comes to dealing with their daughters and their outside relationships. Saudi society considers a female family member to be vulnerable and susceptible, and careful watching and checking by other male family members over their actions are considered totally legitimate. Some participants articulated throughout the interview that the family pressure on their Internet usage was one of the reasons behind the low email usage by some females. Gender difference in communications was also a reason for women's low usage of email. Participants suggested that unlike women, men are usually more practical.

Illustrative quotations from the focus groups:

"There are some families who will think that their daughter is talking to strange men if they hear that she is using email. This is happens to me a lot so they say, "what if somebody got into your email?? even though nobody can get in unless I add them. And some girls are scared of their older brother if they knew that she is using an email address with an attractive name. This is why some girls are avoiding using emails" (A: focus group 1 Humanities)

"Men are usually practical and they only send the targeted information, but girls may call using mobile and chat then give the information" (M2: focus group 1 Science)

In contrast, some participants believed that females use email more than males. Some just expressed the belief that they use equally or even more, and others gave their own explanations, comparing email with mobile phone usage. Participants explained how male life style in Saudi Arabia may require them to use their mobile phones more, while females use email more. It is also hard for a girl to give her phone number to others; thus, using email is considered to be safer. Even in relation to academic email usage, participants outlined that they used email more than the phone, while it was the opposite with males.

Illustrative quotations from the focus groups:

> *"I believe they are[men] mixing with many people and being outside a long time forces them to use their mobile more but girls are always home"* (R: focus group 2 Science)

> *"Girls use email more because it is difficult to give others she does not know her mobile number especially men so contacting them by email is much easier and safer"* (R: focus group 2 Science)

> *"I have friends in my Messenger list and I do not have their phone numbers, and even my lecturers I only have their emails, not their phone numbers. While boys are the opposite, even their lecturers' mobile numbers are with them and they talk to them and ask them questions by phone"* (E: focus group 2 Science)

7.4.2.2 Email privacy

Participants were asked about their trust of email and its privacy. Their responses showed a general mode of trust for email and the privacy which surrounds its usage.

Participants also described various practical measures they took ensure their email privacy, such as having one email account for general use and another one for with their real name for academic and personal communications.

Some participants articulated their greater trust of emails to compared to phone numbers. However, having different email accounts for different purposes was one of the practical measures that participants took to ensure the privacy of their email account. Participants' trust in email depended on whom they were communicating with.

Illustrative quotations from the focus groups:

> *There is privacy with email I feel it is like a mobile number and sometimes I feel it has more privacy than mobile. People can see that you have got a mobile and it may be stolen or someone could look at the numbers you have and the things stored on it, but not the email"* (R2: focus group 2 Science)

> *"I think people when they subscribe to these mailing lists use special email so you find people have many email accounts, one for these lists, one for her friends, and one to be used in forums. I would focus on the one I used with my friends and protect it using security programs and software that are designed to secure email accounts"* (S2: focus group 1 Science)

> *"I trust emails which are forwarded to me more than those sent by mailing lists because usually people would have read it before forwarding and made sure it deserved sending"* (M: focus group 1 Science).

7.4.2.3 Email Forwarding and lists

Participants were asked if they forwarded emails since this is a common practice for email users. Some participants noted that they used this feature and some said they did not, although, those who did not use it themselves noted that they sometimes received forwarded email. Participants liked forwarding emails and created their own email list to send their friends interesting emails they received. Participants used this feature to circulate important information that might not be broadcasted on television or in the newspaper. Participants were also asked about their usage of email lists, and the majority of them subscribed some sort of email list. Participants liked it because they could receive useful information. Others indicated that they got to know world news through subscribing to email lists. There are university emailing lists whereby students can receive information about their studies. Some participants only subscribed to those email lists.

Illustrative quotations from the focus groups:

> *"There may be good information and other things, or news from anonymous sources that is not available in the newspapers so I send it so people can benefit from it"* (S: focus group 1 Humanities)

> *"I only subscribe to a mailing list that is linked to the university. I receive from them my courses, schedule, and assignments"* (R: focus group 2 Science)

On the other hand some of the focus group interviewees did not like email lists for many reasons, one of which was the quantity of emails sent by these lists. The low quality of the emails sent by some email lists caused some participants to withdraw their subscription.

Illustrative quotations from the focus groups:

"Sometimes I get overwhelmed by the number of emails. They would fill my mailbox especially if I did not open my email for four or five days" (H: focus group 2 Science)

"I think these mailing lists are rubbish and nonsense because sometimes they send you junk mail or things that have no point. I personally do not read them" (D: focus group 1 Science)

7.4.3 Internet and freedom

Regarding the Internet and freedom, focus group interviewees spoke of the subject of freedom from two perspectives. The first was the freedom of usage, meaning participants' ability to use the Internet without being watched or even the ability to use it in the first place. The second was the freedom they enjoyed when using the Internet whether in relation to their activities or the way they deal with others in online communities.

As regards the freedom of using the Internet, participants' responses indicated that the majority of them had the opportunity to use the Internet. This opportunity varied depending on participants' family. Accordingly, some participants articulated that they did not have the freedom of Internet use at home because of the family social structure. House rules which were normally enforced by parents also controlled participants' freedom of Internet usage. Most participants believed that they did not have freedom on the Internet and it usage, but others thought that there was some degree of freedom. Limitation on freedom were often self-imposed, due to the

participants personality and principles. Some participants explained how they tried to exercise freedom in online writing, but their integrity always constrained them.

Illustrative quotations from the focus groups:

> *"It depends very much on the house and the users plus the location of the computer. Some people put the computer in their bedroom and some have it in the family room. In my house computers are not allowed in our bedrooms, it is located in the family room where we all sit and gather so our usage is not individual but we use it as a group and there are specific times for Internet use so your are not allowed to use it late at night. Sometimes if we were allowed to move the computer to the bedrooms it would have to be in the day time, not in the evening"* (N: focus group 1 Humanities)

> *"I have the computer in my bedroom but I do not feel that there is freedom because you have got principles that deter you from doing things"* (S: focus group 1 Humanities)

> *"I do not see freedom on the Internet because many times I want to criticise somebody or their writing but I feel it is not fair to do this. I am supposed to have freedom because no one knows me but one's values prevent me from putting somebody down just because I do not like what they say!!"* (S3: focus group 1 Humanities)

In contrast, some participants exercised their freedom online and used the Internet as a channel to express their views and opinions. The Internet gave participants not only the freedom of expression but also the freedom to learn, ask questions, and to search of topics that they were not able or allowed to talk about:

Illustrative quotations from the focus groups:

> *"I see that the Internet has brought some freedom because I can state my opinion in my writings and I get other peoples' attention but in my house there is no attention to what I write"* (N: focus group 1 Humanities)

> *"On the Internet I can search and learn about things that I was not able to talk or ask. about I do not know how to explain this but in general if I want to know about anything I go to the Internet"* (N2: focus group 1 Science)

7.4.4 Online harassment

The issue of online harassment was discussed with the focus group interviewees. Their responses, in general, indicated that the majority of them faced some sort of harassment, particularly from male Internet users. However, there were some participants who noted that they had not been harassed online.

For those participants who had not faced any stalking or harassment online they found the Internet a good environment in which their self esteem increased. Other participants proposed a comparison between the treatment of males and females in online discussions to demonstrate how well they were treated online. In online culture, a person would be treated as he or she treat others regardless of their gender, according to some participants. Others believed that Internet harassment and problems which some females faced when participating online were due to poor moderation of some online forums that tolerate such harassment and stalking.

Illustrative quotations from the focus groups:

"When I write online I do not face any problems at all, it is the opposite I really feel more self-confidence" (S: focus group 1 Humanities)

"In forums when a girl posts something they will praise her even if what she posts was something silly, but if he was a boy they put him down" (N: focus group 1 Humanities)

"It does not depend very much on your gender, it depends on the moderators on these forums. If they are serious nobody can bother you but if the moderation is weak you would be irritated." (N: focus group 1 Humanities)

In contrast, many other participants indicated that they faced some problems online, which were mainly caused by male users. Participants' posts and writings in online communications were sometimes denigrated by males. However, participants differentiated the harassment they faced from male Internet users online into two kinds, one the harassment because they were women and the other, flirting and unwanted attention. If a woman did not pay attention to the male harasser, she might be subject to more harassment which affected her online participation.

Illustrative quotations from the focus groups:

"I faced some problems and it was all from boys, while girls were very supportive, so I do not know if it is because my writing is not good enough or if it's because I am a girl" (N2: focus group 1 Humanities)

"Yes I always face harassment such as sending private messages saying here is my number or here is my email contact me. They also send their pictures, they want to have a relationship" (M2: focus group 3 Science)

"Some people will try to spread some rumours just to show that you are not as respectable as you pretend to be. They will say she knew that boy and talked to that boy' just for slandering. This is all because you did not answer his private messages or you did not thank him for a signature he had made for you, even if you did not ask him for it. So he will try to spread rumours just for revenge" (N: focus group 1 campus A)

7.4.5 Internet attitude

There is a long debate about the stereotyped view that people hold in relation to gender and the Internet. Participants were asked about their opinions concerning the claim that men are better then women when it comes to computers and the Internet. As expected, their views varied some agreed and others disagreed but both gave their justifications.

Some participants spoke strongly of their disagreement with the view that men are better than women at using computers and the Internet, quoting their own experience and speaking of their own surroundings. Some participants referred this stereotypical view to men's way of promoting themselves, leading others to believe that they know a lot or they are better. This boastfulness makes others believe that men are experts, and girls do not do that. Girls may be highly skilled and know a lot and sometimes be Internet hackers, but they do not like to show off.

Illustrative quotations from the focus groups:

> *"My judgment is based on people around me and eventually they are limited. There is no one better than me with regard to computers and the Internet"* (N2: focus group 1 Science)

> *"Boys like to advertise themselves so when they hack a forum or a website you will find them writing their names such as "King of hackers" because he shows that he is a male, but girls are not like that, she would take revenge on anyone who bothered her without advertising it"* (N: focus group 1 Humanities)

On the other hand, there were many participants who believed that men are better than women at using computers and the Internet. Participants compared male computer science lecturers to their female counterparts, saying that males are better. Even women's ability to learn in comparison with men's was questionable, in some participants' views.

Illustrative quotations from the focus groups:

> *"I believe that boys know more about computers and the Internet. Girls' knowledge about computers is very limited not like boys"* (S: focus group 1 Humanities)

> *"Since I am a computer science student, I think that male lecturers are more skilled than their female counterparts here in the university"* (D: focus group 1 Science)

> *"I think boys learn computers and the Internet faster than girls"* (A3: focus group 3 Science)

Those participants who believed males are better than female at computer and Internet usage, referred their judgment to the number of male computer science specialists in comparison to their female counterparts. Many other reasons for gender differences in ability and experience were given by participants who believed that males are better than females. One of the reasons noted by participants is that Saudi female students have less time to learn due to their cultural and social responsibilities.

Internet skills was also cited an important reason for male competence, along with the learning and training opportunities that they have in Saudi Arabia. Unlike female, for Saudi males the door of opportunity was opened wide when computers and the Internet were first introduced in Saudi Arabia. More specifically, the computer science department in King Saud University was opened for male students well before the introduction of computer science in the women's campus.

Illustrative quotations from the focus groups:

> *"Boys may have more free time to learn while girls have more responsibilities so she only goes online if she is bored or has free time. Boys are always online; they do not have responsibilities at home"* (A2: focus group 1 Humanities).

> *"Boys have more chances than girls and training doors are opened for them they can go to any excellent training institutions they want to"* (E: focus group 2 Science).

> *"I believe that male specialists in computer science field are better even in the university environment. Males have three departments for computers while we have only have got one"* (M2: focus group 3 Science)

The concern with the opportunity to learn was expressed not only relation to learning in institutions but also learning from other people through communication. Males have the chance to meet and learn from a lot of people such as friends, computer engineers, or even people they meet in computer shops. This opportunity is not available for females in Saudi Arabia. Many participants articulated how this affected their ability to use and learn about computers and the Internet. Participants believed that if the learning opportunity had been opened for them in the beginning, things would have been different. Even though some participants believed that males are more comptent than them, there comments indicated their high self esteem and confidence in their own ability to compete with their male counterparts.

Illustrative quotations from the focus groups:

> *"Boys have the chance to learn from everybody so if he meet someone in the computer shop or even telecommunication shop you find him asking others and learn from them"* (R: focus group 2 Science)

> *"In my view if the girls had the same chances they would be as good as boys are and ma be better. I also think boys are better than girls because girls did not get any attention when computers and the Internet were first introduced in the kingdom"* (S2: focus group 1 Science)

Between those who believed males are more competent than females and vice versa, there were those who believed that the difference does not relate to gender. Those participants thought that male and female are equal in their abilities and skills, and that learning to use computers and the Internet is like learning any other subject in

which gender does not play any role. Others believed that the ability depends much on one's interest and practice.

Illustrative quotations from the focus groups:

> *"I think it has nothing to do with gender, it has everything to do with practice. For example my husband knows nothing about the Internet, I am the one who explains everything for him so someone who does not use it a lot is not like someone who uses it all the time. Even my daughter who is six years old uses the Internet. It depends on practice, not gender or age"* (A3: focus group 3 Science)

> *"I think the interest and experience does not relate to being a women or a man, it has everything to do with motivation. If you really like something you would be good at it"* (A2: focus group 3 Science)

7.5 Summary

Participants, who used online chat rooms, did so for many reasons, such as advertisement, when they first started using the Internet, for pleasure, and because they thought chatting online could be useful. On the other hand there were some participants who opposed chatting online because they thought that it is boring, has no benefit, and most of the time is nonsense. Participants have also used another form of online communication, IM, because it is convenient, safe and private, useful, has many features, and sometimes is the only means of communication.

Feeling guilty, being watched, and worrying about one's reputation, and social responsibilities, were some of the explanations that participants gave for women's higher anxiety, resulting in fewer visits to online chatting rooms. Other cultural

factors surrounding Saudi women's daily routine, such as having no outside relations, responsibility, and steady and stable access to the Internet, contributed to the long length of chatting sessions.

Participants were divided in their opinions on email use some agreed with the questionnaire findings and some did not. However, both groups cited aspects of the Saudi culture as the reason for high and low use of email by Saudi females. Forwarding emails, and email lists were used by participants to circulate information and news.

Similarly, participants were also divided in their views on the Internet and freedom. Some believed that the Internet had opened many close doors in a way which was not possible before, while others believed that there is no freedom on the Internet and that people's values and culture control their behaviour and attitudes even when they are anonymous.

Female attitude to technology in general and to the Internet in particular was debated in the focus group. Some participants commented that Saudi females are not as competent as Saudi males when it comes to dealing with computers, for many reasons such as lack of learning opportunities. Other participants maintained that females are as good as males and cited their own experience in comparison to males around them. Another group of participants thought that gender did not affect attitude but other factors such as interest and experience would.

7.6 Conclusion

Four focus groups were carried out with female participants in King Saud University from both Science and Humanities departments, about some aspects of Internet use and attitude. Saudi culture and lifestyle effected females' use of online chat rooms and the email, while values and manners influenced female attitudes and vision about Internet freedom. ICT learning opportunities for Saudi females were less than those for males, which as a consequence affected their competence and confidence in their skills.

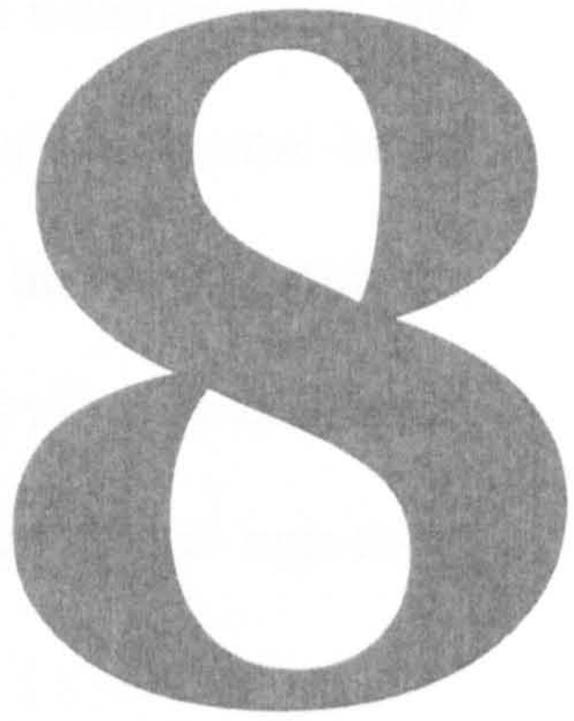
Chapter Eight

Discussion

POSITION IN THE THESIS

Chapter 1 **Introduction**	**Chapter 2** **Background**	**Chapter 3** **Literature Review** **Gender and the Internet**
Chapter 4 **Literature Review** **Internet Usage patterns and Attitudes**	**Chapter 5** **Research Methods**	**Chapter 6** **Questionnaire Analysis**
Chapter 7 **Focus Group Analysis**	**Chapter 8** **Discussion**	**Chapter 9** **Conclusions**
Bibliography	**Appendices**	

Chapter Eight



Discussion

8.1 Introduction

This chapter summarises and discusses the key findings of the research. The aim is to illuminate the effects of gender and Saudi culture on female use of the Internet. Gender differences in the use of the Internet are also discussed. The themes in this chapter relate to Internet attitude and use, to provide in-depth understanding and description. These themes include web and email use, chatting rooms, and attitude. The chapter concludes with a consideration of the implications of the study for further research.

Male and female participants have a variety of needs (social, academic work, etc.) in using the Internet, which lead to different degrees of exposure to Internet applications (discussion forum, e-mail, WWW, etc) and result in varying degrees of gratification experiences. One of the objectives of this study was to investigate whether males and females are different in their use of the Internet. Previous studies which were based largely on western populations such as American, or European university students, indicated that there are differences between the two sexes in terms of use and attitude. This chapter explores whether these findings are also true for Saudi university students.

8.2 PC ownership and the Issue of Access

The results showed that the majority of participants used computers and had computers at home. There were significant gender differences between male and female participants. Females were more likely to have a computer while male participants used computers more. This finding corroborates Al-Knezzi (2002) who found that in Kuwait, male college students used computers more than their female counterparts. Contrary to expectations, the gender difference in computer use was not due to computer availability. In fact, Saudi females were more likely to own a computer at home than Saudi males, because most families feel obligated to compensate their daughters who spend most of their time at home.

These findings conflict with some published studies in the West (Idowu et al. 2004, Brosnan, 1998; Scragg & Smith, 1998; Kirkpatrick & Cuban, 1998; Kirkup, 1995) who found that men were more likely to have their own computers than their female counterparts, and CPS (The Current Population Survey) one of the largest U.S.

surveys of computer and Internet use, concluded that in 1997 and 1998 men were 8% more likely than women to use the Internet at home. However, Li and Kirkup's (2005) study which showed that in both China and the UK, gender in computer ownership is no longer a factor. The gender gap in ownership and use of computer and the Internet rates had completely disappeared by the 2001 survey, both conditional and non-conditional on computer ownership.

The results of the study show that the majority of participants accessed the Internet from home. For female participants, accessing the Internet from home was the main channel, only a small percentage accessed the Internet from either Internet cafés or a friend's or relative's house. Internet cafés were a major place of access for male participants, due to the ability of males to visit and use them as they please. It seems possible that these results are a reflection of the traditional strict nature of Saudi culture where females are expected to stay at home and to carry out their leisure activities there. There are only a few Internet cafés for females in Riyadh and these are located in female-only leisure centres. These findings of the current study are consistent with most previous work in Saudi Arabia and in the Gulf (e.g. Al-Fantookh, 2001; Al-Ferm 2001; Shaheen 2001; Alkhezzi, 2002; Goblan, 2003; Al-Hajery, 2003; and Al-Dobaiyyn, 2003).

The majority of participants in the current study gave, as the first reason for starting using the Internet, their own curiosity. The second sizable percentage of participants started using the Internet through friends' and family members' recommendations, emphasising the strong social communication framework in Saudi society. The media did not play a major role in promoting Internet use. This result is also a sign of the

minimal role that the government plays in encouraging people generally and females in particular to use the Internet, which is reflected in the lack of accessibility even in universities. This point could be added to the reasons for female home Internet access.

8.3 Internet Use Patterns:

8.3.1 World Wide Web:

8.3.1.1 Web use: gender differences

The majority of participants used the web (99.2% male and 99.8% female), and the majority also had been using it for more than two years. However, the percentage of female participants who had been online for more than two years was smaller than male. The Internet was only made available to the Saudi public in 1999, and the survey was conducted in early 2004. The delay in the introduction of Internet services in the Kingdom was for political reasons (Section 2.2). Some participants indicated that they had been using the Internet since 1997-1998 as they were accessing it through Bahrain or United Arab Emirates. These findings are consistent with some of the research on Internet use in Saudi Arabia by Goblan (2003), Al-Hajery (2003), and Shaheen (2001).

The result of the current study supports earlier reports of Western studies that there are gender differences in Internet use patterns. Findings from earlier research in Western countries show that women went online less frequently, spent less time per session (Morhan-Martin, 1998, 1999; Bimber, 2000; Sherman et al., 2000a) are also supported. Although reports from some more recent research (Katz, Rice, and Aspden, 2001; Norman and Erbring, 2001) indicated that the gender gap in use and

access may be narrowing. Not all studies confirm this, some very recent research by Li and Kirkup (2005) contradicts this expectation. Their findings showed that both British and Chinese male respondents used the Internet more frequently and for different purposes than women.

The results of this study show that participants visited a variety of websites including entertainment, study related, sports, discussion lists, children and women related, health, and news websites. Although both male and female participants reported visiting these websites, they used them differently. For example, health, entertainment and women's and children's websites seem to appeal more to female users, while males visited news, sports, discussion forums and study related websites more. The observed gender difference in Web use is influenced by gender roles in Saudi society. Women's web use is shaped by their roles in childcare and as family providers. In contrast, men's web use is less social, and involves pursuing more isolated recreational activities, which is consistent with their strong motive for information (Jackson et al., 2001). These findings are similar to a Western study by Metzgera et al., (2003) who found that females used the Web significantly more than males did for entertainment, while males used the Web significantly more for news and business.

Confirming the above findings, female participants reported visiting other websites such as literature, art, commercial, fashion, international organizations, shopping, and educational websites, while male participants visited scientific, technical, Islamic, search engines, and "adult only" websites. Corroborate the by a great deal of the previous work in the field in both Saudi Arabia (i.e. Shaheen, 2001) and the West. Female participants used discussion forums less than males because of the negative

reaction males have to female's online contributions. Wallace (1999) argued that gender is such a salient feature of online persona and stereotyping is so common to do, that equal participation may not be enough to prevent these negative experiences.

It is interesting to note that no female participants reported visiting "adult only" websites. Since Saudi women access the Internet mainly from home, their use is more closely supervised by their family. Another possible explanation for this might be that in Saudi society modesty is an important social norm required of all people, and especially in women. Women are expected to be shy and modest, and should not talk about things that are considered to be indecent. Another reason might be that access to pornographic web pages is forbidden in Saudi Arabia, and it requires a high level of knowledge to be able to access such websites. In addition males can access the Internet from cafés which, according to research, provide users with proxy identities to break through the government filtering system. (Al-Hajery, 2003).

There is a similarity between these findings and those described by Odell et al (2000) who found that 25% of American male college students reported visiting online sex sites while only 1% of females used the web for such purposes (see also Bimber, 2000; Jackson et al., 2001, Scealy, Phillips, & Stevenson, 2002). In addition, Lenhart and Rainie & Kohut (2002) found that, 19% of online teenage boys compared to 11% of teenage girls said they had lied about their age to gain access to a pornographic website. This is comparable to the reported use of pornographic sites by adults, where 23% of men and 7% of women say they have visited adult web sites (Rainie & Kohut, 2000).

The current study findings converge with the findings of other Western studies which continue to find gender differences on level and pattern of usage and participation and men use the Internet for different purposes. It is consistent with studies (Morahan-Martin, 1998a; Morahan-Martin & Schumacher, 1997, 2000; Rainie & Kohut, 2000; Li, 2000, 2002; Mistler-Jackson & Songer, 2000; Kennedy et al., 2003; Li & Kirkup, 2005; Grace-Farfaglia et al., 2005).

8.3.1.2 Web for academic purposes

The majority of participants used the Web for school related activities on a frequent basis. In this case it is somewhat surprising that no gender differences were found in relation to male and female use. In Saudi Arabia, Goblan (2003) found that female internet users ranked using the web for academic purposes as the third reason for using the Internet. While Shaheen's (2001) findings were that both male and female Saudi university students in Jeddah spent longer hours using the Internet for their studies than using the library. This study findings are consistent with Al-Knezzi (2002), who found that the majority of both male and female Kuwaitis used the Internet for many academic purposes such as completing assignments, finding data and information, and collaboration with other students..

Participants in year three in this study used the web for study purposes more than those who were in years one and two. Those students have more experience in Internet use, and as people get more experience they should make better use of it. These findings seem to be consistent with Al- Ferm (2001), whose study of Internet use in Riyadh City found that there was a positive correlation between educational level and the use of the web. He found that as people become more educated and have

more experience they will use the web for more purposes such as finding education materials, communication, research, finding romance, listening to radio, and even visiting sex websites, than those who are less educated and have less experience.

However, the findings of the current study do not support all Western research in this area. For example, Perry et al. (1998) found that significantly more younger students (ages 20–21 years) than older students (age 26 or older) reported using the Internet to obtain university information, illustrating that younger students are, increasingly turning to the Internet as a source of information. A possible explanation for this might be the fact that recent data (Jones & Madden, 2002) indicate that the current generation of college students is quite comfortable with computer and Internet use because they started using computers during early childhood (20% began between the ages of 5 and 8). In Saudi Arabia, in contrast, students started to use computers in schools in late 2000 and only at high school level (Aldriaan, 2003)

Participants acknowledged the importance of Internet use for their education; the majority of both males and females regarded the Internet to be very or somewhat useful. The percentage of participants indicating that they had taken a course online was very small, which was anticipated, since Internet access is not yet available to students in most Saudi universities. However, the majority of participants were very enthusiastic about learning online. This is an interesting finding because, unlike the education system in the West, the Saudi Arabian education system relies heavily on text books and exams and not on research, which should encourage using the Internet for academic purposes. Yet in Shaheen's (2001) study, a remarkable percentage (60% male and 64% female) of Saudi university students believed that the Internet may act

as a substitute for the library. They tended to use the Internet prior to going to the library to find information.

This study's findings are in agreement with those of Al-Knezzi's (2002) which showed that 71.9% of Kuwaiti students believe that the Internet is either useful or very useful. The findings are also consistent with some Western research. For example, in the USA students seem to like using the Internet for their studies Jones & Madden (2002) found that 79% of college students felt the Internet has had a positive impact on their academic experience.

Participants' marital status was found to be associated with their Internet academic use and attitude, and although only a small number of married students participated, it was statistically significant. Married participants used the web more for this purpose and were more enthusiastic about taking courses online. It is difficult to explain this result, but it might be related to the convenience of online learning and searching for married people who may lack time due to their additional responsibility.

Besides using the web for personal interest, the hunt for information to satisfy users' curiosity is the most popular motive of Web use. This is confirmed by Goblan, (2003), who found that Saudi females ranked using the web for personal interest as their number one motive for Internet use.

The majority of current study participants used the KSU webpage only on an occasional basis. A possible explanation for this might be that there is little advantage to be gained from visiting the university website (because it included very little useful

information at that time) as one female participant noted that showed she only visited the KSU webpage at the end of the academic year to check her results. The KSU webpage has changed since the fieldwork was carried out. The interface has changed and some new links have been introduced, including a link to the University email page.

8.3.1.3 Summary

Demographic factors influenced Saudi students' general and academic use of the World Wide Web. The key factors in Web use are summarised in Figure 8.1.

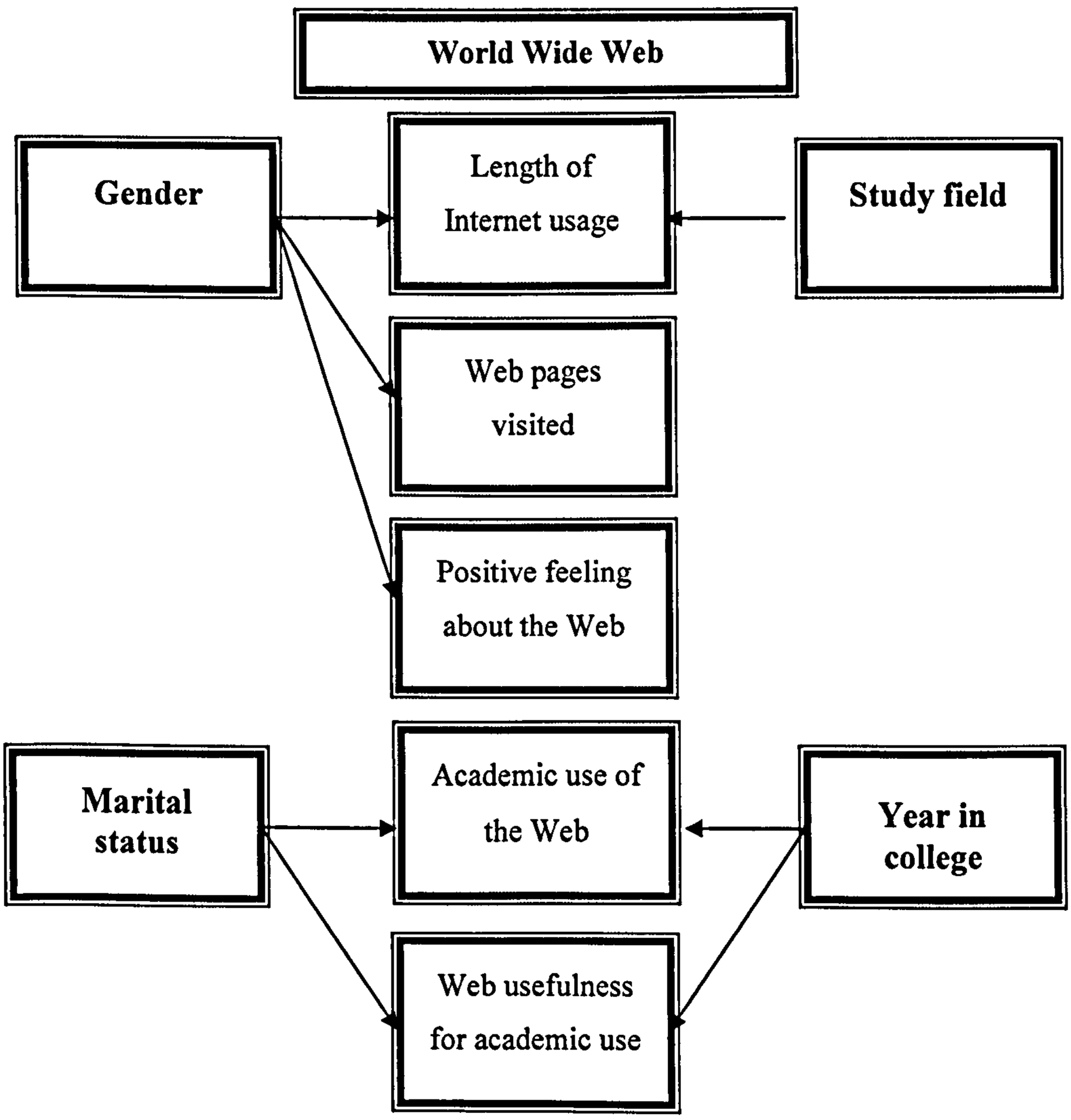


Figure 8.1: Impact on Web use and attitude

8.3.2 E-mail

8.3.2.1 Email use

E-mail was very popular among Saudi students, 78.5% of participants used it, while only 21.5% of participants did not use email at all. The majority of participants (67.6%) used it at least once per day and another 32.4% on a less frequent basis. This result suggests that email use has very much become part of participants' routine. This study produced results which corroborate the findings of a great deal of previous research in Saudi Arabia (Al-Dobayyn, 2003; Goblan, 2003; Al-Ferm, 2001), and other research worldwide (Odell et al., 2000; Sherman, 2000b; Jackson et al.; 2001; Goodson et al , 2001; Subrahmanyam et al., 2001; Jones, S. & Madden, 2002; Joiner et al., 2005).

8.3.2.2 Email and social communications

Email is a communication tool, and participants in this study used it for social communications, consistent with previous studies (Odell et al., 2000; Sherman, 2000a; Jackson et al.; 2001; Subrahmanyam et al., 2001; Jones & Madden, 2002; Lenhart & Rainie, 2002). Saudi students also used email to communicate with local friends as well as others overseas. On average, the users communicated regularly with people, including family members (43.4%), local friends (31.5%), and friends and others overseas (13.6%).

As e-mail is considered a daily activity on the Internet, there has been considerable interest in the question of whether email use encourages social relations. Participants reported that the Internet allowed them to stay in touch with family and friends and

extend their social networks. Interestingly enough, although participants used e-mail mostly to keep in touch with family members, the majority believed that the Internet had not improved their family relationships. This result was shown by participants answering "not at all" when asked if the Internet had improved their family connections. Yet when considering relationships with friends' the majority cited "a lot".

The above results can be explained as a factor of the culture and social structure in Saudi Arabia, where social relations are very strong and admired a great deal. These is an emphasis on face-to-face communication, so using e-mail to keep in touch is not enough. Female participants in focus group discussions articulated that they were very attached to their families and that any secondary channel of communication (i.e. email, telephone) was not accepted within the family circle. Outside the confines of the family circle it increased their relationships with their friends and colleagues (see section 7.3.3.2 Instant messaging).

8.3.2.3 Email preference

Saudi female participants indicated that, increasingly, they use e-mail for three specific reasons; because it is more convenient, quicker, and they can express their feelings better. Participants' comments in the focus groups confirmed the questionnaire findings, in particular, the convenience of email. For Saudi women, using email for communication is convenient because their activities and communications are more restricted than those of men. Women can send email when it is convenient and without others knowing about such a communication. In the focus group discussions, participants highlighted the convenience of email to communicate

with the opposite sex without crossing cultural boundaries. They also brought up email's convenience in comparison to mobile phones, since it is not acceptable for a woman to give her mobile number to men, other than a close relative.

Research in the West has found similar results. Women feel comfortable using e-mail because it is safer, more convenient, and instantaneous. It also allows them to control when and where to communicate, with less threatening initial communication (Morahan-Martin, 1998a). Weiser (2000) mentioned that e-mail and other online communication may foster a greater number of female users because email represents a momentous technological innovation that has introduced new social rules and avenues for maintaining interpersonal relationships.

8.3.2.4 Gender Differences

There are some conflicts in relation to gender differences in email use between the current study's findings and those in previous research conducted in the West. Participants in the current study held two views in relation to gender differences in email use: the first, expressed by some focus group participants and supported by the questionnaire findings, is that Saudi males use email more than females. The second view, held by some other focus group participants, is that Saudi females use email more than Saudi males.

A) More use of email by males

The questionnaire results of the current study, along with the views of other focus group participants, showed that Saudi males use email more than their female counterparts. Some focus group participants related the high male usage of email to

communication style: males are more practical and straightforward. This opinion is supported by other studies (Walther, 1996; Boneva et al, 2001; Cummings et al., 2002) which reported that the technological features of e-mail somehow interfere with women's expressive communication style and that the text-based communication format of e-mail makes it less suitable for maintaining relationships than face-to-face communication. Others also suggested that email communication is more suitable for men's communication style because it helps them to manage their activities (Sproull & Kiesler, 1986).

Some other reasons were offered by female participants to explain why females may use email less than males within the Saudi society. Firstly and explicitly, they attributed this situation to the overprotective traditions of some Saudi families when it comes to dealing with their daughters. Saudi society's view considers female family members as vulnerable and in need of more protection, since any hurt or damage caused to them is considered to be a fracture to the whole family and family reputation. Secondly, Saudi female students' relationships are limited to family members, school and college friends of the same sex. They are not expected to have many relationships outside the family and their relatives; therefore, their focus should be most concerned within family interest. Participants articulated throughout the focus group discussions that family pressure and restrictions influence their use of the Internet. This gives a strong and valid rationale explaining why males might use email more than females.

Analysis of the current research indicates that male students use email because it is less expensive than other means of communication, and the percentage of them who

like using email is higher than the percentage of female students. It also demonstrates that e-mail seems more appealing to males more than females, since they can manipulate it more professionally and utilise its features (i.e. sending pictures and sounds). Similarly, Alkhezzi (2002) in Kuwait concluded that males hold more positive attitudes towards using email than females which may explain their greater use of it.

It is also encouraging to compare the current research findings with those found by Li and Kirkup (2005) who reported that male students in both Britain and China are more frequent users of e-mail than female students. They also emphasize that females in their research, unlike women in some western countries, did not act as the pre-eminent communicators in families.

B) More use of email by females

During the focus group discussions, some female participants expressed their idea and belief that their use of email either is equal to or more than that of males. Some explained how the male lifestyle in Saudi Arabia may require them to be outside the house more than females; therefore, the use of mobile phones made things easier for them rather than an Internet connection. In contrast, Saudi females spend most of their time at home and it is easier and more convenient to use email rather than mobile phones. Women in Saudi Arabia are culturally encouraged not to give out their personal information (in particular the mobile phone number) to others, making email the most suitable channel of communication for females. Although some features of online communication interfered with women preferring face to face communication email may fit better with women's expressive and emotional style in communication

(Jackson et al., 2001), and as explained by participants who believed that using email was easier as they could talk about their feelings better.

This point of view seems to be in line with findings of some previous studies in Western countries (Gibbs, 1997; Jackson et al., 2001; Odell et al, 2000; Weiser, 2000; Savicki & Kelley, 2000; Boneva et al, 2001; Howard,et.al, 2002; Kennedy, 2003; Shade, 2004; Fallows, 2005; Eastin, 2005). The Internet's communication capabilities seem especially appealing to women in the West thus they have more favourable attitudes towards e-mail than do men. It is also been suggested that women in the West are more likely to define themselves through their social relations and to act as the communication hub between the household, and family and friends.

Some studies (Boneva et al., 2001; Norman and Erbring, 2001) have shown that women are more likely to use email for long-distance personal communication, but not for other forms of communication. Although the difference in email use was not statistically significant between women and men, in recent research Wasserman & Richmond-Abbott (2005) concluded that women were more attracted to email communication than men. Furthermore, they ascribed these differences to the fact that women use email more for personal, social, long-distance communication, while men are more likely to use email communication for more professional and commercial communication.

8.3.2.5 Email privacy

Saudi female participants used email for general and academic communications because of the privacy and confidentiality features of email, with which they felt more

safe and secure, and less threatened. In the focus group discussion when asked about email privacy, participants' responses indicated a general mode of trust of email privacy.

Participants had taken practical measures to ensure the privacy of their email. Some of these measures taken manifested a good knowledge and awareness about Internet security such as using software or changing passwords frequently. According to Weisband & Reinig (1995) user experience with and understanding of the Internet technology may support the notion of email privacy, and changing the password may also support the perception that emails are not readily read by others. Other measures are only preventative, such as having several email accounts: for general communications and for more personal and academic communications. However,, few participants believed that the act of logging on with a password meant that their email account could not be accessed by anyone other than themselves.

8.3.2.6 Email for academic purposes

Participants were also using email for academic purposes, such as exchanging information and files through email. Female participants said that they depended on email as the main channel of communication for academic purposes with their friends in the university and with module instructors. Although there were no gender differences here, email seems to be appealing to females more than males in Saudi Arabia because of the social culture of Saudi society. For example, focus group participants said that sometimes they used email to transfer and circulate files and other documents, since in many cases meeting face-to-face was very hard.

Year in college affected email use; participants studying in academic year three were using email more than those in years one and two. The fact that more participants in year three than in year one or two had used the Internet for more than two years may explain the significant correlation between year in college and email usage. Participants in scientific departments (i.e. computer science, medicine) were also using email more than those studying in non- scientific departments (i.e. art, literature, business). This finding may also be explained as more participants in scientific departments had used the Internet for more than two years than those who were studying non- scientific subjects.

The majority of focus group participants forwarded emails and subscribed to some email lists. The reason for subscribing to mailing lists was to receive important and interesting information, particularly from the university mailing lists. Others had created their own mailing group to circulate important information, news, documents, pictures, and study related material, which eventually increased communications among students. Hassini noted "email offers a means of communication to students and instructors where they can channel information that would otherwise (in a classical classroom setting) be regrettably lost" (Hassini, 2006). In support of this finding, the *Pew Project Report* noted that the most popular online social activity is forwarding messages to friends or family. More than two-thirds of American college students reported subscribing to one or more academic-oriented mailing lists related to their studies. They use these lists to carry on email discussions about topics covered in their classes (Lenhart & Rainie, 2002).

8.3.2.7 Summary

A number of cultural and gender factors affected email usage. Experience, study subject, and length of time using the Internet were all significantly associated with frequency of email use. There were also differences between male and female participants in email usage, frequency of use, and attitude toward using email. These differences were caused mostly by cultural and gender factors. Although some cultural aspects of Saudi society may encourage females to use email, others may work as a barrier to greater Internet usage, including email usage. A summary of these key factors and their effect on email use is indicated in Figure 8.2.

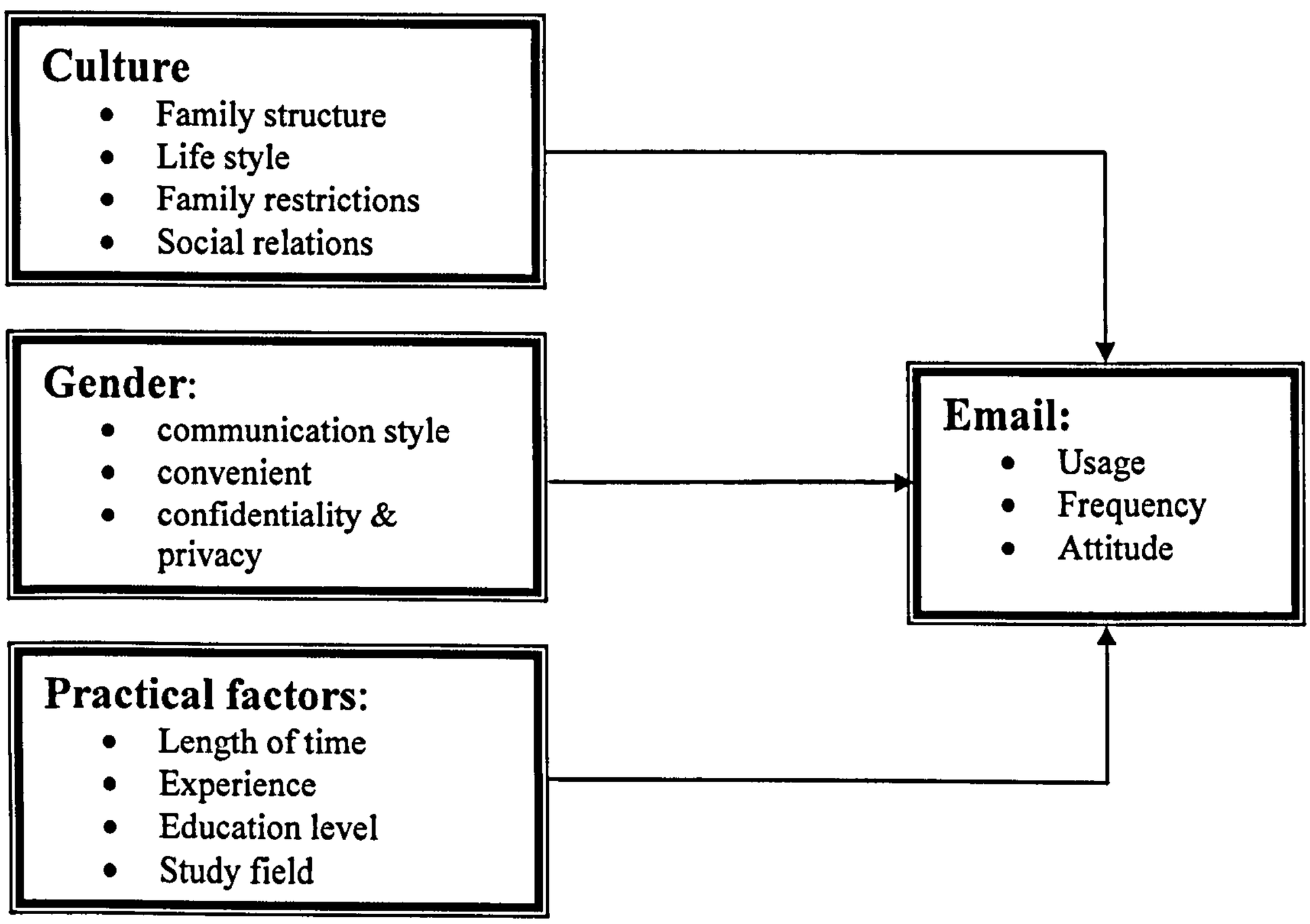


Figure 8.2: Impact on email use and attitude

8.3.3 Online Chatting

8.3.3.1 Chat use: gender differences

In the literature review, previous studies indicated that chatting offers the chance to meet new people, provides extra tools for communication with friends and family and creates more topics to share with them. The issue of the benefits of online communications to Arab societies is really difficult to talk about because of the sensitive (i.e breaking gender segregation) subjects included. As in many other countries, the Internet is much misused in Arab countries, as a result of which chatting online is perceived to be damaging to Arab culture (Al-Ferm, 2001; Al-Hajery, 2003; Wheeler, 2001; 2005).

The result of this study indicates that 66.5% (440)of participants used Internet chatting rooms; however, female participants (62.2%- 262) used this feature less than males (73.9%- 178). Although fewer female participants went to chatting rooms they tended to spend longer hours in chatting rooms than their male counterparts. Females chatted on a daily basis (one to two hours or more than three hours a day) more than males.

Active use of chat rooms has corroborated the findings of previous work in the field in the GCC countries such as Al-Ferm, (2001); Shaheen, (2001); Al-Knezzi, (2002); Goblan, (2003); Al-Hajery, (2003); and Al-Dobaiyyn, (2003). The study findings are also in agreement with studies in other part of the world. In Taiwan, chatting is very popular among students as they are able to discuss various topics and talk with particular users or groups (Chou and Hsiao, 2000; Stewart & Choi, 2003). In Macao,

chatting, including ICQ, BBS, chat rooms or forums is among the five most popular Internet activities (Wang, 2001).

There are similarities between the findings of the current study relating to women chatting and those of Leung (2001) who found that 77.5% of college students in Hong Kong used ICQ. However, female ICQ users tended to chat longer and more frequently for reasons of sociability, while males spent less time on each session for entertainment and relaxation. Primarily, males used ICQ to fill idle time between classes while females used ICQ to show or to seek affection and to socialize with friends.

Chatting online is popular with Saudi college students because it is one of the most effective way for boys and girls to communicate with each other without meeting face to face. In Arab societies, intimate relationships between the two sexes are forbidden before marriage, so using Internet communications such as chat rooms makes it easy to cross these prohibited barriers. Gender segregation is the norm in Saudi social life, and the Internet enables the violation of these cultural rules and values. Talking with strangers, predominantly the opposite sex, seems an "unusual" thing as reported by focus group participants, and this attracted them to use chatting online. For Saudi females, interactions with males outside their family members were a (mystery) and for some of them the opportunity to interact with strangers of the opposite sex in a safe and anonymous way was tempting.

The advertisements and publicity around chatting rooms, either online or through people gossiping, attracted many female participants to use or at least visit these

chatting rooms. For others, online chatting rooms were the first thing that attracted their attention. Such publicity was not always good; in fact, for many people in Saudi Arabia, online chat rooms have a very bad reputation, as explained earlier. Thus, in the focus group discussion, female participants sometimes felt uneasy about their use of online chatting rooms and they gave some justifications for such use. One justification, which was emphasized strongly by participants, was that they were young, only teenagers in high school when they began to participate. It seems that for some female participants, being a teenager might be an understandable reason for occasionally going across the culture barriers by contacting strangers, and males.

Participants who claimed that they did not use chat rooms gave many reasons for not doing so. Some said that chat rooms were a waste of time, boring, and that sometimes the discussions were pointless or even immoral. Other female focus group participants were clear in their views on the inappropriateness of female use of online chat rooms. For them, chatting online was seen as a vehicle for challenging Saudi society's view of proper public interaction between the sexes. In their view, most debates in chatting rooms were about romance, and were sometimes immoral. Again in their view Saudi females should avoid them, because they support practices that undermine women's traditional modesty. It could be concluded that the majority of focus group participants abided by the established Saudi cultural traditions and boundaries, and tried not to cross them, which was clear in their choice of online sites consistent with such roles. When they did cross boundaries, they justified it as the action of less responsible teenagers.

Similar to the current research findings some American studies showed that a higher percentage of men than women used chat rooms in 2000 and 2002. The greater use by men can be seen as an extension of their greater use of the Web for other activities (Kennedy, 2003, Anolli et al., 2005). Baron (2005) in explaining the gender differences in online chatting, reported that females take longer (both in number of turns and time on the clock) to close a conversation in online chat rooms than do males.

Online communication is oriented towards the individual, unlike some modern communication which is more family-oriented. Women's behaviour and social interaction in a conservative Saudi culture is largely subject to family control and supervision as well as society as a whole. The Internet permits females to use the medium on their own and to some extent outside of family control; where they can also be anonymous.

Some participants in the focus groups, before they went to online chatting rooms, felt anxious, because of the controversy over the appropriateness of online chatting. As Braune explained, "For religious reasons, there are restrictions on contacts between the sexes. Premarital relations are still forbidden, even though young people feel the need for uncomplicated contacts with the opposite sex" (Braune, 2005). Even if the internet seems to be a "safe" place, because of its anonymous nature, to form such relationships without having one's reputation damaged, some participants felt guilty afterwards about violating cultural and religious principles.

The unfamiliarity of females with this kind of environment where they can chat and form relationships with strangers and especially males, as well as worries of getting "caught" by parents also made them feel nervous, which as a consequence affected their participation in online chat rooms.

Family restrictions may also explain female lower participation in chatting rooms as, for Saudi females, home is their primary place for Internet connection. Males, in contrast, accessed the Internet outside the home in Internet cafés, away from the watchful eyes of their parents, and worried less about inadvertently advertising their use of chat rooms and their access of inappropriate online materials.

Participants indicated that protecting their reputation was a reason behind discouragement from using online communications, in this case, chat rooms, in order to protect their "decency", while at the same time these standards are not applied to males. Chatting and interacting with males freely, even in online chat rooms, is a way to blemish one's social standing as a respectable woman.

Participants also noted one further cultural issue, which is the general pattern of female participants' association with their families and the family schedule. Females in Saudi society are bound by more and different rules than males. Such rules provide a neutral ground on which females can be subject to closer monitoring than males. However, despite some family resistance to the use of the Internet, it has become almost entirely impossible to control this revolutionary medium of communication. As Parks and Floyd noted "the Internet is challenging the traditional distinction

between interpersonal and mass communication. The individual can today choose new alternative ways in order to get to know new persons" (Parks and Floyd, 1996).

Regarding the length of online chat sessions, female participants were spending longer hours than their male counterparts. During the focus group discussions participants gave reasons for such difference. These reasons, were mostly culturally driven, as explained above.

Since the main place of Internet access is the home; that meant they may enjoy a more constant and steady connection. Although accessing the Internet from home might not be the ideal place for some participants since they can be watched by their families, this type of Internet access provides more conducive surroundings for longer online chat sessions. For example: one participant noted that she sometimes chatted from 11 pm to 6 am the next day. In contrast, males who may access the Internet from an Internet café are subject to the country's business opening hours. An Internet café would have to close four times for prayer during the day and have to close at 3 am.

Females in Saudi Arabia not only have steady Internet access at home, but also unlike Saudi males, females have no outside commitments and obligations, allowing their online chatting session to be longer. Throughout the focus group discussions, some participants indicated that they had the Internet connection in their bedroom but they went chatting less because they always waited for the right time when family monitoring would be much less.

These factors explain the rather contradictory results of female reluctance to use chat rooms and the fact that once they started using them they used them a lot and may become addicted to them. The result of the current study supports Shaheen's (2001) findings that chatting online is very popular and Saudi users risk becoming addicted to it, because it appeals to users of college age more than any other age group. Focus group participants indicated that they were addicted to chatting online especially when they first started using the Internet.

8.3.3.2 Instant messaging (IM)

Instant messaging is one form of the larger online phenomenon of computer mediated communication (CMC) discussed in focus groups, but not in the questionnaire. The majority of focus group participants had used (IM) and had a positive experience with it. IM features, such as buddy lists, sound, emoticons, profiles, file transfers and away messages, attract participants. According to Jones and Madden, published as part of the *Pew Internet & American Life Project*, "College Internet users are twice as likely to use instant messaging on any given day compared to the average Internet user. On a typical day, 26% of college students use IM" (Jones & Madden, 2002, p. 2).

Female participants argued that IM supplements traditional forms of communication and, therefore, is for the better, because it widens their real life community into the world of the extended real and virtual community. Moreover, participants using IM can simply send a quick message and expect a timely response. Since it is very difficult for females in Saudi Arabia to meet whenever and wherever they desire, meeting online using (IM) worked well to overcome these difficulties. As Grinter and Palen found, "college teens reported using IM to communicate with roommates and

housemates rather than meeting face-to-face or overtly disrupting them" (Grinter and Palen, 2002, p. 27).

For females in Saudi Arabia IM is quicker and easier than meeting with others face-to-face. For these reasons, IM had become an important aspect of participants' life. The convenience of IM made it more appealing for some participants, especially those who had family and friends abroad, to communicate with them. Beside being relatively cheap, communications via IM are also faster than email because they are immediate. It is sometimes the only way to communicate with overseas loved ones which is particularly true for most Saudi females.

Those who were reluctant to use online chat rooms, found IM an ideal pastime hence it is more safe and private. Many participants expressed their comfort at not only the privacy IM provides, but also the secure atmosphere that conversation enjoys. Participants who were IM users enjoyed being able to conduct conversations independently with others including the opposite sex. They could even start conversations, and break them off if they did not like them. Users had a greater control over those who could join a chat session. This feeling of control made it safer.

IM is used by females in Saudi Arabia to overcome the limitations which are otherwise built in to their general and academic lives. Participants described how IM helped them accomplish many tasks regarding their study and how it facilitated their requirements. Students were able to work on their projects when they were not able to meet in person. Students in general and Saudi female students in particular would benefit from IM services for their studies since going out and meeting with others,

most of the time and for many Saudi female is difficult. Participants were able to transfer files, and conduct meetings:

> *"One time we planned for the project online through the Messenger and we achieved a big section of it together online because one of the girls was not able to meet with us in person"* (H: focus group 2 campus B)

Participants have also complained about those whose families would not allow them to use the Internet and commented that communicating and working in a group project with them using more conventional means was very hard. The limitation some females had in relation to Internet use made it harder for others to work with them on academic projects. Grinter and Palen (2002) noted that students in their study reported being bothered by IM nonusers and complained of the inconvenience and additional effort required to communicate with them.

8.3.3.3 Online identity

Regarding online identity in chat rooms and in forums, participants used both male and female names, and others used nicknames which concealed their gender. Participants used a male nickname to be able to talk with other males and to understand the opposite sex more. Even though most participants had used male names at least once when chatting, the majority of them used a female name:

> *"To be honest I do sometimes use a male name in chatting and in forums, not because I do not want to use a female name but for the sake of a change, that is all. You want*

to know how boys may think and how people would have talk and deal with you if you were a boy" (S2: focus group 1 campus B)

Because gender segregation is the norm in Saudi society, using a male nickname in online chatting room for some female participants acted as link which provided some data which helped them to understand the mysteries of the opposite sex. In addition, participants also used male nicknames just to experience directly what is like to be of the opposite gender, by assuming it and using it in conversations.

Sometimes using a female nickname limited some participants to a certain style, manner and etiquette, and using a male nickname gave them some sort of freedom. Theories on women's language suggest that females use a language style that reflects diffidence, shyness, and lower self-confidence, indicating a lack of commitment or strong opinion (Eckert & McConnell-Ginet, 2003). Jaffe and others noted that in using a male name to act the way they like, women had an increased tendency to mask their gender because they found masking it 'liberating' (Jaffe, et al., 1997; Bonebrake , 2002; Stewart & Choi, 2003; Piecowye, 2003). Using a male nickname would also help some participants to stop unwanted male attentions. LaPin (1998) states that women adopted gender-neutral or male on-line pseudonyms in order to escape the male sexual attention in these online interactions.

Nevertheless, female nicknames appeared to be appealing for most participants because they were more attractive for other users. The tendency for most participants to mask their identity only by using another female name might reflect an effort to maintain a parity of status in the shared activity of online chatting. As Bruckman noted, "many people, both male and female, enjoy the attention paid to female

characters. Male players will often log on as female characters and behave suggestively" (Bruckman, 1996). However, participants may choose to use a nickname that does not signify their gender but may hint at their personality, because they do not want to be known. As Bruckman noted "women were often surprised to what extent their female first name can bring numerous disturbing unsolicited contacts. Women choose to switch to non-gender-specific login names to prevent unwanted attention (Bruckman, 1992).

8.3.3.4 Summary

Both male and female students had used online chat rooms. However, there were gender differences in term of the frequency and length of sessions. Female participants visited online chat rooms less frequently than their male counterparts, however, females tended to spend longer hours. This difference is mostly a cultural product of variations in male and female lifestyles.

Female participants had used male and female nicknames, and sometimes used non gender identity for social and cultural reasons. However, a more personal and private form of online communications (IM) proved popular amongst Saudi female participants because of its features that facilitate their more general and academic needs. The interrelationship of the different factors are summarised in Figure 8.3.

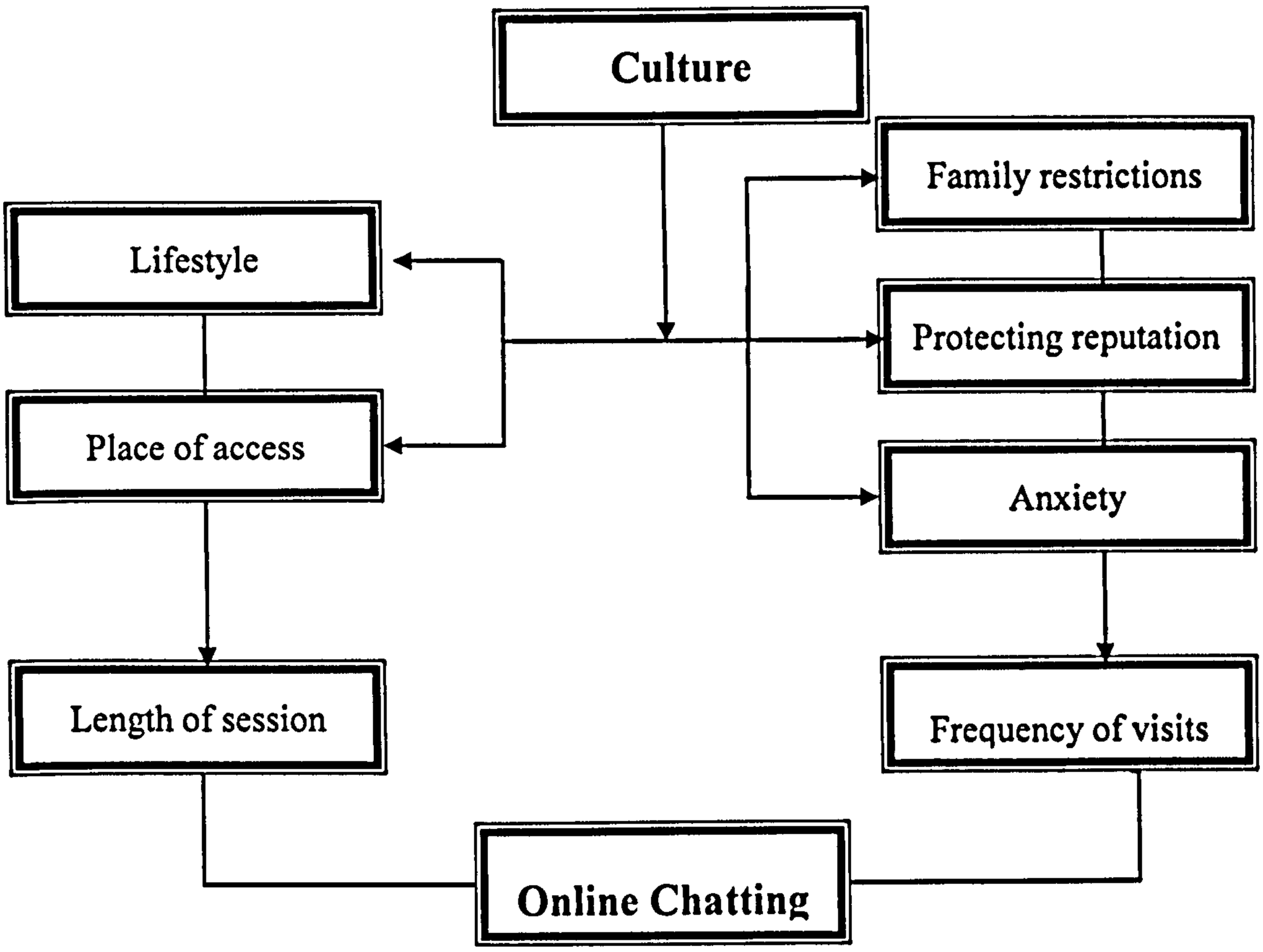


Figure 8.3: Factors influencing online chatting

8.4 Internet Use Barriers

Women's access to the Internet is not a simple question of whether there is a computer connected to the Internet that they can use. Numerous other barriers are just as significant in determining whether women can use the Internet. These can be divided into two main categories: technological and socio-cultural barriers. This section will look at how these barriers affect women's use of the Internet in Saudi Arabia.

As predicted, the result from the questionnaire analysis revealed that slow connectivity is one of the most significant technological barriers Saudi students face, where the majority of both male and female participants reported it as their number

one obstacle. This finding of the current study is consistent with those of Goblan (2003), Al-Hajery (2003), and Al-Dobaiyyn (2003) who found that problems regarding Internet connection in Saudi Arabia including slow connectivity and disrupted connections were the most frequently reported barrier.

It is widely reported that the Internet service in Saudi Arabia is expensive and slow; all Saudi Internet traffic is routed through a single server in Riyadh that is equipped with web filtering technology. "With all traffic going through only one node at KACST (King 'Abd al-'Aziz City for Science and Technology), a step necessitated by filtering, traffic slows and is extremely vulnerable to malfunctions, hacking, and "denial of service" attacks. In fact, Internet failures of lesser magnitude are announced quite often, and categorized as "slow browsing," "very slow browsing," and "loss of internet connectivity" (Teitelbaum, 2002). Such problems of poor service may discourage or at least limit effective use of the Internet, particularly with busy signals, dropped connections, and slow downloads and high fees.

The cost of Internet access was also a major issue for participants in the current study. One unanticipated finding was that male participants reported having this problem more than female. A possible explanation for this might be that in Saudi culture unlike men, women are expected to be home most of the time and should not be out without their family; thus families feel obliged to make it up by providing them with what they ask for. This finding about Internet cost is consistent with other research which found that the cost of Internet connection is an obstacle for both male and female Internet users in Saudi Arabia (Goblan, 2003; Al-Hajery, 2003).

These issues of expensive and slow Internet connections have dominated newspaper discussions about Internet use in Saudi Arabia and have been seen as the main problems facing users (Al-Fantookh, 2001). In Saudi Arabia the Internet Service Providers (ISP) rent the lines, in bandwidth units, from countries like Canada and the United States, which translates into higher costs to ISPs and as a result to customers. With prices reaching as high as $60 per month for the slowest option of broadband at 64K, dial-up connections tend to be the more popular option. For example, out of the estimated 1.5 million Internet users in Saudi Arabia, one of the countries that introduced the Internet only at the turn of the century, 12 000 are DSL subscribers (Saudi Telecom 2004).

The high prices charged ISPs for access and the relatively high charges for use, all mandated by the ISU (Internet Services Unit), create a strong economic disincentive for both ISPs and users. Moreover, the small number of Internet modem ports was also a problem which in itself limited access (Al-Fantookh, 2001).

Participants reported having a problem in accessing computers and the Internet as a constraint; however, males complained about access much more than females. This may be explained by the fact that Saudi females had no financial problems regarding computers or even the Internet given the fact that cost for them was not a major problem, due to socio-cultural factors. Females, however, complained more about difficulties regarding the actual use of the Internet. Goblan (2003) in her research on Saudi female college students, reached a similar finding and recommended that Saudi universities should introduce courses and training sessions in Internet use for their students.

Participants faced what may be called socio-culture obstacles in using the Internet such as lack of time, lack of confidence, family restrictions, and security concerns. Lack of time was one of the main barriers effecting Internet use. It emerged that female participants were affected more by this factor than their male counterparts. This result is consistent with Goblan (2003), Al-Hajery (2003), and Al-Dobayyn (2003) whose findings confirmed that time is a major constraint on women's use of the Internet.

Female participants who study and need to take care of their families may not be able to use the Internet during the day, and even in the evening are usually spent taking care of their families. As the bulk of household and childcare responsibilities rest on Saudi women and girls, they are less likely to have free time to spend using the Internet whether at home, or in other places. Thus, for women having access to a computer and the Internet in households is not enough; lack of time to go online can be an obstacle for Saudi women who still study in college and have social caring responsibilities. Resnick (1995) states that, "the biggest barriers to women going online are time and money". Given the enormous time constraints confronting many women, finding time to explore the Internet may be a overwhelming challenge (Weiser, 2000; Kole, 2001; Rajagopal & Bojin, 2003).

Family restrictions was ranked the fourth obstacle for both males and females, however, it emerges that it is an issue for females more than males. This finding was expected, bearing in mind the social cultural structure of families in Saudi Arabian society. Parents' beliefs about the appropriateness of certain behaviours for their sons

and daughters influence their children's self-perceptions (Shashaani and Khalili 2001).

The evidence that Saudi families make the technology available to females on the one hand and place restrictions and limitations on the other could be interpreted as meaning that families do not reject the technology per se, but how it is used. This issue is not only a Saudi issue, parents around the world are concerned with balancing the benefit of using the Internet and being safe. Parents' restrictions may take the form of providing negative feedback on the consequences of Internet use to their children or even by force such as disconnecting the home phone services. The Internet is relatively new in Saudi Arabia and known to be an insecure environment. Thus, some Saudi parents are reluctant to allow their children to use it. They may be concerned by reports of the Internet as a neutral ground which would allow their male and female children to interact without fear of social consequences.

Parents may also worry about their children accessing unsuitable material. Inappropriate materials such as pornography may be accessed both by accident and with deliberate intent to view. It is difficult to explain why females complained about family restrictions more than males, but it might be because men are not always subject to the same rules. Reputation is highly sensitive and family see it as their duty to protect their daughters from any harm and risk.

Saudi parents fear that their daughters become less shy as a result of their Internet use (Al-Saggaf, 2004). Becoming less shy is viewed by researchers in the West as a positive outcome of the Internet, as it encourages individuals to be more sociable and

outgoing (Hine, 1998; Rheingold, 2000; Preece, 2000; Utz, 2000; Wong, 2000). In the case of Saudi society, it is seen as a negative effect. Shyness can prevent people from behaving badly, as a mechanism that can regulate behaviour. Probably for this reason shyness is considered an essential tenet in Islam, and it is important that individuals remain shy and modest. Saudi parents like many parents around the world, have many concerns about the Internet and struggle to protect their families from the worst elements online, either dreadful people or immoral information. In support of this view, Lenhart and Rainie (2002) noted that in the US, parents of girls are more concerned than parents of boys that they will be victimized, stalked, or harassed, online.

Female participants also complained about the complexity of the Internet more than did males. Their lack of confidence goes back to the relationship between gender and computers which has been much researched in the literature. It was argued that many forces and pressures mean that women's relationship to ICT is often characterised as 'problematic' (Spacey & Goulding, 2003). Shashaani and Khalili (2001) in their study about Iranian college students noted that females' lack of self-confidence in relation to computers was the reason why five times more male students are likely to pursue computer science studies and related careers. This social stereotyping may give females the impression that computers are not for them and can lead to their feeling under-confident and reluctant to use the Internet.

This study produced results which corroborate the findings of a great deal of the previous work in the field. Omar (1992) showed how the stereotypical views in Kuwaiti society affected the presumption that men have a more positive attitude and

are more qualified for technology-related work, which was also related to women's' status and work opportunities. A social barrier for females is the attitudes of parents and teachers who believe that computers are learning tools predominately for males (Yeloushan 1989). This issue of lack of confidence can be a problem for women, especially for those women whose experiences of using the Internet were negative.

Both male and female participants expressed their concern about their safety online, however, females were more worried about security than their male counterparts. Concerns such as hacking and, identity theft may well put off some women who may have never used the Internet but have heard about related issues. Another possible explanation for this might be that females perceive themselves to be at risk from approaches by strangers, particularly in web-based chat rooms.

Participants faced the barriers of language, access denied, censorship, and viruses. Interestingly, female participants reported different barriers than those reported by males, reflecting their gender differences. They cited barriers such as meeting unwanted people, worries about Internet addiction, the accuracy of Internet information, and lack of experience. Males, on the other hand, reported barriers such as continuous connection interruption, and technical problems. These findings of the current study are consistent with those of Al-Hajery (2003) and Al-Dobayyn (2003) who found that censorship, lack of experience, and accuracy of information are some of the major barriers facing Internet users in Saudi Arabia.

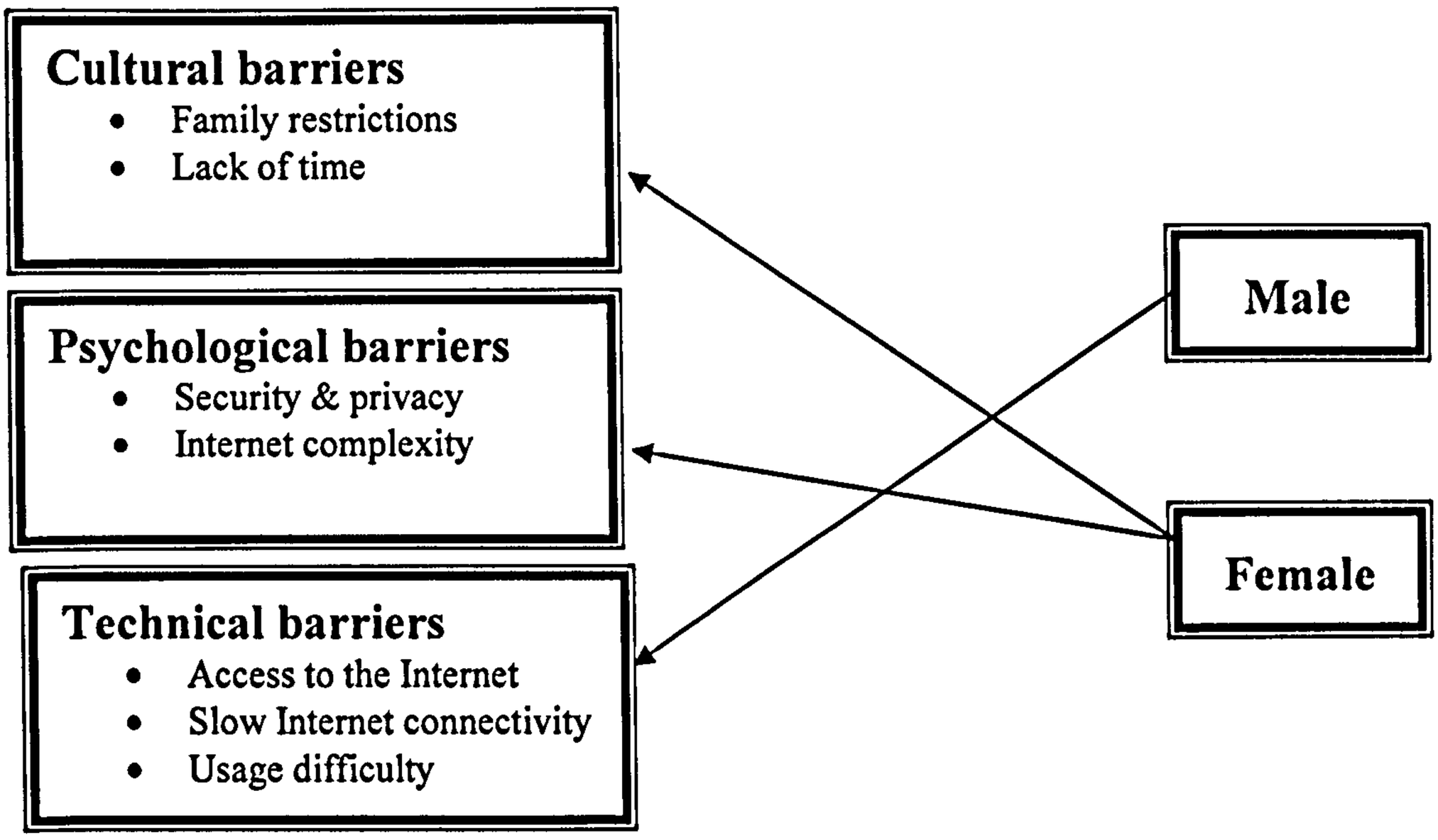


Figure 8.4: Most influential barriers related to gender

8.5 Internet experience

As predicted, the majority of both male and female participants had received no formal Internet training. However informal training by friends and family members were popular. Training in private institutions was more popular among female participants than their male counterparts, which seems to be consistent with Al-Dobaiyyn (2003) who found that the majority of Saudi academic females learned to use the Internet either by themselves or by going to private institutions. However, the current study found that female students depended on private institutions to learn about computers and the Internet, more than their male counterparts.

When data was analysed by gender, the findings, surprisingly, did not support the prediction that females are less experienced than their male counterparts. In fact no significant gender difference was found on all experience measures, with, on average,

female and male participants reporting good to excellent ability to undertake uncomplicated tasks (accessing the Internet, using search engines), and poor to fair ability to undertake more complicated tasks (creating and maintain webpages).

Participants' views of their ability to download files from the Internet differed, but those who rated their ability to be "good" to "excellent" slightly outnumbered those who rated it "poor" to "fair". The only independently significant relationship found with gender was that females more than males, reported ability to program using hypertext software. The reason for this is not clear but it may have something to do with the number of females from the computer science department (24) participating in the current study compared with (0) males from the same department.

Participants were asked about their experience with the Internet and its impact on some everyday activities in three different areas: general internet use, finance and shopping on-line and community activities. The results indicated that there was a significant relationship between participants' gender and experience of searching for health information online, learning about new things, and online family connection. The Internet has improved female participants' ability to get health information online more than it has their male counterparts. This confirms earlier findings that female participants visited health related web sites more than males. It also corroborates findings of a great deal of the previous studies in the field. Studies show that there was a gender bias in terms of site usage with far more women using the health sites. (Sillence and Briggs, 2004). Women were more likely to seek health information online than are men (Rainie & Kohut, 2000; Fox & Fallows, 2003; Cotten and Gupta, 2004).

It is interesting to note that female participants indicated that they learned a lot about new things using the Internet more than their male counterparts. These findings are consistent with Shaheen (2001) who found that female college students in Jeddah visited scientific, cultural, and educational web sites more frequently than males. Even though female participants used email less for communications, they tended, much more than males to indicate that their family connection had improved using the Internet. This rather contradictory result may be explained by the fact that in Saudi culture, men have many means of keeping in touch with close relatives than women. For example, unlike women, men can go to visit them or meet with them in public places without the need of parent approval of such a visit or meeting.

As expected, both male and female participants indicated that the Internet helped in improving friendship connections. Since friendship connections are not as important as family connections in Saudi culture, one can understand the effect the Internet has in improving such relations. Shopping online and managing personal finances had not improved for both male and female participants using the Internet. This result was expected, given the fact that the Internet was only recently launched in Saudi Arabia. People may still feel reluctant to buy online or use their credit cared.

In contrast to earlier findings, however, evidence from previous research in other parts of the world (Morahan-Martin & Schumacher, 1997; Morahan-Martin, 1998b; Morahan-Martin & Schumacher, 2000; Spacey & Goulding, 2003) indicated than women are less confident about their Internet skills than men. These studies reported male having more skills than females in both using the Internet, and finding information online. A more recent study by Li and Kirkup (2002) among British and

Chinese students found that compared to males, females were less comfortable and confident about their ability and skills to use search engines, downloading materials, and keep records of Web sites. Although the findings of the current study differs from these studies, they are consistent with some other Western research such as those of Morahan-Martin, (1998a); and Wei, (1998) who found that under certain situations (e.g., classrooms, work activity) women were just as proficient as men in Internet use.

These earlier studies (Morahan-Martin & Schumacher, 1997; Morahan-Martin, 1998a; Morahan-Martin & Schumacher, 2000; Spacey & Goulding, 2003) provide a partial explanation for gender differences by listing some of the factors that may contribute to males feeling more comfortable and competent with the Internet. Rosen & Weil (1995) found that females were more likely than males to be technological resisters, which may also be pertinent with the Internet. Negative attitudes towards new technology, which, as discussed in the literature review, are more common in females than males may also play a role in females being less comfortable and competent with computers and the Internet than males (Morahan-Martin & Schumacher, 2000).

8.6 Attitudes toward the Internet

8.6.1 Background

There is a large volume of literature relating to gender attitude to computer and the Internet, with findings that are somewhat conflicting. One group of research findings reveals that males have more positive attitudes and less computer anxiety than females (Morahan-Martin & Schumacher, 1997; Morahan-Martin, 1998b; Sherman et al.,2000a; Li, 2000, 2002; Jackson et al., 2001; Durndell & Haag, 2002 Broos, 2005; Krendl & Broihier, 1992; Okebukola, 1993). However, other studies found little or

negligible differences (Busch, 1995; Shashaani and Khalili, 2001; Tsai et al., 2001; Colley et al., 1994; Kay, 1992). It appears that considerable doubt remains regarding gender differences in computer anxiety between the two sexes. For example Kay (1992) suggested that these conflicting results were due to inconsistencies in the empirical methods used to collect data, and he recommended an improvement of construct and development of scales used for measurements.

Very few and limited studies were found in the literature review about Saudi and Arab students' attitude to the Internet. Thus, the findings of the current study will mainly be compared to findings in other parts of the world. The results revealed that most participants had positive perceptions about the Internet's impact on the individual and society. Participants rated the usefulness of the Internet highly and found it, in general to be important. Most students had a positive attitude and lower anxiety toward using the Internet. However, the findings indicate that participants seemed to have some real or perceived difficulties in their ability to control their use of the Internet.

Most literature found was related to computer attitudes, which although in part relates to Internet attitude, yet is different. A study done by Al-Amoudi (1995) found that there is a generally positive attitude toward using computers among students in Saudi Arabia (Al-Amoudi, 1995), while Al-Khaldi and Ben-Bakr's study (1993) found that usefulness and the affective part of attitude had a significant effect on Saudi personal computer utilization. AlJabri, (1996) in his study of gender differences in computer attitudes among secondary school students in Saudi Arabia found that boys were more positive and had lower anxiety towards using computers.

Analysis of the current study findings show that participants' age, marital status, and their field of study has no significant effect on their attitudes towards using the Internet. However, participants' year in college has a very small impact on affection and perceived control subscales, but no statistically significant impact on the perceived usefulness subscale. In the following sections, factors associated with participants' attitude will be discussed in more detail.

8.6.2 Internet attitude and gender

It is somewhat surprising that in this study women showed equally positive attitudes toward the Internet as men. Given the long history of gender differences in computer attitudes and use, it was surprising that differences seems to be disappearing on the Internet, whose the most common mode of delivery is the computer. These findings do not support Western and non-Western published research (Morahan-Martin & Schumacher, 1997; Morahan-Martin, 1998a; Sherman et al.,2000a; Li, 2000, 2002; Jackson et al., 2001; Tsai et al., 2001; Durndell & Haag, 2002 Broos, 2005, S`anchez-Franco, 2006). These findings indicated that females had less favourable attitudes and lower self-efficacy towards the Internet, while males had more positive attitudes and were more confident in their ability to use it.

The findings on gender differences in Internet behaviour and attitudes resemble research findings on computer behaviour and attitudes, suggesting a relationship between the two. Males have used the Internet longer and feel more competent and comfortable using the Internet than females. Thus these gender differences were deeply rooted in the differences in computer use and attitude (Morahan-Martin, 1998b; Tapscott, 1998 Morahan-Martin & Schumacher, 1997; Schumacher &

Morahan-Martin, 1998a). Sherman et al., (2000b), for instance, reported that boys in general have a more positive attitude towards computers, less computer anxiety and more computer confidence than girls do.

Although the current study findings differ from the above studies, they are consistent with those of an early study Busch (1995) who found no gender differences in computer attitude, although he found that males were more experienced. There were also similarities between the current study findings and some of those described by Shashaani and Khalili (2001), King et al. (2002), and Tsai et al., (2001). In these studies the findings revealed that there were no gender differences in the perceived usefulness of both computers and the Internet.

There are several possible explanations for the differences between the current study findings and the findings from some of the literature reported earlier and in Chapter 4. Previous studies ascribed females' anxiety and negative attitude towards the Internet to a negative attitude towards computer use, low female participation in computer science and the male dominant culture of the Internet.

In the context of Saudi students in this study, although females use the Internet less and have less experience, there were no significant gender differences in the median usefulness and affection scores between men and women, however, females rated control statements slightly lower than males (see section 5.4.6.3). These results may be explained by the fact that Internet access is not yet easily available for most Saudi university students for political and bureaucratic reasons, which makes Internet use very much voluntary.

As for the non significant gender difference in Internet attitude, it may also be explained by the voluntary nature of Saudi exposure to the Internet, since both men and women are not forced to use it. This is supported by previous findings mentioned related to the start of Internet use. The majority of participants started using the Internet due to their own curiosity (59.6% for male and 51.4% for female). The level of voluntariness is defined as the extent to which potential adopters perceive the adoption decision to be non-mandatory (Venkatesh & Davis, 2000). Venkatesh and Davis found that voluntariness has a moderating effect on intention to use. Therefore, behavioural intentions vary between mandatory and voluntary usage (Sun & Zhang, 2003). Others such as Moore and Benbasat (1991) suggest that it is not necessarily actual voluntariness which will influence behaviour, but rather a perception of voluntariness. Voluntariness is considered to be a moderating factor in shaping behavioural intention to use (Sun and Zhang, 2003).

Hafkin and Taggart (2001) noted that there are indications that in developing countries young women are not as affected as Western women students by attitudes that computer science is not an attractive field to enter. In 1997, Shashaani found that female students in the United States were less interested in computing than were male students. Hafkin and Taggart findings are consistent with the growing number of women entering computer science in Saudi Arabia. On the basis of the latest statistical reports, women make up 46% of undergraduate students majoring in computer science in King Saud University. However, while large numbers of Saudi women study scientific subjects such as computer science, these numbers are not reflected in the country's science and technology workforce, due to the strict socio-cultural norms that discourage women from working. Thus, it is social and cultural rather than

educational obstacles that prevent Saudi women from working in IT and other scientific fields.

There might be another possible explanation for Saudi female students' positive attitudes regarding Internet usefulness and affection, which can be linked to the school environment in Saudi Arabia. Schools and universities in Saudi Arabia are segregated by gender; therefore girls are not forced to compete with boys for access to computers in school. More important, Saudi females cannot be influenced by male classmates' opinions that maths or science is a "male domain."

Some research findings in different parts of the world in ICT support the current study explanations that are related to gender segregations effect on attitude. Carter & Jenkins (2001) found that female university students who had attended girls schools in England had more computer confidence when taking a computer course as non-majors than those in a mixed school. In South Africa, Middle school age girls in single-sex schools had higher computer self-efficacy than girls from mixed schools. (Galpin, et al., 2003). The effect of male presence on female attitude and performance using ICT is well documented as Canada, and Brusca noted that "It is not necessarily computers and technology per se that females avoid, but rather the competitive, male environment that surrounds the field" (Canada, & Brusca, 1991, p. 50).

Western studies have suggested that computer subjects are taught and used in schools in such a way that girls sustain the belief that computers are just for boys (Wajcman, 1991). Understandably this discrimination that girls encounter in the early stages of school, and which continues throughout their education, discourages them from

entering the computer science field. Women's confidence in computing is clearly challenged within the computing culture as they are surrounded by men who appear to have more experience, confidence and are technically more competent. Women computer users are likely to be inhibited in their learning of computer skills if men are present during the learning process (Corston & Colman, 1996). Because schools in Saudi Arabia are segregated and female teachers teach only all female and male teachers teach only all male students, such discrimination does not exist in the classroom.

The explanation of the gender segregation effect on female attitude to technology is supported by findings in previous research carried out in the Western context. These studies reported that single-sex environments such as workshops and seminars can produce women with higher levels of confidence. In fact, female students who had attended single-sex schools previously had more computer confidence than those who had not. In more recent researches, women in single sex groups were found to be more likely to complete their computer course and major in computer science than mixed-sex. (Carter, 2001; Gurer, and Camp, 2002; Jenson et al., 2003; Werner et al., 2005). Although single-sex classrooms do not reflect the real environment in some societies, review of the research on single-sex technology classrooms suggested that it might help with gender problems: accessibility, attitudinal differences, achievement, and classroom learning environment (Swain & Douglas, 2002)

In the context of this study, female participants were less confident about their ability to control their Internet usage, especially the need for someone else's help. Their scores on the control subscale were slightly lower than those of their male

counterparts. Females' lower self-rating of control scores suggests that they may have real or perceived problems in controlling their Internet usage. Their lower ability to control their Internet usage may be related to confidence. Moreover, women more than men in this sample reported lack of confidence as an obstacle to greater use of the Internet.

8.6.3 Internet attitude and experience

Internet experience is defined in this study as the length of time from the time of the student's first usage of the Internet to that of answering the IAS (Internet Attitude Scale). This study divided the sample students into four groups of different levels of Internet experience: less than six months, between six months and 1 year, 1–2 years, more than 2 years. A relationship was found between participants' experience and their attitude towards the Internet. Participants with more than two years experience had more positive attitudes in the perceived usefulness, affection, and control subscales scores than those with less than two years of experience. Similarly, Shaw and Marlow's findings showed a consistent influence, the longer the student has experienced ICT (the higher the year) the more positive their attitudes are (Shaw and Marlow,1999).

Through Post Hoc tests, it was found that participants who had been using the Internet for a longer time tended to have statistically lower scores –meaning positive- on the affection, perceived control and behaviour subscales. The construct validity of computer attitude scales could be demonstrated by a (positive) correlation to previous computer-related experiences (Francis et al., 2000). Therefore, the significant

relationships between participants' Internet experience and the three subscales of the IAS in this study may provide evidence about the construct validity of the IAS.

These relationships indicated that participants having more Internet experience tended to express more positive feelings, lower anxiety, and higher confidence when using the Internet. This increased Internet experience may greatly help participants build confidence towards using the Internet. Analysis of the current study findings shows that participants' Internet experience had a large effect on their ability to control their Internet usage in terms of using the Internet independently without someone else's help and solving problems which may occur.

The impact of Internet experience on participants' Internet attitudes revealed in this study is parallel to the impact of computer and Internet experiences on attitudes toward the computers and the Internet found in the previous literature (Smith et al., 2000; Todman, 2000; Tsai et al, 2001, Broos, 2005). Users with longer Internet exposure time, in general, had more positive attitudes toward the Internet. The findings derived from this study suggested that Internet experience was positively related to participants' perceived usefulness, affection, and perceived control of using the Internet. The positive Internet experience may help Saudi students form better attitudes, especially for those with higher anxiety and lower confidence.

8.6.4 Internet attitude and gender stereotype

The importance of the study of stereotyping views in attitudinal research is due to a belief that there is an association between an individual's vocational preference and his or her acceptance of occupational stereotypes (Schutz and Blocher, 1960). It is

another interesting finding of the current research that participants' visions of gender stereotype in focus group discussions were different. Some did not hold any stereotypes regarding computer users, and some did. Those who did not, believed that females' competence to work with computers and the Internet is high, and rejected the idea that males are better in dealing with ICT. The absence of gender-stereotypic beliefs about computer users among some of female participants is encouraging. Those females strongly supported gender-equality in their ability to compete with their male counterparts when it comes to dealing with computers and the Internet.

Those participants who spoke strongly of their disagreement with gender stereotypes referred the stereotypical views to males' ways of advertising themselves and their competence to deal with computers and the Internet. This self-promotional style leads others to believe that they know a lot and they are better. Male boastfulness makes others believe that they are expert and way ahead of female experience level in relation to computer related technology. However, as explained by many female participants, girls may be highly skilled and know a lot and sometimes may be Internet hackers, but they do not like to show off and advertise themselves, which makes others assume they are not expert. The absence of stereotypical views among some female participants is an encouraging sign reflecting the potential ability and interest of female students which, under a proper educational environment, could be developed.

On the other hand, there are other participants who had a stereotypical view and believed that males are better than females in using computers and the Internet. They compared male computer science lecturers in King Saud University to their female counterparts. Even females' ability to learn in comparison with males was questioned

by judging the number of specialized male computer scientists compared to females in Saudi Arabia. This particular view was supported by other studies which found that both females and males believed males to be better at computing than females. However, although male views were not explored in the current study, these studies also found that males were more likely to hold stronger stereotypes in this regard than females (Durndell, Glissov & Siann, 1995; Shashaani, 1997).

Those participants who had a stereotyped view referred this difference between the two sexes in the ability and competence of dealing with computers to cultural rather than gender reasons. Lack of time, an obstacle for females in Saudi society, is due to their cultural and social responsibilities. Males in Saudi Arabia had more learning and training opportunities. Unlike females, for Saudi males the door of opportunity was opened wide at least in the beginning of the introduction of computers and the Internet in Saudi Arabia. For example, in King Saud University, a computer science department was opened for male students well before its introduction in the female campus, giving them the chance to develop better.

Even in the more commercial side of learning and training opportunities, males in Saudi Arabia had and still enjoy more professional and developed computer learning institutions. Although there are many commercial computer learning centres for females in Saudi Arabia, they were rated as far less professional than many male computer learning centres. The inequality in governmental and commercial learning opportunities is mainly due to the work force demands in Saudi Arabia which are controlled and dominated by men. Other research studies suggested that the outcome of training programmes moderates attitudes toward computer usage (Torkzadeh et al.,,

1999). Moreover, Torkzadeh and Van Dyke examined the relationship between computer training and the individual's attitude toward computers and found that training significantly influences Internet self-efficacy for individuals' attitudes toward computers (Torkzadeh and Van Dyke, 2002)

The concern about learning opportunities was not only related to learning institutions but also to other learning opportunities such as the ability to meet and learn from other people in the community. The cultural norm in Saudi society does not give females the chance to meet and learn from many of people such as friends, computer engineers, or even people they meet in computer shops. Although some participants had stereotypical views, their comments indicate their high self esteem and confidence in their own ability to compete with their male counterparts if they had the same chances. They were sure that if learning opportunities had been opened for them in the beginning, things would have been different.

To summarise, participants' ideas and views on this matter it could be said that if men are expert in ICT, that does not necessarily indicate that women are not. Clearly, they believe that ability and competence does not relate to one's gender but to other factors such as interest and practice. However, among those who believe males are better than female and (vice versa), some participants believed that males and females are equal in their abilities and skills. In their view, ability and competence does not relate to one's gender but to other factors such as one's interest and practice.

8.6.5 Attitude toward Internet freedom

Participants divided the issue of Internet and freedom into two themes, one was the freedom of use, and the second freedom in use. The first theme meant participants' ability to use the Internet without restrictions or limitations on the time or patterns of usage. The second theme is the freedom they enjoy when using the Internet, be it their activities or the way they deal with others in online communities.

In some participants' view, the Internet had not given them more freedom in saying or doing what they wanted than they got in the real world. They clamied that their integrity had always prevented them from saying what they thought. Others considered the freedom of the Internet to be a limited one, subject to one's personality and principles. Their comments suggested that even though the Internet provided them with freedom in one way, they were somehow reluctant in terms of practising it, fearing it might go against their cultural and religious values. As one participant said:

> *"I have the computer in my bedroom but I do not feel that there is a freedom because you have got principles that deter you from doing things"* (S: focus group 1 campus A)

On the other hand, there are some participants who believed that the Internet had provided them with freedom and they exercised their freedom online and used the Internet as a channel to express their views and opinions. Freedom of expression is particularly important to people living in non-dogmatic countries. Not only did the Internet give participants the freedom of expression but also the freedom of learning, asking questions, and searching for topics and things that they were not able or

allowed to talk about. Many researchers, for example, Warschauer (1999) and King (2000) think that people who use the Internet for learning and engage in discussion forums will develop their writing skills as well as increase their opportunities to interact freely with others. This interaction increases participants' self-esteem as they get encouraged for their participations.

Lam et al and others in a survey of the impact of Internet activities on American college students, found a correlation between Internet use and social support, suggesting that online interactions can work to elevate self-esteem and social connection (Lam et al, 2002). Turkle and Markham also noted that text-only exchanges could benefit shy teens and help them build their self-esteem, eventually enabling individuals to become more self-confident as a result of their interactions online (Turkle, 1995; Markham 1998).

Moreover, in the Saudi context, Al-Salem in his research on the Internet's impact on Saudi female self-image and social attitudes, found that the Internet had helped women to express their opinions in ways that were not otherwise possible in their authoritarian culture. Moreover, Al-Salem confirmed the unwillingness of some Saudi females to exercise their online freedom even with their anonymous identity, saying that some females "do not feel entirely secure about the freedom available to them online" (Al-Salem, 2005).

Participants' comments suggest the possibilities of major social and cultural changes, because of the ability to access information that in the past has been considered taboo or immoral. Now in the Internet age, Saudi females can learn a lot about many things,

and discuss topics which in the real world are off limits even with parents. Participants suggested ways in which Internet use introduced some sort of innovation in female sub-cultural practices, making it easier for Saudi females to experience things which otherwise they might not be able to access; not only access to the male mind, but also access to information that females might not otherwise be able to explore.

Al-Saggaf (2004) in his research on the effect of online communities on Saudis stated that the communication channel that the online community has created between the two genders in Saudi Arabia has made them understand each other better. It has also made them less inhibited about, and more appreciative of, each other. In the case of females, the online community has allowed them maybe for the first time to have their voices heard. This in turn has increased their self-worth and given them a sense of importance (Al-Saggaf, 2004). More generally Shteiwi noted that the Internet has the potential to empower Arab women in the exercise of their rights, to seek and receive information, and ideas. The Internet with its unique norms has also provided females with a new public space (Shteiwi, 2003).

There are many women-oriented Websites that provide information about womens' issues that are still considered taboo and will be difficult to discuss in the conventional media. Therefore, the Internet makes it easier for Saudi females to experience much of what they might not be able to experience in real life, even though this may just be virtual. In terms of research, it is also different, for there are many subjects in Saudi society which people are forbidden to talk about, whether they

are sexual or not, so the Internet makes it easier to delve into many worlds, sometimes answering questions that cannot be asked, or just opening new horizons.

8.6.6 Internet attitude and online harassment

The issue of online harassment was discussed with the focus group interviewees. Their responses, in general, indicate that the majority of them faced some sort of male harassment. There were some participants who claimed that they had not been harassed online. They claimed that the Internet is a suitable environment in which their self esteem had increased. Proposing a comparison between male and female treatment online was used by those participants to demonstrate how well they were treated online. A post by a girl will meet lots of encouragement, even of it is not good enough. Others said that in online culture, a person would be treated as he or she treats others, regardless of their gender.

Others believe that there is Internet harassment and problems which some female faced when participating online. These harassment and hassles –in some participants' views- are due to poor moderation of some online forums that tolerate such harassment and stalking. Males, as noted by participants, were the main sources of such problems. Participants articulated that their posts and writing in online communications were sometimes played down by males. Pervious researchers have also suggested that the relatively low percentages of women online, which has been described as a "male dominance" of the net, may contribute to the frequency of harassment of the minority gender (Truong, 1993;; Kramarae & Taylor, 1993; Shade, 1993; Bell and La Rue, 1995; Herring, 1994-1999; Finke, 1997)

TEXT CUT OFF IN ORIGINAL

Some Saudi females were harassed in two ways, one, harassment because of gender and second, flirting and unwanted attention. If a woman does not pay attention to the male harasser, she may be subject to more harassment, which affected some females' online participation. Participants' comments were largely confirmed by some studies which noted that there are generally two types of online harassment through electronic mail (e-mail) and during chatting sessions. These messages take many forms: inappropriate sexually explicit language; unwelcome questions about one's physical appearance or sexual practices; or threatening or hostile messages (Bell and La Rue, 1995; Kramarae & Taylor, 1993).

8.6.7 Summary

This section has looked at factors affecting participants' attitudes towards the Internet. Age, marital status, and field of study had no significant effect; however, year in college had an impact on the affection, and perceived control subscales, but no statistically significant effect on the perceived usefulness subscale. There were no significant gender differences in perceived usefulness and affection between males and females. However, women rated control statements slightly lower than men. Participants' experience had a significant impact on perceived usefulness, affection, and perceived control attitude subscales. Female participants' stereotyped views were affected by the society's gender and cultural aspects. The key emergent factors are summarised in Figure 8.5.

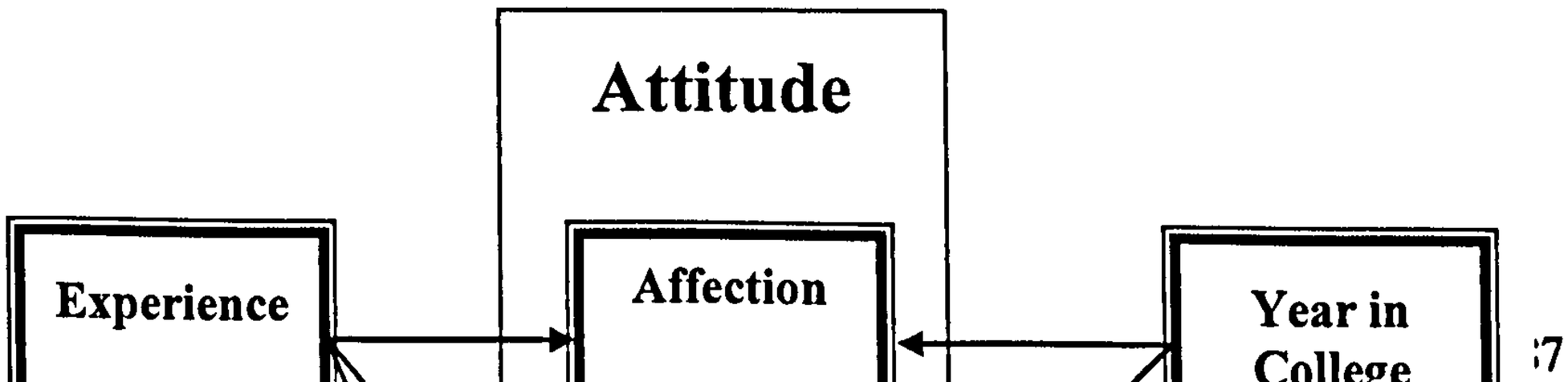


Figure 8.5: Factors influencing participants' attitude to the Internet

8.7 Overall summary

The findings of this research showed that the majority of participants accessed the Internet from home. In terms of the generic reasons for starting to use the Internet, curiosity, people's recommendations, and media features, were the top three reasons for becoming an internet user. The results of this study also suggested that both male and female Saudi college students used the Internet, although males were using it on a more frequent basis. This research therefore confirms previous studies which reported the phenomenon of male dominance of the Internet. Reasons for male higher use of the Internet include cultural and gender issues. This is further reinforced by the view of some female participants that men are better at dealing with ICT than women. Consistent with this result, the findings indicated that males are more likely than

females to use the Internet to obtain information relating to technology, news, sports, and finance, while females used it more for entertainment, and information on health and family related matters.

The problem of slow connection speed on the internet, access difficulties and more technical issues affected male Internet use more, while females suffered more cultural and psychological barriers. This further confirms the study findings regarding gender differences in participation in online chat rooms. Females generally went to chatting rooms less frequently, yet they spent longer hours on these online chatting room compared to males.

The study data analysis and explanations indicate that gender differences in attitudes towards the Internet do not exist among Saudi college students in King Saud University. However, females, as compared with males, either have real or perceived difficulties in their ability to control their Internet usage. Nevertheless, both males and females alike perceive the benefits of Internet for their academic life. A positive correlation was observed between students' experience and their (perceived usefulness, affection, and perceived control subscales) attitude to Internet.

Overall, there are three main factors that are associated with and influencing students' use and attitude toward the Internet in Saudi Arabia, gender, culture, and experience. Although their effects vary, they impacted participants' use and attitude in one way or other. Because Saudi Arabian society culture is classified as a high context culture it affected female Internet use in almost every way. Culture affected female reasons for using the web, choice of websites visited, and web activities. It also influenced

reasons for e-mail use and non-use, and recipients with whom female students communicated using email. Female chatting online was also affected by Saudi cultural ideas for what is acceptable and not acceptable in online relations and communications. Gender, although found to be an immense influence on women's use and attitude in many Western countries, has less significant impact in Saudi context. Experience, on the other hand, was found to be significantly associated with Saudi participants' use and attitude to the Internet.

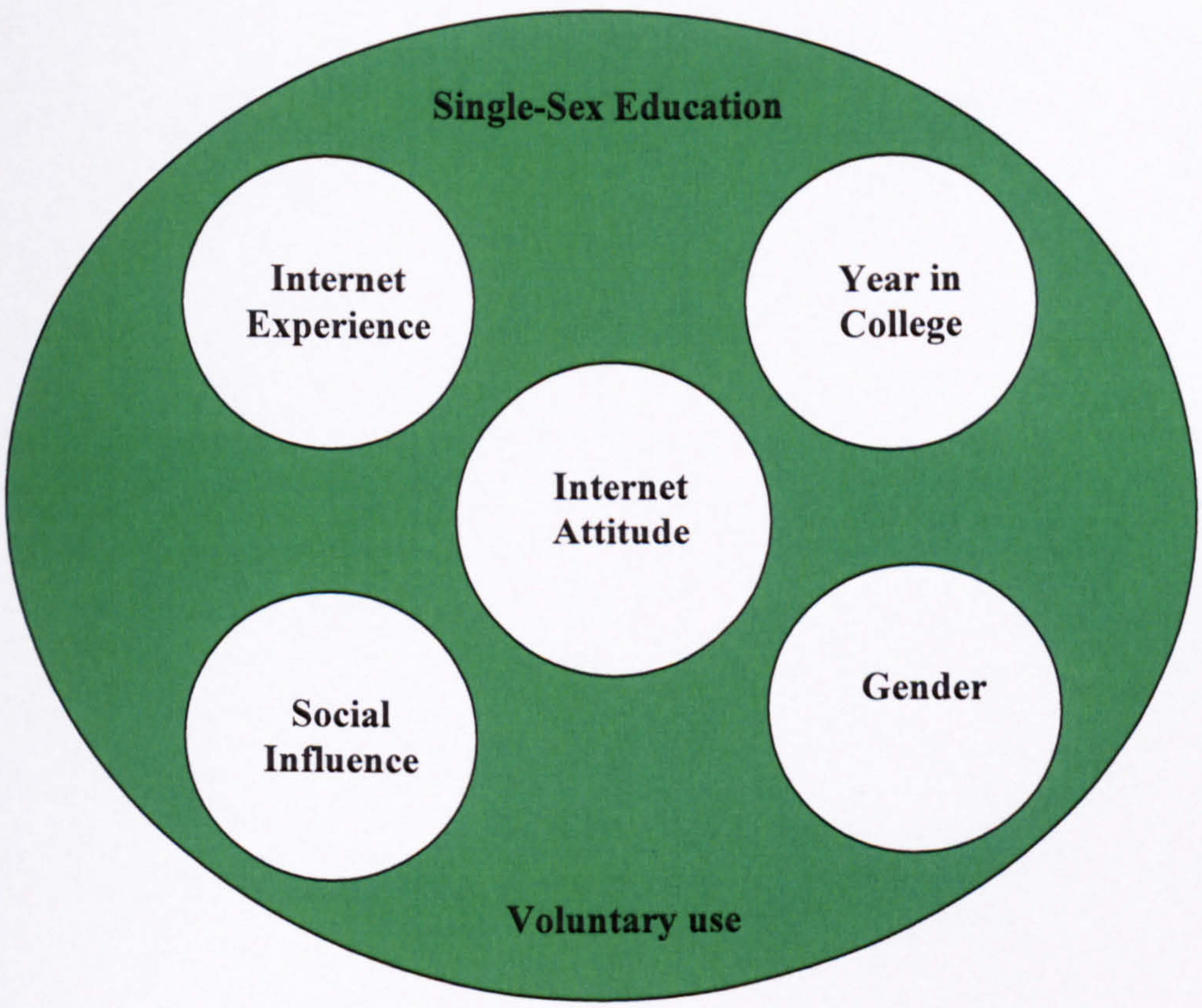


Figure 8.6: Saudi female attitude to the Internet

The issue of Saudi students' attitude towards the Internet was addressed by diagramming both quantitative and qualitative data collected in the current research and producing the diagram of factors associated and influencing Saudi students'

attitude towards the Internet. The revised diagram shown in Figure 8.6 is a summation of all the factors that impact Saudi college female attitude toward the Internet. Voluntarilness of use and single-sex education are environmental factors which, although were not measured in the research they were thought to be an explanation of females' positive attitude toward the Internet. Many previous researchers suggested that the competitive ICT learning environment where females have to prove themselves in mixed sex education is a factor that contributed to female computer anxiety (see Section 8.6.2). Research has also suggested that the level of voluntariness also works as a moderating factor affecting the intention to use the Internet. Given that in Saudi Arabia single-sex education is the norm and that the Internet is not yet available in King Saudi University for students, it could only be predicted that these factors may explain the positive attitude that females have toward the Internet.

The current research findings confirmed the significant relationship between users' experience and the level of use and attitude toward the Internet. It was found that there are significant differences between experienced users and inexperienced users in the influence of perceived control and affection. Also, perceived usefulness was affected by user experience. Social influence of the conservative Saudi society in individual attitude and behaviour, especially female, was very evident and not surprising. Although the effect of Saudi lifestyle was considered as a factor in Internet use prediction through interview comments, its effect on users' attitude was not measured. The next chapter looks at the main conclusions, and recommendations which can be drawn from this discussion.

In brief, figure 8.6 covers holistically factors that influence of Saudi female students attitudes towards the Internet. This appoint clearly to issues for consideration to the development of Internet use and utilisation by Saudi female university students. Explicitly development should have a national aspect focusing on individual social awareness, training and educational development. These development programmes should be based on scientific research including phenomenon measurement and observation. It should include awareness programmes which in return will ease the access issue for both male and female students. The next chapter looks at the main conclusions, and recommendations which can be drawn from this discussion.

Chapter Nine

Conclusions

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Chapter Nine

Conclusion

9.1 Introduction

This chapter reviews and summarises the findings of this study and assesses whether the thesis has successfully fulfilled the research objectives and answered the research questions posed in Chapter 1. It also considers the significance of the research findings and their contributions to the field. Finally, suggestions are made for important further research that has been suggested by the findings presented in this thesis.

A summary of previous chapters is presented in section 9.2, followed by a summary of the main findings and consideration of the research aims and objectives in section

9.3. This is followed in section 9.4 by an enumeration of the contributions of this research to both the study field and research methodology. Section 9.5, contains reflection on the limitation of the research and the scope for improvement. Section 9.6 contains suggestions for a number of important lines of follow up research that have been opened up by the findings presented in this thesis. Finally, recommendations and the conclusion of the chapter are offered.

9.2 Summary of Thesis Chapters

This study has considered the Internet use patterns and attitudes of Saudi undergraduate students in King Saud University. The first chapter of the thesis outlined the study aims, objectives, and research questions. In Chapter 2, background to the study context and scope was provided for a better understanding of the study environment. The main motivation was to give a picture of Saudi students' life with its social and cultural implications. Chapter 3 was a literature review that started with an introduction to women's issues in Internet use from early literature on women's use of CMC to the more recent research on gender online and the gender digital divide. The second part of the literature review, Chapter 4, explored the concept of students' use and attitude towards the Internet, along with factors that influence usage and attitude.

Methodologically, in Chapter 5, the research context required a mixed-method, with a multi-focused enquiry which has generated a rich body of empirical material, both qualitative and quantitative. This has allowed the examination of use and attitude impacts of the Internet as experienced by Saudi undergraduate students, as well as a

variety of statistical analyses to fulfil the research objectives and answer its questions in Chapters 6 and 7.

This research has generated a wealth of specific findings and detailed arguments. In Chapter 8 the very diversity of Internet use and attitude among Saudi students brought to light the gender and culture differences that influence Internet users in a non-Western society. In the final chapter the researcher draws together some of the broader themes in order to reflect upon their implications for both academic research and media policy in Saudi Arabia.

9.3 Summary of the Main Findings of the Research

9.3.1 Aims and objectives reiterated

This study attempted to identify and analyse the use female Saudi students make of the Internet. It also investigated the factors associated with, and influencing, female university students' attitude toward using the Internet focusing on gender and culture issues. The objectives of the research will be reiterated to show how all five objectives set out Chapter 1 have been fulfilled.

Female students' Internet use patterns were determined and compared with their male counterparts through identifying the gender issues that govern Internet use. The use of the Internet and its applications was recorded using a questionnaire survey and focus group interviews. The investigation began by inquiring into PC ownership, access, and the reasons for starting using the Internet. Specific use of some Internet applications, including email and the web was explored. Questions about students' experience and competence in their Internet usage were also asked. Demographic data

including gender, year in college, study field, and year of experience were elicited, and the influence of these factors on Internet application use was considered through the analysis of the questionnaire, whilst the focus group interviews with female participants were an additional method of exploring such usage.

Barriers which are faced by both male and female students were identified. The use that the students make of the Internet was examined in some detail, in terms of type, frequency, and attitude. The potential effects of social and cultural barriers on Internet usage by Saudi female students were inspected in comparison of those barriers which are faced by male students. A training and experience section in the questionnaire established the training method students had received, and elicited of students' self-ratings of their experience in using some of the Internet applications.

The research has measured the attitudes of Saudi students toward the Internet. Attitudes were recorded in the questionnaire using an attitude scale developed by Tisa (2001). In addition, demographics influence on students' attitude to the Internet were considered including gender and age. Using data from the questionnaire, statistical relationships between these demographics and attitude were analysed.

Finally students' use of the Internet and attitudes to its use in education were investigated in the questionnaire. To complement the qualitative data generated from the questionnaire focus group interviews were undertaken to pursue some issues that arose in relation to both usage and attitude

9.3.2 Research questions

There were a number of research questions that the current study attempted to answer.

These questions are answered by the research results as the following sections explain:

Internet use patterns:

- Do college students in King Saud University use the Internet?
- For what purposes do students at King Saud University use the Internet?

Although the Internet is not yet available for students to use on the university premises, the majority of both male and female Saudi university students used the Internet from home or other alternative locations. Students used the Internet for various purposes, which fell into three main categories: personal communication, entertainment, and for academic purposes.

- Does Internet usage among male and female students vary according to age, subject studied, and marital status?
- Does female Internet usage (frequency and purpose) differ from that of male? If so, how and why?

No significant relationship was found between students' age, subject studied, and marital status and their Internet use. However, students' academic year in college was associated with their email usage, web usage, chatting, Internet academic usage, and feeling about the Internet. Gender also was found to be associated with students' use of the Web and the electronic mail. There was also a relationship between students' gender and their online chatting, and their general feeling about the web.

Numerically, male students had been using the Internet longer than their female counterparts, and they were more intense users of such medium. In addition male and female students differed in their frequency and purpose of Internet use. Where as study related websites were most frequently visited by male students, female students visited entertainment websites most frequently. As in most parts of the world the reasons behind such difference are both gender related and cultural. However, in the case of Saudi Arabia as a high context, conservative culture society, the influence is more cultural.

Internet for education:

- Do students at King Saud University use the Internet for their studies (for academic purposes)?
- Do students at King Saud University perceive the Internet as a valuable and useful tool for their studies?

Students at King Saud university used the Internet for academic purposes, such as searching for information, and completing assignments and projects. Although students did not have email accounts from the university, they used their own personal email addresses to keep in touch with their lecturers and classmates. Students also used the King Saud University webpage for many reasons, although it was appealing to some more than others. They were generally positive about taking courses that required using the Internet or those which were entirely delivered online.

- Is there any difference in perceived value of the Internet for education between:

- Male and female?
- Students studying different subjects?

No significant relationships were found with perceived value of the Internet for academic usage and students' gender or field of study. However, there was a relationship between students' marital status and their academic usage of the web, and their perception of the Internets' usefulness to their study.

Internet barriers:

- Are there any physical or psychological barriers that limit female students' use of the Internet? What are they?
- What problems do female college students perceive in regard to use of the Internet?

Both male and female students face physical and psychological, and technical barriers. However, males more than females reported facing such barriers. One of the major difficulties Internet users complained of was slow connections. However, barriers to women's use in Saudi Arabia are actually embedded within the wider socio-cultural context of Saudi Society. Female students complained more about government access restrictions, family restrictions, meeting unwanted people, Internet viruses, censorship, language, worries about Internet addiction, difficulty finding information and lack of experience.

Internet attitude:

- What are students' attitudes toward the Internet? And what are the factors associated with and influencing their attitudes?

Generally both male and female students had a positive attitude toward using the Internet and its applications. However female students rated themselves lower in their ability to control the Internet. In addition, there were some demographic influences on the average scores of students on the three factors derived from IAS scales, of which students' years of experience had the largest effect on IAS factors. Students' gender affected their perceived control scores, but had no effect on perceived usefulness, and affection scores. Students' age only affected their perceived usefulness score. Academic year in college also had a small effect on both perceived control, and affection scores. Students' marital status and field of study attributes had no effect on students' attitude to the Internet.

9.3.3 Overall findings

9.3.3.1 Gender Internet issues in Saudi Arabia

Females in Saudi Arabia face many challenges when it comes to Internet access and use. However, the barriers women face tend to somewhat different than those faced by man. The review of the literature in chapter three showed that women generally face technological, cultural, and sociological barriers, yet for Saudi females it is more cultural (i.e. family restrictions, lack of time) and psychological (i.e. security & privacy, Internet complexity).

Female students, however, were enthusiastic about how much of empowerment the Internet could offer them. Although they were pleased about Internet freedom in terms of the ability of searching information and learning, they were not entirely convinced in terms of freedom of expression. Saudi female noted that although they

maybe anonymous online their moral and religious believes would control how much freedom they could enjoy.

The Internet as a communication tool has facilitated Saudi female communication with the outside world in ways that imagined before. Saudi students have used email, online chatting rooms, and instant messaging to communicate with friends and relatives locally and abroad. Although these tools of online communication fitted well with Saudi female life style, family restrictions limited some participants form taking advantages of such a tool.

9.3.3.2 Gender differences in Internet usage patterns

Demographic variables are associated with students' use of the Internet. Gender was found to be significantly associated with students' email usage, chatting, and feelings about the web. However, gender had no association with students' academic usage of the Internet. Students' academic year in college was found to be significantly associated with their email usage, web usage, chatting, Internet academic usage, and feeling about the Web. Marital status was also found to be significantly associated with student's academic usage of the web, and their perception of the Internet's usefulness to their study.

Culture affected women's reasons for using the web, choice of websites visited, and web activities. It also influenced these reasons for e-mail use and non-use, and recipients with whom they communicated using email. Female chatting online was also affected by Saudi culture acceptance and non-acceptance of online relation and communications. Gender, although found to be an immense influence on women's

use and attitude in many Western countries, has less significant impact in Saudi context. Saudi women's use of the Web is in line with most Internet studies about women in Western and non-Western research. However, because of gender and cultural reasons, findings about Saudi women's use of email are somewhat different than those for women in the West.

There was a significant relationship between email use and users', experience, study subject, and length of time they had been using the Internet. There were also significant associations between gender and email usage, frequency of usage, and attitude toward using email. Both male and female students have used online chatting rooms. However, there were gender differences in terms of the frequency and length of chatting sessions. Female participants visited online chat rooms less frequently than their male counterparts; however, females tended to spend longer hours chatting. As explained above, the differences in email and chat usage are caused by mostly cultural factors. Although some cultural aspects of Saudi society may encourage women to use email, others may work as a barrier.

9.3.3.3 Gender differences in Internet attitude

Use of the IAS as an instrument for attitude measurement in a paper based questionnaire, supported by other questions about feelings towards some Internet applications, in focus group interviews with female students, revealed that in general most students at King Saud university in Riyadh had positive attitudes towards using the Internet (see Section 6.3 for result and 8.6 for discussion). Female students were as positive in their attitude as male students. However, females had real or perceived difficulties in their ability to control their Internet usage. Although the current study

result was in line with some earlier and recent research, it does not support other studies, particularly those in the West.

The study data analysis and explanations indicated that gender differences in attitudes towards the Internet do not exist among Saudi college students in King Saud University. However females, as compared with males, either have real or perceived difficulties in their ability to control their Internet usage. Nevertheless, both males and females alike perceive the benefits of Internet for their academic life. A positive correlation was observed between students' experience and their attitudes (perceived usefulness, affection, and perceived control subscales) toward the Internet. Female participants' stereotypical views were affected by the society's cultural norms and values in relation to gender (see section 7.2.5 for result and 8.6.4 for discussion).

No significant effect of students' age, marital status, and field of study on their attitude toward the Internet was found. However, year in college had an impact only on the affection and perceived control subscales. Overall, three main factors were found to be associated with and influence students' use and attitude toward the Internet in Saudi Arabia; gender, culture, and experience. Although their effect varied they impacted participants' use and attitude in one way or other.

9.4 Contributions of this Research

The contributions of this research were three-fold. One goal was to contribute to the *empirical* understanding of students' use and attitude toward the Internet. This goal was met by studying students' use of the Internet in Saudi Arabia as an example of a developing country. This goal was also met by analysing in detail the use students

made of the Internet, providing a detailed picture of students' Internet usage patterns in Saudi Arabia based on rather more than anecdotal evidence. In addition, a reliable IAS was adopted and applied, that measures the attitude itself rather than a global measure of ICT. Evidence of relationships between attitude and some demographic factors were based on statistical analysis of quantitative data, followed and supported by qualitative data, rather than based on simple inference. This research has contributed to the literature on Saudi Internet use as one of the most comprehensive and major research that applied both quantitative and qualitative techniques. It is also one of the main studies that considered gender differences in both use and attitude.

The second goal was to contribute to *methodological theory* by using a mixed method approach integrating both quantitative and qualitative in different stages of the research. The research data collection model by Creswell (2003) which was adopted for the current research showed the huge benefit of this type of comprehensive design in understanding Saudi students' use and attitude towards the Internet. Analysis of the questionnaire helped in the design of the focus groups interviews, and in return the focus group helped to explain some of the conflicting findings of the questionnaire. For example, participants' answers to the questionnaire prompted the need to ask about IM use in the focus group, while the focus groups interviews explained the rather contradictory findings about female use of chatting rooms. The disadvantages of mixed method (Chapter Five Section 5.3) encountered in this research were mainly to do procedural and bureaucratically process.

The third goal was to contribute to the *literature* on Saudi female use of and attitude towards the Internet by using both quantitative and qualitative techniques in contrast

to other pervious research on Saudi women which only employed quantitative methods. This study is counted as one of the most exploratory comprehensive research on female Internet use and attitudes providing the ground for further investigations on other Internet issues that are related to gender.

9.5 Limitations of the Study

9.5.1 Further investigation

Further investigation of the cultural restrictions on female use of the Internet and the stereotypical views of female participations online could have improved the study by providing a deeper understanding of some cultural barriers. Similarly, an examination of the reasons for not using the Internet by those students who said they did not use the Internet might have provided a better vision of Internet use barriers.

9.5.2 Research sample

The time factor, as well as the budget allocated to accomplish this study, both of which were a set by the research sponsor (Ministry of Higher Education), precluded a larger scale study to include all women's universities and colleges in Riyadh city this might have been more representative of female college students in the Kingdom.

Although statistical tests used in Chapter six explained the significant relations and associations between gender and Internet use. It is acknowledged that the number of male respondents to the questionnaire is much lower than female respondents (532 females, 261 males). However, the compassion between male and female was not the aim of the research but was used to understand female use of the Internet with the reference to male use.

In addition because the researcher was female, gender segregation prevented this research being carried out fully in the male campus as in the female campus. Much interesting and rich detailed information came from the discussion of female focus groups. A study carried out by a team of both genders might allow focus group interviews to be conducted in the male campus, improving comparison of gender differences in Internet use and attitude.

9.5.3 Attitude scale

In terms of the Internet attitude scale used in this study, rewriting the statements of the behaviour subscale might improve the internal reliability of the scale. Similarly including a subscale about the adoption of the Internet might improve the outcome of the analysis in understanding students' attitude.

9.5.4 Questionnaire instruments

Using continuous variables which are measured in a unit that can be subdivided and take many values would allow interval-ratio as level of measurement where scores are numbers. When scores are numbers, many statistical tests to identify association and effects are applicable such as that use in Internet experience and online sections of the questionnaire.

9.6 Further Research

During the present research some issues have arisen which call for further studies and investigation. This study points to the necessity of looking at the problem from different angles in order to gain improved knowledge. The present study not only gives a picture of Internet use among Saudi university students, but also indicates

some relevant variables to be used in future studies. In order more comprehensively to understand students' use and attitude toward the Internet, additional research is needed in a number of areas. However, the following suggestions are not intended to limit the scope of such research, but rather to highlight the importance of these issues:

- There is a need for more qualitative and in-depth data about computer mediated communication through the Internet, as well as about virtual communities.

- The digital divide represents a very important issue for modern society. More research is needed in order to explore the divide that exists at the general level of Saudi population, between rural and urban areas, and among women with different levels of education. Longitudinal studies exploring the evolution of gender digital divide patterns and usage would clarify better the Saudi picture.

- Use of the Internet for education and the role of Internet access in the schools, needs to be clearly understood. Saudi students enjoy Internet access and Web use in their home and it would be interesting to know the effect of having Internet connection at schools and universities.

- Is there an effect of online communities on education? Further research is needed on online learning community building, which should take accounts of the Saudi distinctive cultural identities.

- The digital means of communications have changed since the carry out of this research. Further research is needed on young people's use of the new emerging features of online communications such as Myspace, Blogs,

- Cross-national study is needed on cultural and psychological barriers influencing women use of the Internet and the effect of the Saudi culture on Internet adoption, use, and attitude.

- What are the implications of information policy in Saudi Arabia? It should ensure the participation of all Saudis in the information revolution . Further research on a strategic plan for introducing the Internet in schools and universities is needed, which would help in successful implementation.

9.7 Recommendations

The following recommendations may help to raise the level of interest, usage, and involvement with the Internet among Saudi female students. This study highlights in particular the need for individual and social awareness's, training and educational development in relation to Internet use and attitudes. Based on the current research findings a number of recommendations in relation to development and change in policy and practice could be made through a holistic view of development issues.

Individual and Social Awareness:

Analysis shows that the majority of Saudi female university students started using the Internet due to their own curiosity, suggesting that they were not aware of the Internet's potential benefit. Female students complained about parental and social restrictions when it comes to using the Internet, suggesting parents' lack of awareness.

- There is a need to increase the awareness of Internet benefit among Saudi female students and relate as it to the improvement of information skills to keep up with technologies and for better paying jobs.
- Parents should be made aware of the Internet benefits and shown that they can make an important contribution by encouraging rather than discouraging their daughters to use the Internet. This should be carried out as a National Awareness Programme.
- A comprehensive Internet Awareness Package should be designed and developed to deal with the Internet socio-cultural barriers and issues, since culture is a very dominant factor in the lives of Saudi women. A package should apply several methods of knowledge and information delivery such as seminars, lectures, workshops and TV programmes for the entire society.

***Training and Educational Development*:**

Saudi female students have had hardly any formal Internet training, and the majority were either self trained or were trained by friends and family members. Their main concerns were about the lack of learning training opportunities caused by cultural restrictions, and schools and universities' role of development.

- Training programmes are very important to improve and support female ICT literacy. These programmes should be designed based on women learning style. It would increase women's confidence in their ability to use and work with the Internet.
- Since female students used the Internet for academic activities, the university should implement courses that help them in developing skills in Internet use

and information evaluation. The implementation of these courses could be achieved by integrating courses within the curriculum that are related to study field and the additional supplement of extensive training programmes and courses outside the curriculum which cover other needs.

- The positive attitude of female students towards the Internet could beneficially be exploited to support a greater participation in education through e-learning and integrating courses of computer and Internet skills throughout the university curriculum.
- Although there is an insertion of "computer class" in high schools, schools of all types and levels should make computers accessible through professionally designed computer labs and school libraries.

***Overall and National Development*:**

Saudi female students have voluntarily started using the Internet for a variety of purposes. They also have positive attitudes and low anxiety toward using the Internet generally and for academic purposes specifically. Although they were not positive about the usefulness of KSU websites, they were overwhelmingly enthusiastic about learning online and taking courses that require using the Internet.

- Several courses of action should be taken to update the KSU website to make it more informative, including adding electronic information resources (i.e. courses, and study materials).

- The existing National Information Communication Technology Policy should be reviewed and developed to integrate gender concerns into ICT policy activities/programmes design and implementation.
- The establishment of a National Internet Research Group (NIRG) is suggested as to provide scientific research in the adoption, use, implementation and effects of the Internet. As a result, this will provide more opportunity to develop positive attitudes and self-efficacy among Saudi students towards the Internet.

9.8 Final Thoughts

This research fills a gap in the literature of information science in Saudi Arabia. It also raises some issues and themes which might be studied by other researchers. Recommendations and further research were suggested to enable the government of Saudi Arabia and its various agencies to support improvements in the existing Information policy and successfully introduce the Internet in Saudi universities.

Females regarded the Internet as a means of exercising some freedom channel within the boundary of the conservative and religious culture of Saudi society. Stereotypical views, however, were held by that some female participants, in relation to expertise in computers and the Internet field. Although the Saudi government's filtering system may control some of users Internets' activities, analysis of female participant's answers and comments in the questionnaire and the focus groups interviews showed that their use of the Internet and its application is very much dictated by personal cultural and religious ordinance.

Bibliography

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Bibliography

Abbas, H., 2001. Internet's impact on Kuwaiti youth. *Kuwait Times* , 14 October 2001, p.1.

Abdrabboh, B., 1984. *Saudi Arabia: forces of modernization*. Brattleboro, Vt. :Amana Books.

Abernathy, D. J., 1999. Second and fourth rocks from the sun. *Training and Development,* (1), 18-26.

Abouzied, K., 2006, Bridging the digital gap: solutions and technical tools. [Paper presented at the] First National Information Technology Symposium, 6-8 February, Saudi Arabia, Riyadh.

Adams-Price, C. & Chandler, S., 2000. The star fleet ladies auxiliary: Evolution of an online women's mailing lists. *CyberPsychology & Behevior,* 3(5), 811-816.

Adler, N. J., 2001. *International dimensions of organizational behavior* . Cincinnati, OH: South-Western Publishing.

Afemann, U., 2000. *Internet and developing countries.* <http://www-interasia.org/malaysia/workshop_afemann.html>, [accessed 02.02. 03].

Afshar, H., 1993. *Women in the Middle East: perceptions, realities and struggles for liberation*. London: Macmillan.

Al-Amoudi, K., 1995. The computer as a communication media: Its usage and role in Saudi Arabian society. *Computer Sciences and Information (King Saud University),* (7), 29-56.

Al-Dobaiyyn, M., 2003. *The use of the internet to get information by female researcher in Saudi Arabian Universities*. Master Thesis, Al-Imam Mohammad Ibn Saud Islamic University.

Aldriaan, W., 2003. Courses and tests of the international certificates in information technology in Arabic in Saudi Arabia. Middle East., 18 September 2003, p.63.

Al-Fantookh, M., 2001. Muthallath Alru'ob (worries of Saudi internet users) *WHAT ALNADI,* (16), 16-22.

Al-Ferm, K., 2001. *The World Wide Web and its users in Riyadh City.* MA dissertation, King Saud University.

Al-Hajery, H., 2003. *The World Wide Web and its affect on Saudi male young generation.* PhD Thesis, Tunis University.

AlHoymany, F., 2006. Saudi investment in e-Government tops SAR 3 Billion. < http://www.ameinfo.com/94409.html >, [accessed 03.06.06].

Al Jabri, I. M., 1996. Gender differences in computer attitudes among secondary school students in Saudi Arabia. *Journal of Computer Information Systems,* **37**(1), 70-75.

Al-Khaldi, M. & Ben-Bakr, K. 1993. *The conceptual utilization of personal computing in a developing country: the case of Saudi Arabia.* [Paper presented at the] Arab Management Conference, 11-13 May, Bradford.

Alkhezzi, F., 2002. *Internet use of graduate and undergraduate students in the College of Education at Kuwait University.* PhD Thesis, University of Northern Colorado.

Allen, B., 1995. Gender and computer-mediated communications. *Sex Roles,* (32), 557-563.

Allyn & Bacon Companion Website, 2004. *Qualitative and mixed method research designs.* <http://wps.ablongman.com/ab_mcmillan_edresearch_4/0,8574,1062755-00.html>, [accessed 03.12. 05].

Al-Munajjed, M., 1997. *Women in Saudi Arabia today.* New York: St. Martin's Press.

Al-Rasheed, A., 2001. *The Internet in Saudi Arabia management view.* [Paper presented at the] Communications Engineering Technical Exchange Meeting (CETEM), 30 April, Al-Dhahran. <http://www.isu.net.sa/library/CETEM2001-AlRasheed.pdf> [accessed 03.09.04].

Al-Saggaf, Y., 2004. The effect of online community on offline community in Saudi Arabia. *EJISDC,* **16**(2), 1-16.

Al-Saggaf, Y. & Williamson, K., 2004. Online communities in Saudi Arabia: Evaluating the impact on culture through online semi-structured interviews. *Qualitative Social Research,* **5**(3), 24-34.

Al-Salem, S., 2005. The Impact of the Internet on Saudi Arabian EFL Females' Self-image and Social Attitudes. PhD Thesis, Indiana University of Pennsylvania

Alzahrani, S., 2001. Use of information and communication technology in Saudi Arabia hospitals. PhD Thesis, Loughborough University.

Anand, A. & Uppal, M, 2002. *Engendering management and regulation of ICTs: narrowing the digital divide for women.* <http://www.uninstraw.org/docs/Annand.doc>, [accessed 07.02. 03].

Anandarajan, M., *et al.*, 2000. An exploratory investigation of the antecedents and impact of internet usage: an individual perspective. *Behaviour and Information Technology,* **19**(1), 69-85.

Anderson, K., 2001. Internet use among college students: an exploratory study. *Journal of American College Health,* **50**(1), 21-26.

Anolli, L., *et al.,* 2005. Personality of people using chat: an online research. *CyberPsychology & Behevior,* **8**(1), 89-95.

Anthony, L. M., *et al.*, 2000. Technophobia and personality subtypes in a sample of south African university students. *Computers in Human Behavior,* **16**(1), 31-44.

Arab Media., 2003. *Saudi Internet rules.* <http://www.al-bab.com/media/docs/saudi.htm>, [accessed 06.02. 04].

Arbaugh, J. B., 2000. An exploratory study of the effects of gender on student learning and class participation in an internet-based MBA course. *Management Learning,* **31**(4), 503-519.

Bahdi, R., 2000. Analyzing women's use of the Internet through the rights debate. *Chicago Kent Law Review,* **75**(3), 869-897.

Bainbridge, J., 1998. Women's place on the web. *Marketing,* (2), 21-25.

Balka, E., 1992. Women's access to on-line discussions about feminism. *Electronic Journal of Communications[online],* **3**(1), <http://eserver.org/cyber/fem_cybr.txt>,[accessed 13.05.03].

Balka, E. & Smith, R., 2000. *Women, work and computerization.* Boston: Kluwer.

Barlow, J., 1995. Is there a there in cyberspace?. *Utne Reader,* (50), 15-20.

Baron, N., 2005, Instant Messaging by American College Students A Case Study in Computer-Mediated Communication. [Paper presented at the] American Association for the Advancement of Science Annual Meeting, 17-21 February, Washington, DC.

Barrett, E. & Lally, V., Gender differences in an on-line learning environment. *Journal of Computer Assisted Learning,* **15**(1), 1-48.

Basager, M., 2001. *Evaluation of electronic information services in academic libraries in Saudi Arabia.* PhD Thesis, Loughborough University.

Bavakutty, M.& Muhamad, S., 1999, Internet services in Calicut University. [Paper presented at the] The 6th National Convention on Academic Libraries in the Internet Era, 19th February, Ahemdabad, India: Proceedings of the 6th National Convention on Academic Libraries in the Internet Era. 37-44.

Becky, M., 1994. *Gender differences in communication: an intercultural experience.* <http://digilander.libero.it/linguaggiodelcorpo/mulvaney/>, [accessed 06.12. 04].

Beer, J., 2003. High and low context. <http://www.culture-at-work.com/highlow.html>, [accessed 29.05. 07].

Bell, V. & Denise, R., 1995. *Gender harassment on the Internet.* <http://www.gsu.edu/~lawppw/lawand.papers/harass/html>, [accessed 07.07. 03].

Bell, V. & La Rue, R., 1995, Gender harassment on the Internet. <http://www.gsu.edu/~lawppw/lawand.papers/harass/html>, [accessed 07.07. 03].

Bente, G., *et al.* 2000. *Conversing with electronic devices. An integrated approach towards the generation and evaluation of nonverbal behavior in face-to-face like interface agents*. [Paper presented at the] Intelligent Interactive Assistance and Mobile Multimedia Computing (IMC2000), 9-10 November, Rostock-Warnemünde, Germany.

Berkley, L., 2000. *Internet use survey: analysis.* <http://www.ship.edu/~bhl/survey/>, [accessed 04.21. 04].

Biersdorfer, J., 2001. Among code warriors, women, too, can fight. *New York Times* , 7 June 2001, p.25.

Bimber, B., 2000. Measuring the gender gap on the Internet. *Social Science Quarterly[online],* (81), <http://www.netratings.com/news.jsp?section=new_pr&thetype=date&theyear=1999 &themonth=11>,[accessed 13.10.03].

Blair, K. & Pamela, T., 2001. *Mapping the terrain of feminist cyberscapes* . Stamford, CT: Ablex Publishing Corporation.

Bo-Holeqa, I., 2004. Internet in Saudi Arabia. *Al Hayat Newspaper* , 29 February 2004, p.44.

Bonebrake, A., 2002. College student's Internet use, relationship formation, and personality correlates. *CyberPsychology & Behevior,* **5**(6), 551-557.

Boneva, B., et al., 2001. Using E-mail for personal relationships the difference gender makes. *American Behavioral Scientist,* **45**(3), 530-549.

Borg, A., 1993, The rationale for a closed electronic forum. [Paper presented at the] Gender issues in computers and telecommunications panel delivered to "Third conference on computers, freedom, and privacy", 17-19 August, Burlingame, CA.

Bouchey, H. A. & Furman, W., 2003. Dating and romantic experiences in adolescence. In: Adams, G. & Berzonsky, M., eds. *The Blackwell handbook of adolescence.* Oxford : Blackwell Publishers, pp.313-329.

Bourque, L. & Fielder, E., 2003. *How to conduct self-administered and mail surveys* . Thousand Oaks, US: Sage.

Bowker, N., & Liu, J., 2001. Are women occupying positions of power online? Demographics of chat room operators. *CyberPsychology & Behevior,* 4(5), 631-643.

Braidotti, R., 1996. *Cyberfeminism with a difference.* <http://www.let.ruu.nl/womens_studies/rosi/cyberfem.htm>, [accessed 06.07. 03].

Brail, S., 1994. *Take back the net.* <http://cctr.umkc.edu/~rjlaroe/inform01.txt>, [accessed 10.10. 04].

Braune, I., 2005. *Internet in Morocco crossing borders in cyberspace.* <http://www.qantara.de/webcom/show_article.php/_c-478/_nr-242/i.html>, [accessed 02.16. 05].

Brenner, V., 1997. Psychology of computer use: XLVII. parameters of internet use, abuse and addiction: The first 90 days of the internet usage survey. *Psychological Reports,* **80**(3), 879-882.

Briton, J. & Hall, J., 1995. Beliefs about female and male nonverbal communication. *Sex Roles,* (32), 79-90.

Broos, A., 2005. Gender information and communication technologies (ICT) anxiety: Male self-assurance and female hesitation. *CyberPsychology & Behavior,* **8**(1), 21-31.

Brosnan, M., 1998. *Technophobia: The psychological impact of information technology*. London: Routledge.

Brosnan, M. & Lee, W., 1998. A cross-cultural comparison of gender differences in computer attitudes and anxieties: The united kingdom and Hong Kong. *Computers in Human Behavior,* **14**(4), 559-577.

Browne, N., Freeman, K. & Williamson, C., 2000. The importance of critical thinking for student use of the internet. *College Student Journal,* **34** 391-398.

Bruckman, A., 1992. *Identity workshop: emergent social and psychological phenomena in text-based virtual reality.* <http://lucien.berkeley.edu/MOO/identity-workshop.ps>, [accessed 07.03. 03].

Bruckman, A., 1996. *Finding one's own in cyberspace.* <http://llk.media.mit.edu/papers/1996/Bruckman.html>, [accessed 03.19. 03].

Burke, J. & Larry, C., 2003. *Educational research: quantitative, qualitative, and mixed approache* . New York: Allyn & Bacon.

Burrell, G., & Morgan, G., 1979. *Sociological paradigms and organizational analysis: elements of the sociology of corporate life*. London: Heinemann Educational.

Busch, T., 1995. Gender differences in self-efficacy and attitudes toward computers. *Journal of Educational Computing Research,* **12**(2), 147-158.

Busselle, R., et al., 1999. Factors affecting internet use in a saturated-access population. *Telematics and Informatics,* (16), 45-58.

Cadena, S., 1997. *Networking for women or women's networking?* <http://www.connected.org/women/sylvia.html>, [accessed 09.27. 01].

Callan, P. M., 1998. *A national center to address higher education policy.* <http://www.highereducation.org/reports/concept/concept.shtml>, [accessed 10.25. 05].

Canada, K. & Brusca, F., 1991. The technological gender gap: Evidence and recommendations for educators and computer-based instruction designers. *Educational Technology Research and Development,* **39**(2), 43-51.

Carlsson, U. & Facht, U. 2002. *Media-Sweden 2001/2002, statistics and analyses.* Gothenburg: Nordicom-Sverige.

Carroll, M., 2002. *Internet chat rooms: comparison of conversations among women's, men's and mixed groups*. PhD Thesis, University of Colorado.

Carter, J., 2001, What they think – Students' Preconceptions of Computing. [Paper presented at the] International Conference on Engineering Education, 6–10 August, Oslo, Norway.

Carter, C. & Grieco, M., 2000. New deals, no wheels: Social exclusion, Tele-options and electronic ontology. *Urban Studies,* **10**(37), 1735-1748.

Carter, J., Jenkins, T., 2001. *Where have all the girls gone? what entices female students to apply for computer science degrees*, [Paper presented at the] 2nd Annual LTSN-ICS Conference, August, London.

Charney, R. & Greenberg, B. S., 2002. Uses and gratifications of the Internet. In: Carolyn, A.L. & David, J., eds. *Communication technology and society* . Cresskill, NJ: Hampton Press, pp.379-408.

Chisholm, P., 1996. Cyber-sorority. women using the Internet. *Maclean's,* (109), 53-54.

Chou, C. & Hsiao, M., 2000. Internet addiction, usage, gratification, and pleasure experience: The Taiwan college students' case. *Computers & Education,* (35), 65-80.

Chua, S. L., et al., 1999. Computer anxiety and its correlates: A meta-analysis. *Computers in Human Behavior,* **15**(5), 609-623.

Clarke, A., & Dawson, E., 1999. *Boolean Function Design Using Hill Climbing Methods*, [Paper presented at the] Information Security and Privacy: 4th Australasian Conference, ACISP'99, April, Wollongong, NSW, Australia.

Clarke, M., Finnie, G., 1998. Changes in entry-level university students' attitudes to computers for 1985-1997. *South African Computer Journal*, (21), 26-32.

Clemente, P., 1998. *The state of the net: the new frontier* . New York: McGraw-Hill.

Cohen, J., 1988. *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Earlbaum Associates.

Cole, M. & O'Keefe, R. M., 2000. Conceptualizing the dynamics of globalization and culture in electronic commerce. *Journal of Global Information Technology Management,* 3(1), 4-17.

Cole, A., 1999. *Gender differences in Internet usage*. MA dissertation, Miami University.

Colley et al., 1994. Effects of gender role identity and experience on computer attitude components. *Journal of Educational Computing Research.* 10(2), 129-137.

Colley, A., 2003. Gender differences in adolescents' perceptions of the best and worst aspects of computing at school. *Computers in Human Behavior,* 19(6), 673-682.

Collins-Jarvis, L., 1995, Explaining gender group discrimination in computer-mediated communication: a social identity approach. [Paper presented at the] The organization for the study of communication, language and gender, 10 October, Minneapolis, MN. <http://www.helsinki.fi/science/optek/1996/n3/ferris.txt>, [accessed 22.02.03].

Collis, B., & Margaryan, A., 2003. *Work-based activities and the technologies that support them: A bridge between formal and informal learning in the c o r p o rate context*. [Paper presented at] Learn IT: Information and Communication Technologies and the Transformation of Learning Practices, 8-10 September, Gothenburg, Sweden

Collis, J., & Hussey, R., 2003. Business Research: a practical guide for undergraduate and postgraduate students. 2nd ed. Houndmills: Palgrave Macmillan.

Compaine, B. M., 2001. Information gaps: myth or reality? In: Compaine, B.M., ed. *The digital divide*. Cambridge, Mass: MIT Press, pp.105-118.

Consalvo, M., 2003. Selling the Internet to women: the early years In: Consalvo, M. & Paasonen, S., eds. *Women & everyday uses of the Internet: agency & identity* .New York: Peter Lang, pp.111-197.

Cooper, J. & Stone, J., 1996. Gender, computer-assisted learning, and anxiety: With a little help from a friend. *Journal of Educational Computing Research,* **15**(1), 67-91.

Correll, S., 2001. Gender and the career choice process: the role of biased self-assessments. *American Journal of Sociology,* (106), 1691-1730.

Corston, R. & Colman, A., 1996. Gender and social facilitation effects on computer competence and attitudes toward computers. *Educational Computing Research,* **14**(2), 171-183.

Cotten, S. & Gupta, S., 2004. Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine,* (59), 1795-1806.

Countryman, J., et al., 2002. Developing a hardware and programming curriculum for middle school girls. *SIGCSE Bulletin,* **34**(2), 44-47.

Creswell, J., 1994. *Research design: Qualitative and quantitative approaches.* London: Sage

Creswell, J. et al., 2003. *Research design: qualitative, quantitative, and mixed method approaches*. London: Sage.

Cummings, J. & Krout, R., 2002. Domesticating computers and the Internet. *Information Society,* (18), 211-231.

Cummings, N., et al., 2002. The quality of online social relationships. *Communications of the ACM,* **45**(7), 103-108.

Dahl, S., 2004. *Intercultural research: the current state of knowledge.* <http://ssrn.com/abstract=658202>, [accessed 03.03. 05].

Danet, B., 1996, Text as mask: gender and identity on the Internet. [Paper presented at the] Masquerade and gendered identity, 22 February, Venice. Italy. < http://atar.mscc.huji.ac.il/~msdanet/mask.html> [accessed 22.08.04].

Dearnley, J. & Feather, J., 2001. *The wired world: an introduction to the theory and practice of the information society*. London: Library Association Publishing.

De Haan, J., 2003. I T and social inequality in the Netherlands. *IT&Society,* **1**(4), 27-45.

Dhalokia, R., et al., 1994. Putting a byte in the gender gap. *American Demographics,* (16), 20-21.

Digital reach report, 2005. Saudi Arabia: toward the information society. <http://www.yesser.gov.sa/documents/ksa-to-information-society.pdf >, [accessed 24.05. 07].

Dittmar, H., et al., 2004. Buying on the Internet: Gender differences in on-line and conventional buying motivations. *Sex Roles,* **50**(5-6), 423-444.

Dobson, R., 1998. It's a man's cyber world. *Independent on Sunday,* 22 March 1998, p.5.

Donath, J. S., 1999. Identity and deception in the virtual community In: Smith, M.A. & Kollock, P., eds. *Communities in cyberspace* . London: Routledge, pp.29-59.

Donn, J., & Sherman, R., 2002. Attitudes and practices regarding the formation of romantic relationships on the Internet. *CyberPsychology & Behavior,* **5**(2), 107-123.

Doring, N., 2000. Feminist views of cybersex: Victimization, liberation, and empowerment. *CyberPsychology & Behavior,* **3**(5), 863-884.

Döring, N., 2002. Personal home pages on the web: a review of research. *Journal of Computer-Mediated Communication[online],* **7**(3), <http://www.ascusc.org/jcmc/vol7/issue3/doering.html>,[accessed 03.03.02].

Dornyei, Z., 2003. *Questionnaires in second language research.* New Jersey: Lawrence Erlbaum Associates.

Drost, K., & Jorna, M., 2000. Empowering women through the Internet; Dutch Women Unite. *First Monday[online],* **5**(10), < http://www.firstmonday.dk/issues/issue5_10/drost/index.html>, [accessed 02.03.03].

Duck, S. & Wright, P. H., 1993. Re-examining gender differences in friendships: A close look at two kinds of data. *Sex Roles,* (28), 709-727.

Duffield, J., et al., 2003, Drawing the Net. [Paper presented at the] Annual conference of The British Psychological Society, 10–14 March, Bournemouth, UK.

Durndell, A. & Haag, Z., 2002. Computer self efficacy, computer anxiety, attitudes towards the internet and reported experience with the internet, by gender, in an East European sample. *Computers in Human Behavior,* **18**(5), 521-535.

Durndell, A. & Thompson, K., 1997. Gender and computing: a decade of change?. *Computers and Education,* **28**(1), 1-9.

Durndell, A., et al., 2000. Computer self-efficacy and gender: A cross cultural study of Scotland and Romania. *Personality and Individual Differences,* (28), 1037-1044.

Durndell, A., Glissov, P., & Siann, G. 1995. Gender and computing: persisting differences. *Educational Research, (37),* 219-227.

Eastin, M., 2005. Teen Internet use: relating social perceptions and cognitive models to behavior. *CyberPsychology & Behavior,* **8**(1), 62-75.

Ebben, M. & Kramarae, C., 1988. Women and information technologies: creating a cyberspace of our own. In: Kramarae, C., ed. *Technology and women's voices: keeping in touch* . London: Routledge and Kegan Paul, pp.15-32.

Ebben, M., 1994. *Women on the net: an exploratory study of gender dynamics on the Soc women computer network.* PhD Thesis, University of Illinois at Urbana Champaign.

Eckert, P. & McConnell-Ginet, S., 2003. *Gender and language.* Cambridge: Cambridge University Press.

Ellen, P., et al., 1991. Resistance to technological innovations: an examination of the role of self-efficacy and performance satisfaction. *Journal of the Academy of Marketing Science,* (19), 297-307.

Emarketer., 1999. *Internet users survey report.* <http://www.emarketnews.com/emetrics.htm>, [accessed 05.16. 03].

Energy Information Administration, 2005. *Saudi Arabia country analysis brief.* <http://www.eia.doe.gov/emeu/cabs/saudi.html>,[accessed 05.05. 07].

Enochsson, A., 2005. A gender perspective on internet use –consequences for information seeking on the net . *Information Research,* **10**(4), 55-65.

ESCWA., 2005. Regional profile of the information society in Western Asia. New York: United Nation.

Fallows, D., 2005. *How women and men use the internet.* Washington: The Pew Internet & American Life Project.

FeMiNa., 2003. *Electronic survey.* <http://www.femina.com>, [accessed 09.10. 03].

Ferganchick-Neufang, K., 1998. Virtual harassment women and online education. *First Monday[online],* **3**(2), <http://www.firstmonday.dk/issues/issue3_2/fergan/>,[accessed 02.03.03].

Fern, E., 2001. *Advanced focus group research* . Thousand Oaks, CA: Sage.

Ferris, S., 1996. Women online: cultural and relational aspects of women's communication in online discussion groups. *Interpersonal Computing and Technology,* (4), 29-40.

Fink, A., 1995. How to design surveys. Thousand Oaks, USA: Sage Publications.

Fink, A., 1995. The survey handbook. Thousand Oaks, USA: Sage Publications.

Fink, A., 2003. How to design survey studies. Thousand Oaks, USA: Sage Publications.

Finke, L., 1997. *Women: lost in cyberspace?* <http://enhanced-learning.org/prox/paper5.htm>, [accessed 03.09. 03].

Finn, J., & Banach, M., 2000. Victimization online: the downside of seeking human services for women on the Internet. *Cyberpsychology & behavior, 3*(5), 785-796.

Finnie, G. R., 1987. Novice attitude changes during a first course in computing: A case study. *Questiones Informaticae,* 5(2), 56-62.

Flagg, J., 1999. Women joining men in droves on the web. *Editor & Publisher, the Fourth Estate,* (132), 27-28.

Fleck, J. & McQueen, T., 1999. Internet access, usage, and policies in colleges and universities. *First Monday[online],* 4(11), <Http://firstmonday.org/issues/issue4_11/fleck/index.html>,[accessed 05.05.03].

Fontaine, M., 2001. A high-tech twist: IT access and the gender divide. *TechKnowLogia[online],* <http://www.TechKnowLogia.com>,[accessed 08.04.03].

Ford, G., *et al.*, 1980. *The use of medical literature: a preliminary survey.* Boston Spa: British Library.

Ford, N. & Miller, D., 1996. Gender differences in internet perception and use. *Aslib Proceedings,* 48(7/8), 183-192.

Fountain, J., 2000. Constructing the information society: women, information technology, and design. *Technology in Society,* (22), 45-62.

Fox, S., 2001. *Wired seniors. Pew Internet & American life project: Online report.* <http://www.pewinternet.org/reports/pdfs/PIP >, [accessed 04.14. 04].

Fox, S. & Fallows, D., 2003. *Internet health resources: Pew Internet & American life project.* <http://www.pewinternet.org/reports/toc.asp?Report=95.>, [accessed 05.12. 05].

Francis, L., *et al.*, 2000. The reliability and validity of the Hebrew version of the computer attitude scale. *Computers & Education,* 35(2), 149-159.

Frissen, V., 1992. Trapped in electronic cages? gender and new information technologies in public and private domain, *Media, Culture & society,* 14(3), 255-274.

Fuchs, T.& WöBmann, L., 2004, Computers and student learning: bivariate and multivariate evidence on the availability and use of computers at home and at school. [Paper presented at the] RES 2005 Annual Conference, 21-23 March, Nottingham, UK.

Fulkerth, B., 1998. A bridge for distance education: Planning for the information age student. *Syllabus,* **12**(4), 3-5.

Gackenbach, J., 1998. *Psychology and the Internet: intrapersonal, interpersonal and transpersonal implications*. New York: Academic Press.

Galpin, V. Sanders, I. Turner, H. & Venter, B., 2003. *Computer self-efficacy, gender, and educational background in South Africa*. Unpublished manuscript.

Garton, L. & Wellman, B., 1995. Social impacts of electronic mail in organizations: a review of the research literature. In: Burleson, B., ed. *Communication yearbook* . Newbury Park: CA: Sage, pp.434-453.

Gefen, D. & Straub, D., 1997. Gender differences in the perception and use of e-mail: An extension to the technology acceptance model. *MIS Quarterly,* **21**(4), 389-400.

Gibbs, A. 1997, Focus groups. <http://www.soc.surrey.ac.uk/sru/sru19.html>, [accessed 12.06. 05].

Gilbert, D., *et al*., 2003. Technophobia, gender influences and consumer decision-making for technology-related products. *European Journal of Innovation Management,* **6**(4), 253-263.

GITEX., 2004. Outstanding numbers mark the conclusion of GITEX 2004. < http://www.dwtc.com/Kiosk/news826.htm >, [accessed 02.01.06].

Gittler, M., 1999. Mapping women's global communications and networking . .In: Harcourt, W., ed. *Women@Internet Creating new cultures in Cyberspace* .London: Zed Books,

Goblan, N., 2003, Academic trends in Internet use in Riyadh City [Paper presented at the] Digital library the reality and the future, 11 April, Riyadh, KSA.

Goodson, P., *et al.*, 2001. Searching for sexually explicit materials on the Internet: An exploratory study of college students. *Archives of Sexual Behavior,* **30**(2), 101-118.

Gordon, D., 1994. Women drivers; women face more roadblocks than men when they zip along the information highway. *Virginia Pilot* , 17 July 1994, p.6.

Gorrill, J., 2004. *A Saudi Arabian culture overview.* <http://www.communicaid.com/saudi-business-culture.asp>, [accessed 12.01. 05].

Grace-Farfaglia, P., et al., 2005, Gender differences in the uses and gratifications of internet use for the United States, the Netherlands, and South Korea. [Paper presented at the] ASSA/AEA Conference, 7-9 January, Philadelphia, Pennsylvania.

Green, E., 2000. Negotiation time and space for every-day pleasure. In: Smith, R., ed. *Women, work and computerization: charting a course to the future* . Boston: Kluwer Academic Publishers, pp.225-232.

Green, K. C., 1998. *Campus computing 1998: the ninth annual survey of desktop computing and information technology in higher education.* Encino, CA: The Campus Computing Project.

Greene, J.& Caracelli, V., 1997. *Advances in mixed-method evaluation: the challenges and benefits of integrating diverse paradigms.* San Francisco: Jossey-Bass.

Greene, J., et al., 1989. Toward a conceptual framework mixed method evaluation design. *Education Evaluation and Policy Analysis,* (11), 255-274.

Greenfield, D. & Cooper, A., 1998. *Crossing the line-online.* <http://www.selfhelpmagazine.com/articles/cyber_romance/sexcross.html>, [accessed 03.23. 03].

Greenfield, P. & Subrahmanyam, K., 2004. Any fine ladies want to chat press 69Q: Linguistic codes and adolescent issues. In: Gross, E., ed. *The Internet as a context for*

adolescent peer interaction: An exploration of gender, race, and sexuality .Baltimore: Symposium conducted at the Society for Research in Adolescence,

Greenfield, P. & Tynes, B., 2004. Constructing sexuality and identity in an online teen chat room, *Applied Developmental Psychology,* (25), 651-666.

Grinter, R., & Palen, L., 2002. Instant messaging in teen life. [Paper presented at the] ACM conference on computer supported cooperative work, 16-20 November, New Orleans, Louisiana, USA.

Gurer, D. & Camp, T., 2002. An ACM-W literature review on women in computing. *ACM SIGCSE Bulletin,* **34**(2), 121-127.

Gurer, D., & Camp, T., 1998. *Investigating the incredible shrinking pipeline for women in computer science* (Final report of NSF Grant 98-12016).

Gurumurthy. A., 2004. *A gender perspective to ICTs and development.* <http://www.worldsummit2003.de/en/web/701.htm>, [accessed 23.05. 07].

GVU., 1998. *GVU_s WWW user survey.* <http://www.cc.gatech.edu/gvu/user_surveys/survey-1998-10/>, [accessed 02.02. 05].

Habib, L. & Cornford, T., 2001. Computers in the home: Domestication and gender. *Information Technology & People,* **15**(2), 159-174.

Hafkin, N. & Taggart, N. 2001. *Gender, information technology and developing countries: an analytical study.* Washington, DC: Office of Women and Development.

Hafkin, N., 2002, Gender issues in ICT policy in developing countries: an overview united nations division for the advancement of women (DAW) expert group. [Paper presented at the] Information and communication technologies and their impact on and use as an instrument for the advancement and empowerment of women, 11-14 November, Seoul, Republic of Korea.

Haisken-DeNew, J., et al., 2001. Use of computers and the Internet depends heavily on income and level of education. *Economic Bulletin,* **37**(11), 369-374.

Hakkarainen, K., et al., 2000. Students' skills and practices of using ICT: Results of a national assessment in Finland. *Computers & Education,* **34**(103), 117.

Hall, A. S. & Parsons, J., 2001. Internet addiction: College student case study using best practices in cognitive behavior therapy. *Journal of Mental Health Counseling,* **23**(4), 312-327.

Hall, E., 1959,1981. *The silent language.* New York: Anchor Books.

Hall, E., 1976. *Beyond culture,* New York: Doubleday.

Hall, E. & Hall, M., 1990. *Understanding cultural differences.* Yarmouth, MA: Intercultural Press.

Hamdan, A., 2005. Women and education in Saudi Arabia: challenges and achievements. *International Education Journal*, **6**(1), 42-64.

Hanauer, D., 2004. Internet use among community college students: implications in designing healthcare interventions. *Journal of American College Health,* **52**(5), 197-202.

Hapnes, T. & Rasmussen, B. 2000, Young girls on the Internet. [Paper presented at the] Women work and computerization international conference, 7-9 July, Toronto, Canada.

Harcourt, W., 1999. Cyborg Melody: an introduction to women on the Net (WoN), in Harcourt, W. (Eds), *Women@Internet: Creating New Cultures in Cyberspace*, Zed Press: London.

Hargittai, E., 2003. *How wide a web? inequalities in accessing information online.* PhD Thesis, Princeton University.

Hargittai, E. & Shafer, S., 2006. Differences in actual and perceived online skills: The role of gender *Social Science Quarterly,* **78**(2), 432-448.

Hassini, E., 2006. Student-instructor communication: the role of email. *Computers & Education,* **47**(1), 29-40.

Heimrath, R. & Goulding, A., 2001. Internet perception and use: a gender perspective, *Program* **35**(2), 119-134

Herbie., 2006. The normal distribution. <http://drherbie.wordpress.com/2006/09/30/the-normal-distribution/>, [accessed 04.04.2006].

HERI., 2000. *UCLA graduate school of education and information studies: an overview of the 2000 freshman norms.* < http://www.gseis.ucla.edu/heri/heri.html>, [accessed 05.06.06].

Herring, S., 1993. Gender and democracy in computer-mediated communication. *Electronic Journal of Communication[online],* **3**(2), <http://www.cios.org/www/ejc/v3n293.htm.>,[accessed 05.08.05].

Herring, S., 1994, Gender differences in computer-mediated communication: bringing familiar baggage to the new frontier. [Paper presented at the] American library association annual convention, 27-29 June, Arlington, TX. <https://www.cpsr.org/issues/womenintech/herring2> [accessed 24.04.05].

Herring, S., 1996. Posting in a different voice: gender and ethics in computer-mediated communication. In: Ess, C., ed. *Philosophical approaches to computer-mediated communication* . Albany: SUNY Press, pp.115-145.

Herring, S., 1999. The rhetorical dynamics of gender harassment on-line. *The Information Society,* **15**(3), 151-167.

Hiltz, S. & Johnson, K., 1989. Measuring acceptance of computer-mediated communication systems. *Journal of the American Society for Information Science,* **40**(6), 386-397.

Hine, C., 1998, Virtual ethnography. [Paper presented at the] IRISS '98, 25-27 March, Bristol, UK.

Hoepfl, M., 1997. Choosing qualitative research: a primer for technology education researchers. *Journal of Technology Education [online],* 9(1), <http://scholar.lib.vt.edu/ejournals/JTE/v9n1/hoepfl.html>, [accessed 13.05.03].

Hoffman, D. & Novak, T., 1998. Bridging the racial divide on the Internet, *Science*, 280(April 17), 390-391.

Hoffman, D., Kalsbeek, W., Novak, T., 1996. Internet and web use in the U.S. *Communications of the ACM,* (39), 36-46.

Hong, S., 1998. Predictors of computer anxiety and performance in an introductory information technology course. *Journal of Science and Mathematics Education in Southeast Asia, XXI,* (2), 1-18.

Howard, P. *et al.,* 2002. Days and nights on the Internet. In: Wellman, B. & Haythornthwaite, C., eds. *The Internet in everyday life* . Oxford: Blackwell, pp.45-73.

Hu, S. & Leung, L., 2003. Effects of expectancy-value, attitudes, and use of the Internet on psychological empowerment experienced by Chinese women at the workplace., *Telematics & Informatics,* **20**(4), 365-382.

Huffaker, D. A. & Calvert, S. L., 2005. Gender, identity, and language use in teenage blogs *Journal of Computer-Mediated Communication,* **10**(2), 4-11.

Hunt, N. & Lyrrell, S., 2004. *Stratified sampling.* <http://www.mis.coventry.ac.uk/~nhunt/meths/strati.html>, [accessed 02.02. 05].

Hussey, J. & Hussey, R., 1997. *Business research: A practical guide for undergraduate and postgraduate students*. London: Macmillan Press.

IBS research,, [n.d.]. <http://www.ibsresearch.com>, [accessed 13.11. 03].

Idowu, B., et al., 2004. Gender differences in computer literacy among Nigeria undergraduates students: a case study of Obafemi Awolowo University students, Nigeria. *The African Symposium: on-line Educational Research Journal[online],* 4(3), <http://www2.ncsu.edu/ncsu/aern/comgend.htm>,[accessed 11.02.05].

Internet Services Unit., 2005. *Introduction to content filtering.* <http://www.isu.net.sa/saudi-internet/contenet-filtring/filtring-mechanism.htm>, [accessed 03.03. 05].

Jackson, L., et al., 2001. Gender and the Internet: women communicating and men searching. *Sex Roles,* (44), 363-380.

Jaffe, M., et al., 1997. *Gender, pseudonyms, and CMC: masking identities and baring souls.* <http://members.iwo rld.net/yesunny/genderps.html>, [accessed 04.06. 03].

Jagboro, K., 2003. A study of Internet usage in Nigerian universities: a case study of Obafemi Awolowo University. *First Monday [online],* 8(2) <Http://firstmonday.org/issues/issue8-2/jagboro/index.html>,[accessed 17.03.03].

Jazwinski, C., 2001. Gender identities on the World Wide Web In: Wolfe, C., ed. *Learning and teaching on the World Wide Web*. San Diego: Academic Press, pp.171-186.

Jennings, S. & Onwuegbuzie, A., 2001. Computer attitudes as a function of age, gender, math attitude, and developmental status. *Journal of Educational Computing Research,* **25**(4), 367-384.

Jenson, J., et al., 2003. "Girl talk": Gender, equity, and identity discourses in a school-based computer culture. *Women's Studies International Forum,* **26**(6), 561-573.

Johnson, R.B., & Onwuegbuzie, A.J., 2004. Mixed methods research: a research paradigm whose time has come. *Educational Researcher,* **33** (7) 14-26.

Joiner, R., et al., 2005. Gender, Internet identification, and Internet anxiety: correlates of Internet use. *CyberPsychology & Behavior,* **8**(4), 371-378.

Jones, S. & Madden, M. 2002. *The Internet goes to college: how students are living in the future with today's technology.* Washington D. C.: The Pew Internet & American Life Project.

Jones, T. & Clarke, V., 1995. Diversity as a determinant of attitudes: a possible explanation of the apparent advantage of single-sex settings. *Journal of Educational Computing Research,* **21**(1), 51-64.

Joppe, M., *The self-administered survey.* <http://www.ryerson.ca/~mjoppe/ResearchProcess/SelfAdministered.htm>, [accessed 04.05. 07].

Jupiter MMXI., 2000. *WebMilestones Oct 1999–Sept 2001: two years in the evolution of the Internet in the U.K.* <http://uk.jupiter.mmxi.com/xp/uk/press/releases>, [accessed 04.12. 04].

Kabissa, L., [n.d.]. *Barriers and breakthroughs: using technology to empower women's participation.* <http://www.kabissa.org/news/wmd_2006_outcomes.html>, [accessed 04.16. 06].

KACST, 2002. *Internet users in Saudi Arabia.* <http://www.kacst.edu.sa/>, [accessed 02.02.07].

Kadijevich, D., 2000. Gender differences in computer attitude among ninth-grade students. *Journal of Educational Computing Research,* **22**(2), 145-154.

Kandell, J., 1998. Internet addiction on campus: the vulnerability of college students. *CyberPsychology & Behevior,* **1**(1), 11-17.

Kaplan, N. & Farrell, E., 1994. Weavers of Web: a portrait of young women on the nets. *Electronic Journal of Virtual Culture[online],* **2**(3) <http://raven.ubalt.edu/staff/kaplan/weavers/weavers.html>,[accessed 12.05.03].

Katz, J., et al., 2001. The Internet, 1995-2000. *American Behavioral Scientist,* (45), 405-419.

Kay, H., 1992. An analysis of methods used to examine gender differences in computer-related behavior. *Journal of Educational Computing Research,* **8**(3), 323-336.

Kay, R. H., 2005. *Addressing individual differences in computer experience: The laptop effect*. Philadephia: NECC.

Kehoe, C., et al., 1998. *Eighth WWW user survey.* <http://www.cc.gatech.edu/gvu/user_>, [accessed 04.15. 04].

Kekelis, L., Wepsic, R. & Heber, E., 2005. Hurdles in the pipeline–girls and technology careers. *Frontiers,* **26**(1), 99-109.

Kelsey, D., 2002. U.S. Women's net use grows at triple the rate of men's. *Washington Post* , 18 January 2002,

Kennedy, T., 2000a. An exploratory study of feminist experiences in cyberspace. *Cyberpsychology & Behevior,* **3**(5), 707-720.

Kennedy, T., 2000b. *Women and the Internet: an exploratory study of feminist experiences in cyberspace*. B.A Thesis, Department of Sociology, Brock University.

Kennedy, T., et al., 2003. Gendering the digital divide. *IT & Society,* (1), 149-172.

Keser, C., et al., 2002. *Trust, the Internet, and the digital divide.* <Http://www.alle.de/transfer/downloads/MD362.pdf>, [accessed 02.02. 05].

Khudair, A., 2005. Health libraries sciences: information services and ICTs. PhD Thesis, City University.

Kiesler, S., et al., 1985. Pool halls, chips, and war games: women in the culture of computing. *Psychology of Women Quarterly,* (9), 451-462.

King, J., et al., 2002. An investigation of computer anxiety by gender and grade. *Computers in Human Behavior,* **18**(1), 69-84.

King, L., 2000. Gender issues in online communities. *The CPSR Newsletter[online],* **18**(1) <http://www.cpsr.org/publications/newsletters/issues/2000/Winter2000/king.html>,[accessed 02.02.03].

Kirkpatrick, H. & Cuban, L., 1998. Should we be worried? what the research says about gender differences in access, use, attitudes, and achievement with computers. *Educational Technology*, (4), 56-61.

Kirkup, G., 1995. Gender issues and learning technologies. *British Journal of Educational Technology,* **26**(3), 218-229.

Knezek, G. & Christensen, R., 2002. Impact of new information technologies on teachers and students. *Education and Information Technologies,* 7(4), 369-376.

Kole, E., 2000. Making the internet democratic. *Information Technology in Developing Countries[online],* **10**(3) <http://www.iimahd.ernet.in/egov/ifip/dec2000.htm#Back%20to%20Papers>,[accessed 12.10.04].

Kole, E., 2001. Appropriate theorizing about African women and the Internet. *International Feminist Journal of Politics*, **3**(2), 156-179.

Korgen, K., et al., 2001. Internet use among college students: are there differences by race/ethnicity? *Electronic Journal of Sociology*, **5**(3), 1–8.

Kramarae, C., 1997. Technology policy, gender, & cyberspace. *Duke Journal of Gender Law & Policy[online],* 4(1) <http://www.law.duke.edu/journals/djglp/articles/gen4p149.htm>,[accessed 22.04.04].

Kramarae, C. & Taylor, J., 1993. *Women and men on electronic networks: a conversation or a monologue?*. In: *Women, information technology, and scholarship* . Urbana, Ill: Center for Advanced Study, University of Illinois, pp.52-61.

Kraut, R., *et al.*, 1998. Internet paradox: a social technology that reduces social involvement and psychological well-being? *American Psychologist,* **53**(9), 1017-1031.

Krendl, K. A. & Broihier, M. 1992. Student responses to computers: a longitudinal study. J. *Educational Computing Research*, **8**(2), 215-227.

Kreuger, R. A., 1998a. *Focus groups: a practical guide for applied research.* London: Sage.

Krueger, R. A., 1998b. *Analyzing & reporting focus group results*. London: Sage.

Kruger, D. J., 2003. Integrating quantitative and qualitative methods in community research. *The Community Psychologist,* (36), 18-19.

Kuhlemeier, H. & Hemker, B., 2005. The impact of computer use at home on students Internet skills. *Computers & Education, (82), 115-136*

Kumar, R. & Kaur, J., 2006. Practical beacon placement for link monitoring using network tomography. *IEEE Journal on Selected Areas in Communication (JSAC),* **24**(12), 2196-2209.

Kussmaul, C., et al., 1996. Using technology in education: when and why, not how. *College Teaching,* **44**(4), 123-126.

Laite, B., 2000. Internet Use Survey: analysis. <http://www.ship.edu/~bhl/survey/>, [accessed 11.06.06].

Lally, E., 2002. *At home with computers* . Oxford: Berg.

Lam, D., *et al*. 2002. Exploiting e-*mail structure to improve summarization*. In Proceedings of the 2002 ACM Conference on Computer Supported Cooperative Work (CSCW 2002).

Lang, C. & Hede, T., 2004. Gender and IT: do stereotypes persist?. In: Morgan, J., et al., ed. Human perspectives in the Internet society: psychology and gender. Boston: WIT press, pp.287-296.

LaPin, G., 1998. *Pick a gender and get back to us. how cyberspace affects who we are.*
<http://www.fragment.nl/mirror/various/LaPin_G.1998.Pick_a_gender_and_get_back_to_us.htm>, [accessed 05.16. 02].

LaPin, G., 1999. *Shape shifters: why women must adapt in the computer world to succeed.* <http://www.fragment.nl/mirror/various/LaPin_G.1999.Shapeshifters.htm>, [accessed 08.22. 03].

Lee, A. C., 2003. Undergraduate students' gender differences in IT skills and attitudes. *Journal of Computer Assisted Learning,* **19**(4), 488-500.

Leech, N. *et al,* 2005. *SPSS for intermediate statistics: use and interpretation.* Mahwah, N.J.: Lawrence Erlbaum.

Lenhart, A. & Rainie, L., 2002. *The digital disconnect: the widening gap between Internet-savvy students and their schools.* Washington: The Pew Internet & American Life Project.

Leung, L., 2001. College student motives for chatting. *New Media & Society,* **4** 483-500.

Li, N., 2000. A cross-cultural comparison of women students attitudes toward the Internet and usage, *Cite Report,* (255), 1-19.

Li, N., 2002. *Culture and gender aspects of students' information searching behavior using the internet: two-culture study of China and the UK.* PhD Thesis, The Open University.

Li, N. & Kirkup, G., 2005. Gender and cultural differences in internet use: a study of china and the UK. *Computers & Education,*

Liaw, S. & Huang, H., 2003. An investigation of user attitudes toward search engines as an information retrieval tool. *Computers in Human Behavior,* **19**(6), 751-765.

Library of Congress., [n.d.]. *Cultural homogeneity and values.* <http://countrystudies.us/saudi-arabia/21.htm>, [accessed 04.05. 06].

Library of Congress., 2006. *Country profile: Saudi Arabia.* http://lcweb2.loc.gov/frd/cs/profiles/Saudi_Arabia.pdf, [accessed 04.05. 07].

Liff, S. & Shepherd, A., 2004. *An evolving gender digital divide? ,Internet issue brief no. 2* . <www.oii.ox.ac.uk/resources/publications/IB2all.pdf>, [accessed 02.04. 06].

Lindsay, W. & McLaren, S., 2000. The Internet: an aid to student research or a source of frustration? *Journal of Educational Media,* **25**(2), 115-128.

Linjakumpu, A., 1995, Muslim women defined by the multicultural Internet community. [Paper presented at the] Islam on-line, 19-22 June, Joensuu, Finland. <http://www.smi.uib.no/paj/Linjakumpu.html> [accessed 08.08.05].

Local content filtering policy, 2004. <http://www.isu.net.sa/saudi-internet/contenet-filtring/filtring-policy.htm>, [accessed 01.10. 05].

Losh, S. C., 2004. Gender, educational, and occupational digital gaps - 1983-2002. *Social Science Computer Review,* **22**(2), 152-166.

Lubans, J. 1998. *How first year university students use and regard Internet resources.* <www.lib.duke.edu/lubans/docs/1styear/firstyear.html>, [accessed 04.16. 03].

MacMillan, K. & Koenig, T., 2004. The wow factor: Preconceptions and expectations for data analysis software in qualitative research. *Social Science Computer Review,* **22**(2), 179-186.

Madden, M. & Rainie, L. 2003. *America's online pursuits: the changing picture of who's online and what they do.* Washington: The Pew Internet & American Life Project.

Maguire, M., 2001. Gender, information technology, and developing countries. *TechKnowLogia[online],* <http://www.TechKnowLogia.com>,[accessed 06.07.03].

Marcelline, F., et al., 2005. A four-country investigation of factors facilitating student Internet use. *CyberPsychology & Behavior*, **8**(5), 454-464

Marita, S., et al., 2002. Shyness and anxiety as predictors of patterns of Internet usage.

Marketing to Women, 2001. Girls know computers but find them boring. *Marketing to Women,* **13**(6), 12.

Markham, A., 1998. *Life online: researching real experience in virtual space.* Walnut Creek, California: AltaMira Press.

Marklein, M. B., 1997. At colleges, e-mail is as easy as ABC. *USA Today* , 10 March 1997, p.1.

Martin, C. D., 1993. Shifting the paradigm to address gender issues in computer science education. *International Federation of Information Processing Transactions A (Computer Science and Technology),* **A**(34), 285-292.

Martin, S., 2003. Is the digital divide really closing? a critique of inequality measurement in a nation online. *IT & Society,* (1), 1-13.

Mason, J., 2002. *Qualitative researching* . London: Sage.

Maxwell, C., 2001. *Getting women's voices heard.* <http://www.connected.org/women/christine.html>, [accessed 09.27. 01].

McAdams, M., 1996. Gender without bodies. <http://www.december.com/cmc/mag/1996/mar/mcadams.html>, [accessed 05.01.2006].

McDonald, S. & Spencer, L., 2000. Gender differences in web navigation: Strategies, efficiency, and confidence. In: Balka, E. & Smith, R., eds. *Women, work, and computerization: charting a course to the future* .Boston: Kluwer Academic Publishers, pp.174-181.

McFadden, A., 1999. College students' use of the Internet. *Education Policy Analysis Archives[online],* **7**(6), <http://epaa.asu.edu/epaa/v7n6.html>,[accessed 15.05.05].

McGerty, L., 2000. Nobody lives only in cyberspace: gendered subjectivities and domestic use of the Internet. *CyberPsychology & Behevior,* **3**(5), 895-899.

McIlroy, D., et al., 2001. The relation of gender and background experience to self-reported computing anxieties and cognitions. *Computers in Human Behavior,* **17**(1), 21-33.

MCIT, 2004. ICT for illiteracy eradication. Cairo: ICT fund.

McMurdo, G., 2000. *Acceptance and use of computer-mediated communication by female and male information students*. PhD Thesis, Loughborough University.

Mehta, M., 2001. Pornography in use-net: a study of 9,800 randomly selected images. *Cyber Psychology & Behavior,* 4(6), 695-703.

Metzgera, M., et al., 2003. College student web use, perceptions of information credibility, and verification behavior. *Computers & Education,* (41), 271-290.

Meyers, D. M., 2003, The impact of virtual office hours on in-class participation. [Paper presented at the] Annual Meeting of the American Educational Research Association, 21-25 April, Chicago, IL.

Miles, M. & Huberman, M., 1994. *An expanded sourcebook qualitative data analysis* . Thousand Oaks: Sage Publications.

Millard, E., 1997, New technologies, old inequalities: variations found in the use of computers by pupils at home with implications for the school curriculum. [Paper presented at the] The British educational research association annual conference, 11-14 September, New York.

Miller, H. & Arnold, J., 2001. Breaking away from grounded identity? Women academics on the web. *CyberPsychology & Behevior,* 4(1), 95-108.

Miller, H.& Mather, R. 1998, The presentation of self in WWW home pages. [Paper presented at the] The IRISS'98 conference, 25-27 March, Bristol, UK.

Miller, H., 1999, The hypertext home: Images and metaphors of home on World Wide Web Home pages. [Paper presented at the] The design history society home and away conference, 8-10 September, Nottingham, UK.

Minges, M., 2002. *Gender and ICT statistics*. <http://www.itu.int/ITU-D/ict/WICT02/doc/pdf/Doc07_E.pdf>, [accessed 8. 02. 2003].

Ministry of Communication and Information Technology., 2005. *Annual report.* <http://www.citc.gov.sa/NR/rdonlyres/5F77A781-6ECB-43FB-8F5E-1C46CE907BE4/0/AnnualReportEng.pdf>, [accessed 27.05.07].

Ministry of Economy and Planning., 2004. Achievements of the development plans. *<http://www.planning.gov.sa/i-mop/home/>*, [accessed 05.07.06].

Mishra, O.P., et al., 2005. Internet utilization pattern of undergraduate students. *University News,* **43**(13), 8-12.

Mistler-Jackson, M. & Songer, N., 2000. Students motivation and Internet technology: are students empowered to learn science?. *Journal of Research in Science Teaching*, 37(5), 459-479.

Mitchell, K. , et al., 2001. Risk factors for and impact of online sexual solicitation of youth. *American Medical Association,* (285), 3011-3014.

Mitra, A. & Hazen, M., 1999. Longitudinal assessment of computerization at Wake Forest University. In: Brown, D., ed. *Electronically enhanced education.* Winston-Salem, NC: Wake Forest University Press, pp.101-106.

Mitra, A. ,et al., 2005. Exploring web usage and selection criteria among male and female students. *Journal of Computer-Mediatwd Communication,* **10**(3), 55-70.

Mitra, A., et al., 2001a. Differences in attitudes between women and men toward computerization. *Journal of Educational Computing Research,* **25**(3), 227-244.

Mitra, A., et al., 2001b. Gender and computer use in an academic institution: report from a longitudinal study. *Journal of Educational Computing Research,* (23), 67-84.

Moore, G. & Benbasat, I., 1991. Development of an instrument to measure the perceptions of adopting new information technology innovation. *Information Systems Research,* **2**(3), 192-222.

Morahan-Martin, J., 1998a, Women and girls last: female and the Internet. [Paper presented at the] The IRISS'98 conference, 25-27 March, Bristol, UK. http://www.sosig.ac.uk/iriss/papers/paper55.htm [accessed 05.08.03].

Morahan-Martin, J., 1998b. The gender gap in Internet use: why man use the Internet more than women. *CbyerPsychology & Behavior,* **1**(1), 3-10.

Morahan-Martin, J., 2000. Women and the Internet: promise and perils. *CyberPsychology & Behevior,* **3**(5), 683-691.

Morahan-Martin, J., 2004. Paradoxes in the impact of the Internet on women. In: Morgan, J., et al., ed. Human perspectives in the Internet society: psychology and gender. Boston: WIT press, pp.274-285.

Morahan-Martin, J. & Schumacher, P., 2000. Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior,* **16** 13-29.

Morahan-Martin, J.& Schumacher, P. 1997, Gender differences in Internet usage, behaviors, and attitudes among undergraduates. [Paper presented at the] 7th international conference on human-computer interaction, 11-16 August , Amsterdam: Elsevier Science.

Morgan, D. L., 1988. *Focus groups as qualitative research.* London: Sage.

Myers, R., 1997. Qualitative research in information system. <http://www.qual.auckland.ac.nz/>, [accessed 12.11.06].

Nagler, J., 2004. *Privacy: what are the issues?* <http://womeningovernment.org/home/policy_privacy.asp>, [accessed 03.03. 06].

Nath, V., 2001. Empowerment and governance through information and communication technologies: women's perspective. *Intl. Inform. & Libr. Rev*, **33**, 317-339.

NetSmart America., 1999. *Computer, Internet use among Americans.* <http://cyberatlas.Internet.com/big_picture/demographics/article/0,1323,5901_218471,00.html.>, [accessed 06.22. 04].

Netvalue, 2001. *Three million new home Internet users in 2001.* <http://uk.netvalue.com/presse/cp0041.htm>, [accessed 04.04. 05].

Newburger, E. C., 1997. *Computer use in the United States.* <http://www.census.gov>, [accessed 03.07. 05].

Newburger, E. C., 1999. *Computer use in the United States*. Washington, DC: U.S. Department of Commerce Bureau of the Census.

Newton, S., 2001. Breaking the code: women confront the promises and the perils of high technology. *Women's Studies Quarterly,* (29), 71-79.

Nielsen NetRatings., 2002. Instant messaging used by more than 41 million home Internet surfers. <http://www.nielsen-netratings.com/pr/pr_020617.pdf>, [accessed 17.05.06]

Nielsen., 2002. *NetRatings reports 2002.* <http://www.nielsen-netratings.com/>, [accessed 04.12. 05].

Norman, N. & Erbring, L., 2001. Internet and society: a preliminary report. In: Compaine, B., ed. *The digital divide: facing a crisis or creating a myth?* . Cambridge: MIT Press, pp.269-271.

Norris, P., 2001. *Digital divide: civic engagement, information poverty and the Internet in democratic societies*. Cambridge: University Press.

NUA. 1999, *Gender gap has almost disappeared in US.* <http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905355546&rel=true>, [accessed 03.04. 04].

NUA. 2000, *Internet survey.* <http://www.nua.ie/surveys/analysis/index.html>, [accessed 05.08. 04].

NUA. 2001, *Internet survey women now dominate South African web use.* <http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356627&rel=true>, [accessed 13.10. 03].

Odell, P., et al., 2000. Internet use among female and male college students. *CyberPsychology & Behavior,* **3**(5), 855-862.

O'Hanlon, N., 2002. Net knowledge: performance of new college students on an Internet skills proficiency test. *Internet and Higher Education,* **5**(1), 55-66.

Okebukola, P.A., 1993. The gender factor in computing anxiety and interest among some Australian high school students', *Educational Research* (35), 181-188.

Omar, M. H., 1992. Attitudes of college students towards computer: a comparative study in the United States and the Middle East. *Computers in Human Behavior*, **8**, 249-257.

Ono, H. & Zavodny, M., 2003. Gender and the Internet. *Social Science Quarterly*, **84**(1), 111-121.

Oppenheim, A. N., 1992. *Questionnaire design, interviewing and attitude measurement*. London: Pinter.

Oshan, M & O'Brien, A. 2005, Saudi women and the Internet: gender and culture issues. [Paper presented at the] IRFD World forum conference on digital divide, global development and the information society, 14-16 November, Tunisia: La Marsa.

Oxford Internet survey., [n.d.]. *OII issue brief no. 2*<http://www.oii.ox.ac.uk/>, [accessed 02.04. 05].

Pallant, J. 2001. *SPSS survival manual: a step-by-step guide to data analysis using SPSS for Windows.* Milton Keynes: Open University Press.

Palloff, R., & Pratt, K. 2001. Lessons from the cyberspace classroom: The realities of online teaching. San Francisco: Jossey-Bass.

Panda, K. C., & Sahu, N., 2003. Use of Internet in the Engineering Colleges of Orissa: an analysis. *Mapping Technology on Libraries and People.* Ahemdabad, India: Proceedings of the 1st International Conference on Mapping Technology on Libraries and People. 619-631.

Panyametheekul, S., and Herring, S. C. 2003. Gender and turn allocation in a Thai chat room. <http://jcmc.indiana.edu/vol9/issue1/panya_herring.html>, [accessed 14.05.05]

Papacharissi, Z., & Rubin, A. M. 2000. Predictors of Internet use. Journal of *Broadcasting & Electronic Media*, 4 (2), 175-196

Papastergiou, M., & Solomonidou, C. 2005. Gender issues in Internet access and favorite Internet activities among Greek high school pupils inside and outside school. *Computers & Education*, **44**(5), 377–393.

Parks, M. & Floyd, K., 1996. Making friends in cyberspace. *Journal of Communication,* (46,), 80-97.

Peng, H., et al., 2006. University students' self-efficacy and their attitudes toward the Internet: The role of students' perceptions of the Internet *Educational Studies,* **32**(1), 73-86.

Perry, T., et al., 1998. Internet use by university students: an interdisciplinary study on three campuses. *Internet Research: Electronic Networking Applications and Policy,* **8**(2), 136-141.

Piecowye, J., 2003. Habitus in transition? CMC use and impacts among young women in United Arab Emirates. *JCMC [online]*, 8(2), < http://jcmc.indiana.edu/vol8/issue2/piecowye.html>,[accessed 17.03.03].

Pollock, S., 2003. Women and the Internet: participation, impact, empowerment and strategies. <http://www.womenspace.ca/policy/consult_report.html#325_H1 >, [03.04.06].

Preece, J., 2000. *Online communities: designing usability, supporting sociability.* Chichester: John Wiley.

Qureshi, S. & Hoppel, C., 1995. Profiling computer predispositions. *Journal of Professional Services Marketing,* (12), 73-83.

Rainer, R. K., et al., 2003. Are gender perceptions of computing changing over time? *Journal of Computer Information Systems,* **43**(4), 108-114.

Rainie, L. & Kohut, A. 2000. *Tracking online life: how women use the Internet to cultivate relationships with family and friends*. Washington, D.C: The Pew Internet & American Life Project.

Rajagopal, I. & Bojin, N., 2003. A gendered world: students and instructional technologies. *First Monday[online],* **8**(1), <Http://firstmonday.org/issues/issue8_1/rajagopal/index.html>,[accessed 17.03.03].

Ramayah, T., et al., 2003, Internet usage among students of Institutions of higher learning: The role of motivational variables. [Paper presented at the] 1st International Conference on Asian Academy of Applied Business Conference, 10-12 July, Sabah, Malaysia.

Ray, C., et al., 1999. Men's and Women's attitudes toward computer technology: A comparison. *Office Systems Research Journal,* **17**(1), 11-18.

Remenyi, D., et al., 1998. *Doing research in business and management*, Sage Publications, London.

Resnick, R., 1995. *IPA's survey of women online.* <http://www.netcreations.com/ipa/women>, [accessed 05.06. 03].

Rheingold, H., 2000. *The virtual community: homesteading on the electronic frontier.* Cambridge, Mass: MIT Press.

Rice, R. A., 2004. *Comparative perspective from US surveys, Internet issue brief no. 2.2.* <www.oii.ox.ac.uk/resources/publications/IB2all.pdf>, [accessed 01.12. 05].

Robins, M., 2002. Are African women online just ICT consumers?. *The International Journal for communication studies*, **64**(3), 235-249.

Robinson, J., 2005. *Internet use among African American college students:an exploratory study.* <http://wwwlib.umi.com/dissertations/fullcit/3156015.>, [accessed 09.08. 05].

Rodgers, S. & Harris, M., 2003. Gender and E-commerce: An exploratory study. *Journal of Advertising Research,* **43**(3), 322-329.

Rommes, E., 2002. Creating places for women on the Internet. *The European Journal of Women's Studies,* 9(4), 400-429.

Rosen, L. & Weil, M., 1995. Adult and teenage use of consumer, business, and entertainment technology: potholes on the information superhighway? *Journal of Consumer Affairs,* (29), 55-84.

Roy, M. & Chi, M., 2004. Gender differences in patterns of searching the web. *Journal of Educational Computing Research,* (29), 335-348.

Rush, S., 1998. *Building the 21st century information technology workforce: upgrading IT skills of the current workforce.* Washington, DC: Information Technology Society of America.

S`anchez-Franco, N., 2006. Exploring the influence of gender on the web usage via partial least squares *Behaviour & Information Technology,* **25**(1), 19-36.

Safford, S. M. & Worthington, J. E., 1999. Computer anxiety in individuals with serious mental illness. *Computers in Human Behavior,* **15**(6), 735-745.

Sam, H. K., et al., 2005. Computer self-efficacy, computer anxiety, and attitudes toward the internet: A study among undergraduates in animas *Educational Technology & Society,* **8**(4), 205-219.

Saudi Arabia information resource., 2005. *Saudi Arabia calls for Int'l administration for Internet.* <http://saudinf.com/main/y8999.htm>., [accessed 29.05. 07].

Saudi Telecom, 2004. <http://www.point_topic.com/content/operatorSource/profiles/Saudi+Arabia/Saudi+Telecom+Retail.htm&comp_id=995>, [accessed 11.24. 04].

Saunders, P., et al. 1997. *Research methods for business students*. London: Pitman.

Savicki, V. et al., 1996. Gender language style and group composition in Internet discussion groups. *Journal of computer mediated communication[online],* **2**(3), <http://www.ascusc.org/jcmc/vol2/issue3/savicki.html>,[accessed 12.06.03].

Savicki, V., & Kelley, M., 2000. Computer mediated communication: gender and group composition. *CyberPsychology & Behevior,* **3**(5), 817-826.

Sax, L. J. et al., 1998. *The American freshman: national norms for fall 1998* . Los Angeles, CA: Higher Education Research Institute.

Scealy, M., Phillips, J., & Stevenson, R. 2002. Shyness and anxiety as predictors of patterns of Internet usage. *Cyberpsychology and Behavior* **5**(6): 507–15.

Scherer, K., 1997. College life online: Healthy and unhealthy internet use. *Journal of College Student Development,* **38**(6), 655-664.

Schmesier, L., 1996. Why Bring Gender Online. < http://www.december.com/cmc/mag/1996/mar/ed.html >, [accessed 08.10.05].

Schneider, S. C. & Barsoux, J. L., 1997. *Managing across cultures* . New York: Prentice-Hall.

Schumacher, P.& Morahan-Martin, J. 1998, Are Internet and computer attitudes and behaviors related? gender differences. [Paper presented at the] The 106th annual convention of the American psychological association, 17-19 August, San Francisco, CA.

Schutz, P. A. et al., 2004. Multi-methods research. In: DeMarrais, K.B. & Lapan, S.D., eds. *Research methods in the social sciences: frameworks for knowing and doing.* Hillsdale, NJ: Erlbaum, pp.267-281.

Schutz, R., & Blocher, D., 1960. Self-concepts and stereotypes of vocational. preferences, *Vocational Guidance Quarterly*, (8), 241-244

Scott, A., 1999. Women and the internet. *Information communication & Society,* **2**(4), 541-565.

Scragg, G. and Smith, J., 1998. A Study of Barriers to Women in Undergraduate

Sedgwick, R., 2001. Education in Saudi Arabia. <
http://www.wes.org/ewenr/01nov/practical.htm>, [accessed 06.07.06].

Sekaran, U., 2000. Research methods for business: a skill-building approach, 3rd ed. New York: Wiley.

Selby, L., Ryba, K., & A. Young., Women in computing: what does the data show? *[Paper presented at the] Forth Annual Conference Innovation Technology in Computer Science Education,* 27 June 1999, Nelson, New Zealand.

Selwyn, N., 1997. The effect of using a computer at home on students' school use of I.T, *Research in Education* (58), 79-81.

Semans, A. & Winks, C., 1999. *The women's guide to sex on the web* . New York: Harper San Francisco.

Senjen, R., 1996. *The internet for women: writing from down-under.* <http://womenspace.ca/magazine/vol21c.html>, [accessed 05.03. 03].

Sensales, G. & Greenfield, P., 1995. Attitudes toward computers, science and technology . *Journal of Cross Cultural Psychology*, **26**(3), 229-240.

Sevdik, A. & Akman, V., 2002. Internet in the lives of Turkish women. *First Monday[online],* 7(3), <URL: http://firstmonday.org/issues/issue7_3/sevdik/index.html>,[accessed 17.03.03].

Shade, L. 2003. *Gender & community in the social construction of the Internet.* New York: Peter Lang.

Shade, L. 2004. Bending gender into the net, feminizing content, corporate interests, and research strategy. In P.N. Howard & Jones (eds). *Society online: The Internet in context* . Thousand Oaks: Sage, pp 57-83.

Shade, L., 1993, Gender issues in computer networking. [Paper presented at the] Community Networking: the International Free-Net Conference, 17-19 August, Ottawa, CA. <http://www.vcn.bc.ca/sig/comm-nets/shade.html> [accessed 09.02.05].

Shaheen, S., 2001. The effect of internet use on the use of academic library. *Arab Journal for Librarianship and Information cience,* (4), 5-48.

Shapka, J. D. & Ferrari, M., 2003. Computer-related attitudes and actions of teacher candidates. *Computers in Human Behavior,* **19**(3), 319-334.

Shashaani, L., 1997. Gender differences in computer attitudes and use among college students. *Journal of Educational Computing Research,* (16), 37-51.

Shashaani, L. & Khalili, A., 2001. Gender and computers: Similarities and differences in Iranian college students attitudes toward computers. *Computers & Education,* **37** 363-375.

Shaw, F. S. & Giacquinta, J. B., 2000. A survey of graduate students as end users of computer technology: New roles for the faculty. *Information Technology, Learning, and Performance Journal,* **18**(1), 21-39.

Shaw, G. & Marlow, N., 1999. The role of student learning styles, gender, attitudes and perceptions on information and communication technology assisted learning. *Computers & Education,* (33), 223-234.

Sheehan, K. B., 1999. An investigation of gender differences in online privacy concerns and resultant behaviors. *Journal of Interactive Marketing,* **13**(4), 24-38.

Sherman, A., 1996. *Where the girls are.* <http://www.cybergrrl.com/>, [accessed 04.09. 03].

Sherman, R., et al., 2000a. *The Internet gender gap among college students.* <http://www.users.muohio.edu/shermarc/mpa100.htm>, [accessed 02.02. 02].

Sherman, R., et al., 2000b. The Internet gender gap among college students: Forgotten but not gone? *CyberPsychology & Behevior,* 3(5), 885-894.

Shiu, E. & Lenhart, A. 2004. *How Americans use instant messaging.* Washington, D.C: The Pew Internet & American Life Project.

Shteiwi, M., 2003. Arab women, the Internet and public space. <http://www.qantara.de/webcom/show_article.php/_c-478/_nr-18/i.html>, [accessed 05.10.05].

Shteiwi, M., 2004. Building democracy in Jordan: women's political participation, political party life and democratic elections. <http://www.idea.int/publications/dem_jordan/index.cfm>, [accessed 05.10.05].

Sillence, E. & Briggs, P., 2004. Please advise: using the Internet for health and financial advice. *Computers in Human Behavior,* **In Press, Corrected Proof.**

Simmons, S., 1995, Democracy, women and the Internet. [Paper presented at the] International community networking conference and general meeting of telecommunities: equity on the Internet, 3-7 August, Victoria, Canada.

Sinclair, C., 1996. *Net chick: a smart-girl guide to the wired world* . New York: Henry Holt.

Singh, S., 2001. Gender and the use of the internet at home. *New Media and Society,* (3), 395-415.

Singleton, K., 1980. Expectations models of the term structure and implied variance bounds. *Journal of Political Economy*, **88**, 1159-76.

Sjöberg, U., 2002. Screen rites - a study of Swedish young people's use and meaning-making of screen-based media in everyday life. PhD Thesis, Lund University.

Smith, B. & Necessary, J., 1996. Assessing the computer literacy of undergraduate college students. *Education,* **117**(2), 188-193.

Smith, B., et al., 2000. Differentiating computer experience and attitudes toward computers: an empirical investigation. *Computers in Human Behavior,* **16**(1), 59-81.

Smith, E. & Oosthuizen, H. J., 2005. Attitudes of entry-level university students towards computers: a comparative study. *Computers & Education Journal,* (44), 400-412.

Smith, J. & Blaka, E., 1988. Chatting on a feminist computer network. In: Kramarae, C., ed. *Technology and women's voices: keeping in touch.* London: Routledge and Kegan Paul, pp.42.

Sorensen, K., 2002. Love, duty and the S-curve. an overview of some current literature on gender and ICT. In: Sorensen, K. & Stewart, J., eds. *Digital divides and inclusion measures: a review of the literature and statistical trends on gender and ICT* . Trondheim: NTNU,

Spacey, R., 2000. *Women and the Internet: is the Internet a feminist tool?* . MA dissertation, Department of Information Science, Loughborough University.

Spacey, R. & Goulding, A., 2003. Women and the information society: Barriers and participation. *IFLA Journal,* (29), 33-40.

Spacey, R., et al. 2003. Attitudes of public library staff towards the Internet. *Library and Information Research News,* (85), 37-9.

Spears, R. & Lea, M., 1995. Panacea or panopticon? the hidden power in computer-mediated communication. *Communication Research,* (21), 427-459.

Spence, J. T. & Buckner, C. E., 2000. Instrumental and expressive traits, trait stereotypes, and sexist attitudes: what do they signify?. *Psychology of Women Quarterly,* (24), 44-62.

Sproull, L. & Kiesler, S., 1986. Reducing social context cues: E-mail in organizational communication. *Management Science,* **32**(1), 70-78.

Stewart, D. & Shamdasani, P., 1990. *Focus groups:theory and practice* . London: Sage.

Stewart, K. & Choi, H., 2003. PC-bang (room) culture: A study of Korean college students' private and public use of computers and the Internet. *Trends in Communication,* **11**(1), 63-79.

Stowasser, B., 2001. Old shakys, young women, and the Internet: the rewriting of women's political rights in Islam. *The Muslim World,* **91**(1), 99-119.

Strauss, L. & Corbin, J., 1998. *Basics of qualitative research :techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.

Subrahmanyam, K. et al., 2001. New forms of electronic media: the impact of interactive games and the Internet on cognition, socialization, and behavior. In: Singer, D. & Singer, J., eds. *Handbook of children and the media* .Thousand Oaks: Sage Publications, pp.73-99.

Suler, J., 1999. *Do boys (and girls) just wanna have fun?* <http://www.rider.edu/~suler/psycyber/genderswap.html>, [accessed 03.19. 03].

Sun, H. & Zhang, P. 2003. *A new perspective to analyze user technology acceptance.* Syracuse, NY: Syracuse University.

Sutton, J., 1997. *Making mailing lists happen.* <http://womenspace.ca/magazine/vol23b.html>, [accessed 06.07. 03].

Sutton, J., 2000. Online activism for women's rights. *CyberPsychology & Behavior,* **3**(5), 699-706.

Sutton, J., et al., 2002, Women, communication rights and the Internet. [Paper presented at the] Information and communication technologies and their impact on and use as an instrument for the advancement and empowerment of women, 11 to 14 November, Seoul, Republic of Korea.

Sutton, L., 1994, Gender, power, and silencing in electronic discourse on USENET [Paper presented at the] The 20th Berkeley linguistics society UC Berkeley, 17-20 November, Berkeley, UC.

Sutton, L., 1996. Cocktails and thumbtacks in the Old West: what would e-mail post say? In: Cherny, L. & Weisse, E., eds. *Wired women: gender and new realities in cyberspace* . Seattle: Seal Press, pp.169-188.

Sutton, M. A. & Pollock, S., 2000. Online activism for women's rights. *CyberPsychology & Behavior,* **3**(5), 699-706.

Swain, S. & Douglas, M., 2002. Single-sex computer classes: An effective alternative. *Tech Trends,* 46(6), 17-20.

Swan, J., 1994. *Sex, lies, and computer network: playing down power and violence in virtual worlds.* <http://www.mith2.umd.edu/WomensStudies/Computing/Articles+ResearchPapers/pornography+computing>, [accessed 06.22. 03].

Tannen, D., 1996. Gender gap in cyberspace. In: Vitanza, V., ed. *CyberReader* . Boston: Allyn & Bacon, pp.141-144.

Tapscott, D., 1998. *Growing up digital: the rise of the net generation.* New York: McGraw-Hill.

Tashakkori, A. & Teddlie, C., 2003. *Handbook of mixed methods in the social and behavioral sciences.* Thousand Oaks, CA: Sage.

Teague, J., 1999. Women in computing: What brings them to it, what keeps them in it?. *GATES,* 5(1), 45-59.

Teitelbaum, J., 2002. Dueling for Da'wa: State vs. society on the Saudi Internet. *Middle East Journal,* 56(2), 222-239.

Temple, L. & Lipp, M., 1989. Gender differences and similarities in attitudes towards computers. *Computers in Human Behavior,* (5), 215-226.

Teo, T. & Lim, V., 2000. Gender differences in Internet usage and task preferences. *Behaviour & Information Technology,* 19(4), 283-295.

Teo, T. H. & Lim, V. G., 1997. Usage patterns and perceptions of the Internet: The gender gap. *Equal Opportunities International,* 16(6/7), 108.

The OpenNet Initiative., 2004. Internet filtering in Saudi Arabia in 2004. < http://www.opennetinitiative.net/studies/saudi/ >, [accessed 08.04.05].

The Saudi Arabia information resources., 2005. Communications and Internet Arab forum inaugurated. < http://saudinf.com/main/y8182.htm >, [accessed 02.02.06].

The Society for the Advancement of Education, 1996. Technology revolution goes to college. *USA Today* , 12 April 1996, p.13.

The World Bank., 2005. Indicators for monitoring gender and ICT. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTGENDER/EXTICT TOOLKIT/0,,contentMDK:20272986~menuPK:562601~pagePK:64168445~piPK:64 168309~theSitePK:542820,00.html#_ftn7>, [accessed 04.04.2006].

Thomas, J. et al., 2001. Students perceptions of technology use in college courses *Journal of Educational Computing Research,* **24**(2), 119-138.

Todman, J., 2000. Gender differences in computer anxiety among university entrants since 1992. *Computers & Education,* **34**(1), 27-35.

Torkzadeh, G. & Koufteros, X., 1994. Factorial validity of a computer self-efficacy scale and the impact of computer training. *Educational and Psychological Measurement,* **54**(3), 813-921.

Torkzadeh, G. & Van Dyke, T. P., 2002. Effects of training on internet self-efficacy and computer user attitudes. *Computers in Human Behavior,* **18**(5), 479-494.

Torkzadeh, G., Plfughoeft, K., & Hall, L. 1999. Computer self-efficacy, training effectiveness and user attitudes: an empirical study. *Behaviour & Information Technology,* **18**(4).

Trias, J., 1997. Democracy or difference: a literature review of gender differences in online communication. < http://nimbus.temple.edu/~jvaughn/papers/litrev.html >, [accessed 02.05.06].

Truong, H., 1993. *Gender issues in on-line communication.* <http://cpsr.org/cpsr/gender/bawit.cfp93>, [accessed 08.09. 03].

Tsai, C. C., 2004. Adolescents' perceptions toward the Internet: A 4-T framework. *CyberPsychology & Behavior,* **3**(7), 465-470.

Tsai, C. C. & Lin, S. J., 2001. Analysis of attitudes toward computer networks and Internet addiction of Taiwanese adolescents. *CyberPsychology & Behavior,* **4**(4), 373-376.

Tsai, C., et al., 2001. Developing an Internet attitude scale for high school students. *Computers & Education,* **37**(1), 41-51.

Turkle, S., 1995. Life on the Screen: Identity in the Age of the Internet. New York: Simon and Schuster.

U.S. Department of Commerce., 2002. *A nation online: how Americans are expanding their use of the Internet.* Washington: U.S. Department of Commerce.

UNCTAD., 2002. *E-commerce and development report 2002.* <http://r0.unctad.org/ecommerce/docs/edr02_en/ecdr02ch3.pdf>, [accessed 04.12. 04].

UNESCO., 2002. UNESCO Universal declaration on cultural diversity. <http://portal.unesco.org/culture/en/ev.php-url_id=13066&url_do=do_topic&url_section=201.html>, [accessed 03.08.2006].

Utz, S., 2000. Social information processing in MUDs: the development of friendships in virtual worlds. *Journal of Online Behaviour,* 1(1), 1-23.

Venkatesh, V. & Davis, F. D., 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science,* (46), 186-204.

Venkatesh, V., et al., 2003. User acceptance of. information technology: Toward a unified view. *MIS Quarterly,* **27**(3), 425-478.

Voisin, *L.,1997.Canadian women's Iternet association (CWIA).* <http://womenspace.ca/magazine/vol23b.html>, [accessed *01.02. 03*].

Wajcman, J., 1991. *Feminism confronts technology* . London: Polity Press.

Wallace, P., 1999. *The psychology of the Internet.* Cambridge: Cambridge University Press.

Walther, J. B., 1996. Computer-mediated communication: impersonal, interpersonal, and hyperpersonal interaction. *Communication Research,* **23**(1), 3-43.

Wang, W., 2001. Internet dependency and psychosocial maturity among college students. *Human-Computer Studies*, **55**(6), 919-938.

Warschauer, M. 1999. Millennialism and media: language, literacy, and technology in the 21. <http://members.tripod.com/vstevens/papyrus/16sep99a.htm>, [accessed 20.05.07].

Wasserman, I. & Richmond-Abbott, M., 2005. Gender and the Internet: Causes of variation in access, level, and scope of use. *Social Science Quarterly,* **86**(1), 252.

We, G., 1993. *Cross-gender communication in cyberspace.* < *http://www.mith2.umd.edu/WomensStudies/Computing/Articles+ResearchPapers/cross-gender-communication*>, [accessed 05.04.06].

Wei, L., 1998. The 'why' and 'how' questions in the analysis of conversational code-switching. In P., Auer. (ed.): *Code-Switching in Conversation: Language, Interaction and Identity*, 156-176. London: Routledge.

Weinreich, N., 2003. *Integrating quantitative and qualitative methods in social marketing research.* <http://www.social-marketing.com/research.html>, [accessed 07.11. 06].

Weisband, S. & Reinig, B., 1995. Managing user perceptions of email privacy. *Communications of the ACM,* **38**(12), 40-47.

Weiser, E. B., 2000. Gender differences in Internet use patterns and Internet application preferences: a two-sample comparison. *CyberPsychology & Behavior,* **3**(2), 167-177.

Weiss, A., et al., 2003, Experience and Internet News: The Real Reason for the Online News Reading Gender Gap. [Paper presented at the] Newspaper Division AEJMC Annual Convention, 29-31 July, Kansas City, MO. < http://www.inma.org/subscribers/papers/2003-Weiss.doc> [accessed 17.04.06].

Welsh, L., 1999. *Internet use: an exploration of coping style, locus of control, and expectancies*. PhD Thesis, Northeastern University.

Werner L., C. McDowell & B. Hanks, 2004. Female computer science students who pair persist. ACM Journal of *Educational Resources in Computing*, **4**(1)

Werner, L., et al., 2005. Want to increase retention of your female students?. *Computing Research News,* **17**(2), 1-6.

Westin, A.,1997. *Privacy and American business study.* <http://shell.idt.it/pab/women.html>, [accessed 02.03. 05].

Wheeler, D., 1998. Global culture/ culture clash: New information technologies in the Islamic world-a view from Kuwait. *Communication Research,* **25**(4), 359-376.

Wheeler, D., 2000. New media, globalization and Kuwaiti national identity. *Middle East Journal,* **54**(3), 432-448.

Wheeler, D., 2001. The Internet and public culture in Kuwait. *Gazette,* **63**(2-3), 187-201.

Wheeler, D., 2006. *The Internet in the Middle East : global expectations and local imaginations in Kuwait*. Albany: State University of New York Press

Whitley, J. & Bernard, E., 1997. Gender differences in computer-related attitudes and behavior: A meta-analysis. *Computers in Human Behavior,* **13**(1), 1-22.

Wikipedia., [N.D]. High context culture. < http://en.wikipedia.org/wiki/High_context_culture >, [accessed 07.04.06].

Wolf, A., 2000. Emotional expression online: gender differences in emoticon use. *CyberPsychology & Behavior,* **3**(5), 827-833.

Wolfe, C., 2001. *Learning and teaching on the World Wide Web*. San Diego: Academic Press.

Wong, A., 2000. Cyberself: identity, language and stylisation on the Internet. In: Gibbs, D. & Krause, K., eds. *Cyberlines: languages and cultures of the Internet*. Australia: James Nicholas Publishers, pp.175-206.

Woodfield, R. 2000. *Women, work and computing*, Cambridge University Press, Cambridge.

Worldatlas, 2006. *Map of Saudi Arabia information page*. <http://worldatlas.com/webimage/countrys/asia/sa.htm >, [accessed 02.02. 07].

WSIS., 2005. *Tunis agenda for the information society*. <http://www.itu.int/wsis/docs2/tunis/off/6rev1.html#fui>, [accessed 28.05.07].

Würtz, E., 2005. A cross-cultural analysis of websites from high-context cultures and low-context cultures. *Journal of Computer-Mediated Communication*, **11**(1), 23-30.

Yahoo., 2002.*U.S. survey reports that "male Internet users are embracing on-line shopping"*. <http://www.nua.ie/surveys/?f=VS&art id=905357804&rel=true>, [accessed 03.05. 06].

Yeloushan, A., 1989. Social barriers hindering successful entry of female into technology-oriented fields. *Educational Technology*, **29**(11), 44-46.

Yi, M. & Hwang, Y., 2003. Predicting the use of web-based information systems: Self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *International Journal of Human computer Studies*, (59), 431-450.

Youngs, G., 1999. Virtual voices: real lives, In: Harcourt, W. (Eds), *Women@internet: creating new cultures in cyberspace*, Zed Press,, London.

Yunis, E., 2003. *Top ISPs in the Kingdom of Saudi Arabia.* < http://www.isp-planet.com/research/rankings/ksa.html>, [accessed 03.11.2006].

Zakaria, N., et al., 2003. Designing and implementing culturally-sensitive IT applications the interaction of culture values and privacy issues in the middle east. *Information Technology & People,* **16**(1), 49-75.

Zhang, Y., 2005. Age, gender, and internet attitudes among employees in the business world. *Computers in Human Behavior,* **21**(1), 1-10.

Zittrain, J. & Edelman, B., 2002. *Documentation of Iternet filtering in Saudi Arabia 2002.* <http://cyber.law.harvard.edu/filtering/saudiarabia/>, [accessed 05.12. 04].

POSITION IN THE THESIS

Chapter 1 Introduction	Chapter 2 Background	Chapter 3 Literature Review Gender and the Internet
Chapter 4 Literature Review Internet Usage patterns and Attitudes	Chapter 5 Research Methods	Chapter 6 Questionnaire Analysis
Chapter 7 Focus Group Analysis	Chapter 8 Discussion	Chapter 9 Conclusions
Bibliography	Appendices	

Appendix
(A)

Internet in the lives of Saudi University Students

Dear student, This questionnaire has been designed with your precious time in mind. Your experience is important, even if you do not use the Internet. *All responses will be treated with confidentiality. Please answer questions by ticking boxes where appropriate*

General Information about the Internet

1- **Do you use a computer?** 1-☐ Yes 2-☐ No

2- **Do you have a computer at home?** 1-☐ Yes 2-☐ No

3- **Do you use the Internet?** 1-☐ Yes 2-☐ No

If **no**, you are finished, please return the questionnaire

If yes, please **continue below**

4- **Where do you access the Internet from?**

1-☐ Home

2-☐ Friend's or relative's house

3-☐ Internet cafés

4-☐ Other, please state.....

5- **How did you start using the Internet?**

1-☐ I started through friend's/ family member's recommendation

2-☐ I started due to media features

3-☐ I started due to my own curiosity

4-☐ Other, please state.....

E-Mail (electronic mail)

6- **Do you use the e-mail to communicate with others?** 1-☐ Yes 2-☐ No

7- **Who do you communicate with through email?**

1-☐ Family

2-☐ Local friends

3-☐ Other people locally

4-☐ Overseas friends

5-☐ Other people overseas

6-☐ Other, please state.....

8- **You use e-mail to communicate with others because.....? (You may select more than one)**

1-☐ You can email at your convenience

2-☐ You can send pictures and sounds

3-☐ You can express your feelings better

4-☐ It's quicker

5-☐ It's less expensive

6-☐ Other, please state.....

9- **How often do you send e-mails?**

1-☐ Never

2-☐ Rarely (about once a semester)

3-☐ Occasionally (about once a month)

4-☐ Often (about once a week)

5-☐ Very often (several times a week)

10- **How much do you like e-mail?**

1- ☐ Dislike it a lot
2- ☐ Dislike it
3- ☐ Neither like nor dislike it
4- ☐ Like it
5- ☐ Like it a lot

The World Wide Web (Web)

11- **Do you browse the Web?** 1- ☐ Yes 2- ☐ No

12- **How long have you been using the Web?**

1- ☐ Never used it
2- ☐ Less than 6 months
3- ☐ Between 6 months and 1 year
4- ☐ 1-2 years
5- ☐ More than 2 years
6- ☐ Others please state .....

13- **On the Web, which sites do you visit most frequently? (You may select more than one)**

1- ☐ Entertainment
2- ☐ Study related
3- ☐ Sports
4- ☐ Discussion lists
5- ☐ Health
6- ☐ News
7- ☐ Children related
8- ☐ Women's interest
9- ☐ Others, please state .....

14- **Use the following scale to answer the question. Put a number in the space in front of the question**

1 =Never
2 =rarely (about once a month)
3 =occasionally (about once a week)
4 =often (about once a day
5 =very often (more than once a day)

1)..... How often do you use the Web for school-related activities (e.g., papers?)

2)..... How often do you use the Web for personal interests (e.g., hobbies?)

3)..... How often do you use the Web for job-related activities?

4)..... How often do you use the Web just to satisfy your curiosity about something?

5)..... How often do you use the KSU Web site?

15- **Have you ever been in a chat room on the Web?**

1- ☐ Yes 2- ☐ No

16- **How much time do you spend in chat rooms?**

1- ☐ Less than an hour a month
2- ☐ 1-10 hours a month
3- ☐ Less than an hour a day
4- ☐ 1-2 hours every day
5- ☐ 2-3 hours every day
6- ☐ More than three hours every day

17- Please indicate whether you agree or disagree with each statement. Please tick one answer for each statement. Put a number in the space in front of the question

1= Strongly agree *2= Disagree*

2= Agree *4= Strongly disagree*

1).....The Web can allow me to do more interesting and imaginative work

2).....The Web enlarges my scope

3).....The Web makes a great contribution to human life

4).....The Web helps me acquire relevant information I need

5).....The Web makes society more advanced

6).....I hesitate to use the Web in case I look stupid

7).....If given the opportunity to use the Web I am afraid that I might damage it in some way

8).....The Web makes me feel uncomfortable

9).....I feel bored toward using the Web

10).....When using the Web I am not quite confident about what I am doing

11).....I could probably teach myself most of things I need to know about the Web

12).....I need an experienced person nearby when I use the Web

13).....If I get problems using the Web, I can usually solve them one way or the other

14).....I do not need someone to tell me the best way to use the Web

15).....I can use the Web independently, without the assistance of others

16).....I only use the Web at schools / university when told to

17).....I use the Web regularly throughout school

18).....I spend much time on using the Web

18- Overall, how much do you like the Web?

1- ☐ Dislike it a lot

2- ☐ Dislike it

3- ☐ Neither like nor dislike it

4- ☐ Like it

5- ☐ Like it a lot

Training and Experience

19- Have you had any type of formal Internet instruction?

1- ☐ Yes 2- ☐ No

20- If yes, where have you had that training?

1- ☐ In high school
2- ☐ In the university
3- ☐ Private training institute
5- ☐ From friend or family member
4- ☐ Free public training
6- ☐ Others, please state .....

21- Please rate your ability to undertake tasks with the Internet?

1=Poor 2=Fair 3=Good 4=Excellent

	1	2	3	4
1) Accessing the Internet	☐	☐	☐	☐
2) Using Internet search engines, such as Yahoo, Google	☐	☐	☐	☐
3) Downloading files from the Internet	☐	☐	☐	☐
4) Creating Webpages	☐	☐	☐	☐
5) Programming in hypertext based software	☐	☐	☐	☐
6) Maintaining Webpages	☐	☐	☐	☐

22-How much, if at all, has the Internet improved...

1=Lot 2=Some 3=A little 4=Not at all

	1	2	3	4
1) Your ability to shop	.☐	.☐	.☐	.☐
2) The way you get information about health care	.☐	.☐	.☐	.☐
3) The way you manage your personal finances	.☐	.☐	.☐	.☐
4) Connections to members of your family	.☐	.☐	.☐	.☐
5) Connections to your friends	.☐	.☐	.☐	.☐
6) Your ability to learn about new things	.☐	.☐	.☐	.☐

23- Do you face any difficulties in using the Internet?

1- ☐ Yes 2- ☐ No

24- If yes, what are the main difficulties you face related to the Internet? (You may select more than one)

1- ☐ Difficulty accessing a computer, the Internet
2- ☐ Difficulty of using a computer
3- ☐ Internet connection is very slow
4- ☐ Internet access is expensive
5- ☐ Lack of free time to use the Internet
6- ☐ Privacy and security concerns
7- ☐ Internet is too complicated to use
8- ☐ Other, please state.....

The Internet and studies

25- Do you use Email to communicate with others for academic purposes?

1- ☐ Yes 2- ☐ No

26- Do you use the Web for academic purposes?

1- ☐ Yes 2- ☐ No 3- ☐ Sometimes

27- If yes, how is the Web useful for your studies?

1- ☐ Very useful 2- ☐ Somewhat useful 3- ☐ Not at all

28- Have you ever taken a course delivered entirely over the Web?

1- ☐ Yes 2- ☐ No

29- If yes, would you like to take a course delivered entirely over the Web?

1- ☐ Yes 2- ☐ No

30- Have you ever taken a course that required you to use the Web?

1- ☐ Yes 2- ☐ No

31- If yes, does having a Web component make a course more interesting for you?

1- ☐ Yes 2- ☐ No

Personal Informatiom

32- What is your age group?

1- ☐ 18-25 2- ☐ 26-30 3- ☐ 30+

33- What is your Marital states

1- ☐ Married 2- ☐ Not married 3- ☐ Married with children

34- What is your year in college?

35- What is your major field of study?

If you would like to take part in a focus group discussing this topic please print your name and you're Email.....

Thank you for sparing some of your valuable time filling in this questionnaire!

Appendix
(B)

الإنترنت في حياة الطالبة الجامعية السعودية

عزيزتي الطالبة: هذا الإستبيان صمم بعناية ليناسب وقتك. رؤيتك وإجاباتك لهذا الإستبيان مهمة جداً لنتائج البحث. هذا البحث سوف يساعد في تدعيم استخدام الإنترنت بشكل أوسع. والباحثة تقدم الضمان على أن الأجوبة سوف تعالج بكل سرية ومن أجل دعم أغراض البحث فقط.

1- هل تستخدمين الحاسب الآلي؟ ❑-1 نعم ❑-2 لا

2- هل لديك حاسب آلي في البيت؟ ❑-1 نعم ❑-2 لا

3- هل تستخدمين الإنترنت ؟ ❑-1 نعم ❑-2 لا

إذا كان الجواب بـ (لا)، الرجاء عدم إكمال الإستبانه و التكرم بإرجاعها

4- من أي مكان تقومين بالاتصال بشبكة الإنترنت؟

❑-1 البيت ❑-3 مقهى إنترنت

❑-2 بيت صديقة أو قريبة ❑-4 مكان آخر، أذكريه.....

5- كيف بدأت تستخدمين الإنترنت؟

❑-1 من خلال توصية صديقة أو من أحد أفراد العائلة .

❑-2 من خلال إعلانات دعائية .

❑-3 من خلال فضول و رغبة شخصية .

❑-4 سبب آخر، أذكريه.....

البريد الإلكتروني (الإيميل)

6- هل تستخدمين البريد الإلكتروني (الإيميل) من أجل التواصل مع الآخرين؟

❑-1 نعم ❑-2 لا

7- إذا كان الجواب بـ (نعم)، فما مقدار استخدامك للبريد الإلكتروني؟

❑-1 نادراً (مرة خلال الفصل الدراسي) ❑-3 غالباً (مرة في الأسبوع)

❑-2 أحياناً (مرة في الشهر) ❑-4 بشكل دوري (عدة مرات في الأسبوع)

8- مع من تتواصلين خلال البريد الإلكتروني (الإيميل)؟

❑-1 العائلة ❑-4 أصدقاء في الخارج

❑-2 أصدقاء محليين ❑-5 أناس في الخارج

❑-3 أناس محليين ❑-6 مع فئة أخرى، أذكريها.....

9- أنا استخدم البريد الإلكتروني للاتصال بالآخرين لأنه..... (يمكن اختيار أكثر من جواب)

❑-1 لسهولة الاتصال في أي وقت ❑-4 لأنه سريع

❑-2 أستطيع إرسال صوت و صورة ❑-5 أقل كلفة مادية

❑-3 أستطيع أن أعبر عن نفسي أكثر ❑-6 أسباب أخرى، أذكريها.....

10- ماهو مقدار رغبتك في البريد الإلكتروني؟

❑-1 لا أرغبه أبدا ❑-4 أرغبه

❑-2 لا أرغبه ❑-5 أرغبه كثيراً

❑-3 محايدة (ليس لي شعور محدد)

الشبكة العنكبوتية (الإنترنت)

11- هل تتصفحين الإنترنت؟ ❑-1 نعم ❑-2 لا

12- ما مقدار خبرتك في استخدام الإنترنت؟

❑-1 لم أستخدمه أبداً
❑-2 أقل من 6 أشهر
❑-3 ما بين 6 أشهر إلى سنة
❑-4 من سنة إلى سنتين
❑-5 أكثر من سنتين
❑-6 أخرى .....

13- ما نوعية المواقع التي تتصفحينها على الإنترنت غالباً؟ (تستطيعين اختيار أكثر من جواب)

❑-1 مواقع ترفيهية
❑-2 مواقع ذات علاقة بالدراسة
❑-3 مواقع تتعلق بالرياضة
❑-4 منتديات الحوار
❑-5 مواقع تتعلق بالصحة
❑-6 مواقع إخبارية
❑-7 مواقع تتعلق بالطفل
❑-8 مواقع نسائية
❑-9 أخرى، أذكريها.....

14- استخدمي الكلمات المعيارية التالية للإجابة على الأسئلة التالية (ضعي الرقم المناسب في الفراغ امام السؤال)

1- أبدا
2- نادرا (مرة في الشهر)
3- أحيانا (مرة في الاسبوع)
4- غالبا (مرة في اليوم)
5- بشكل دوري (أكثر من مرة في اليوم)

1-..... ما مقدار استخدامك للإنترنت من أجل نشاطات متعلقة بالأمور الدراسية؟
2-..... ما مقدار استخدامك للإنترنت من أجل حاجات شخصية؟
3- ..... ما مقدار استخدامك للإنترنت من أجل نشاطات متعلقة بالعمل؟
4- ..... ما مقدار استخدامك للإنترنت من أجل إرضاء رغبتك في البحث عن موضوع معين؟
5- ..... ما مقدار استخدامك لموقع جامعة الملك سعود على الشبكة العنكبوتية (الإنترنت)؟

15- أرجو وضع تقييمك الشخصي للعبارات التالية من ناحية الموافقة أو عدمها (استخدمي الأرقام التقديرية أمام كل عبارة)

1= اوافق بشدة
2= اوافق
3= اعارض
4= اعارض بشدة

1- .....الإنترنت يساعدني في عمل أشياء إبداعية و ممتعة.
2- .....الإنترنت يساعدني في توسيع مداركي.
3- .....الإنترنت أدت إلى تغييرات كبيرة في حياة الناس.
4- .....الإنترنت يساعدني في الحصول على المعلومات التي أحتاجها .
5- .....الإنترنت يجعل المجتمع أكثر تطوراً .
6- .....أنا أتردد في استخدام الإنترنت حتى لا أبدو غبية.
7- .....أنا أخشى إن أعطيت فرصة لاستخدام الإنترنت، أن أعطله بطريقة أو أخرى .
8- .....الإنترنت يدخل علي الإحساس بعدم الراحة .
9- .....أنا أشعر بالملل عند إستخدام الانترنت.
10- .....عند استخدامي للإنترنت، أنا لا أثق بما أعمله.
11- .....أعتقد انني أستطيع أن أتعلم أغلب الأشياء من الإنترنت.
12- .....عند استخدامي للإنترنت، أحتاج أن يكون بالقرب مني شخص متقن للإنترنت.
13- .....عند استخدامي للإنترنت، أستطيع حل المشاكل التي تعترضني بطريقة أو بأخرى.
14- .....أنا لا أحتاج أحداً يعلمني أفضل طريقة لإستخدام الإنترنت .
15- .....أنا أستطيع أن أستخدم الإنترنت بشكل مستقل و بدون مساعدة الآخرين.
16- .....أنا أستخدم الإنترنت لدراستي فقط عندما يكون ذلك إجبارياً.
17- .....أنا أستخدم الإنترنت لدراستي بشكل دائم .
18- .....أنا أقضي وقتاً طويلاً في إستخدام الإنترنت .

16- هل سبق لك دخول مواقع و غرف المحادثة (الشات) على الشبكة العنكبوتية (الإنترنت)؟

1-☐ نعم 2-☐ لا

17- إذا كان الجواب بـ (نعم): فكم من الوقت تقضينه في مواقع و غرف المحادثة (الشات)؟

1-☐ أقل من ساعة في الشهر
2-☐ من ساعة إلى عشر ساعات في الشهر
3-☐ أقل من ساعة في اليوم
4-☐ من ساعة إلى ساعتين يوماً
5-☐ من ساعتين إلى ثلاث ساعات يوماً
6-☐ أكثر من ثلاث ساعات في اليوم

18- بشكل عام، ماهو مقدار رغبتك في استخدام الشبكة العنكبوتية (الإنترنت)؟

1-☐ لا أرغبها ابداً
2-☐ لا أرغبها
3-☐ محايدة (ليس لي شعور محدد)
4-☐ أرغبها
5-☐ أرغبها بشدة

التدريب و الخبرات

19- هل سبق لك أن تلقيت تدريب على استخدام الإنترنت؟ 1-☐ نعم 2-☐ لا

20- إذا كان الجواب بـ (نعم) : ففي أي مكان كان هذا التدريب؟

1-☐ في الثانوية
2-☐ في الجامعة
3-☐ في معهد خاص للتدريب
4-☐ خلال صديقة أو أحد أفراد العائلة
5-☐ تدريب عام مجاني
6-☐ مكان آخر.....

21- أرجو تقييم نفسك و قدرتك في المجالات التالية؟

1- ضعيف 2- لا بأس 3- جيد 4- ممتاز

	1	2	3	4
1- دخول و تصفح الشبكة العنكبوتية (الإنترنت)	☐	☐	☐	☐
2- استخدام محركات البحث (مثلاً: ياهو- قوقل..)	☐	☐	☐	☐
3- تنزيل ملفات من الشبكة العنكبوتية	☐	☐	☐	☐
4- انشاء صفحة شخصية على الشبكة العنكبوتية	☐	☐	☐	☐
5- البرمجة	☐	☐	☐	☐
6- صيانة وتحديث موقع على الشبكة العنكبوتية	☐	☐	☐	☐

22- هل طور استخدامك للإنترنت قدرتك الشخصية على الأعمال التالية...

1- كثيراً 2- بعض الشيء 3- قليلاً 4- لا على الإطلاق

	1	2	3	4
1- قدرتك على الشراء	☐	☐	☐	☐
2- طريقة حصولك على معلومات صحية	☐	☐	☐	☐
3- قدرتك على التحكم في شؤونك المالية	☐	☐	☐	☐
4- الترابط والتواصل مع أفراد العائلة	☐	☐	☐	☐
5- التواصل مع الأصدقاء	☐	☐	☐	☐
6- قدرتك على تعلم أشياء جديدة	☐	☐	☐	☐

23- هل تواجهك معوقات و مشاكل في استخدام الإنترنت؟

1-☐ نعم 2-☐ لا

24- إذا كان الجواب بـ (نعم): فماهي أكثر المصاعب التي تواجهك؟(تستطيعين اختيار أكثر من إجابة)

1-❑ مصاعب في الحصول على جهاز حاسب آلي و اشتراك الإنترنت.
2-❑ مصاعب في استخدام الحاسب الآلي
3-❑ بطء سرعة اشتراك الإنترنت.
4-❑ ضوابط وقيود عائلية.
5-❑ التكلفة المالية لاستخدام الإنترنت.
6-❑ صعوبة الحصول على وقت لدخول الإنترنت.
7-❑ مشاكل تتعلق بالخصوصية و الأمان.
8-❑ الإنترنت معقد في الاستخدام .
9-❑ أخرى، أذكريها.....

الإنترنت و الدراسة

25- هل تستخدمين البريد الإكتروني للاتصال بالآخرين من أجل دراستك؟

1-❑ نعم 2-❑ لا

26- هل تستخدمين الانترنت من أجل الدراسة؟

1-❑ نعم 2-❑ لا

27- إذا كان الجواب بـ (نعم): فماهو مقدار الفائدة الحاصلة من الإنترنت في مجال دراستك؟

1- ❑ مفيدة جداً 2- ❑ متوسطة الفائدة 3- ❑ ليست مفيدة أبداً

28- هل سبق لك أن درست إحدى المواد وكان التدريس عن طريق الإنترنت؟

1- ❑ نعم 2- ❑ لا

29- هل ترغبين في دراسة مادة دراسية تدرّس عن طريق الإنترنت؟

1- ❑ نعم 2- ❑ لا

30- هل سبق لك و أن درست مادة تتطلب استخدام الإنترنت؟

1- ❑ نعم 2- ❑ لا

31- إذا كان الجواب بـ (نعم): هل يمثل استخدام الإنترنت في مجال الدراسة متعة لك؟

1- ❑ نعم 2- ❑ لا

معلومات شخصية

32- ما هي فئتك العمرية؟

1- ❑ 18-25 2- ❑ 26-30 3- ❑ أكبر من 30

33- ما هو وضعك الإجتماعي؟

1- ❑ عزباء 2- ❑ متزوجة 3- ❑ متزوجة و لدّي أطفال

34- ما هي سنتك الدراسية؟ .....

35- ما هو تخصصك الدراسي؟ .....

عزيزتي،، إذا كان لديك رغبة في المشاركة في حوار عن استخدام المرأة للإنترنت فأرجو كتابة الاسم و البريد الإلكتروني .....

*** شكراً لك على تكرمك بالإجابة على هذه الاستبانة ***

Appendix
(C)

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك سعود
مركز الدراسات الجامعية للبنات
مكتب العميدة

بسم الله الرحمن الرحيم

الرقم: .....
التاريخ: / / ١٤هـ
المرفقات: .....

الموضوع: .....

سعادة الدكتور / وكيل الجامعة للدراسات العليا والبحث العلمي المؤقر

السلام عليكم ورحمة الله وبركاته . . وبعد :

نفيد سعادتكم بأن الطالبة المبتعثة / مريم سعد بن عوشن قامت بتوزيع استبانات عن استخدام الطالبات للإنترنت وتطبيقاتها بمركز الدراسات الجامعية للبنات بعليشه وقد تم الإشراف على توزيع هذه الاستبانة من قبل مشرفات إدارة الشبكة التلفزيونية .

ولكم تحياتي وتقديري ،،،

عميدة المركز

٤٢٥/٣/٢٩هـ

د . حصه بنت عبدالعزيز المبارك

شمس/ب

P.O. Box 7695 Riyadh 11472 ☎ 4351707 - Fax: 4350418
ص.ب ٧٦٩٥ الرياض ١١٤٧٢ ☎ ٤٣٥١٧٠٧ ـ فاكس: ٤٣٥٠٤١٨

جامعة الملك سعود
أقسام العلوم والدراسات الطبية للطالبات
مكتب المشرفة

التاريخ: ١٤٢٥/٢/٢٩
المرفقات:

الموقـــر
سعادة وكيل الجامعة للدراسات العليا والبحث العلمي

السلام عليكم ورحمة الله وبركاته ..... وبعد

نفـــيد سعادتكم بأن الطالبة المبتعثة / مريم سعد بن عوشن قامت بتوزيع استبيانات عن استخدام الطالـــبات للإنترنـــت وتطبـــيقاتها بأقســـام العلوم والدراسات الطبية وقد تم الأشراف على توزيع هذه الاستبيانات من قبل مشرفات إدارة الشبكة التلفزيونية .

وتقبلوا تحياتي وتقديري ،،،

المشرفة على أقسام العلوم
والدراسات الطبية
١٤٢٥/٢/٢٨
د. فاطمة بنت بكر جمجوم

فوزية/٦٠ش ط/٢٥

ص.ب ٢٢٤٥٢ الرياض ١١٤٩٥ ☎ ٤٧٦-٤١٦١ فاكس ٤٧٦-٥٥٩٨
P.O. Box 22452, Riyadh 11495 ☎ 476 - 4161 Fax.: 476-5598

Kingdom of Saudi Arabia
Ministry of Higher Education
King Saud University
VICE PRESIDENT'S OFFICE
for Graduate Studies & Research

بسم الله الرحمن الرحيم

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الملك سعود
مكتب وكيل الجامعة
للدراسات العليا والبحث العلمي

الرقم: ٢٢٠٢١١٤٢٧٥ No.: التاريخ: ٢٢/١٢/١٤٢٢ Date

سعادة الدكتور مدير عام الإدارة العامة لشئون الإبتعاث المكلف المحتـــرم
بـــوزارة التعليـــم العـــالي

السلام عليكم ورحمة الله وبركاته ... وبعد :

إشارة إلى خطابكـــم رقم ٢٧٢٤٣ وتاريخ ١٤٢٤/١١/١١هـــ ، بشـــأن رغبـــة الطـــالبة المبتعثة لـــبريطانيا / مريم بنت سعد بن عوشن القدوم إلى المملكة في رحلة علمية لجمع المادة العلمية لرسالة الدكتوراه تحـــت موضـــوع (إستخدام الطالبات للإنترنت وتطبيقاتها مع مقارنتها بنتائج الطلاب الذكور في جامعة الملك سعود) وتوزيع استبانات البحث على طالبات وطلاب جامعة الملك سعود .

أفـــيد سعادتكم بأن الكلية ترحب بالتعاون مع الطالبة / مريم بنت سعد بن عوشن بجمع المادة العلمية حـــول إســـتخدام الطالبات للإنترنت وتطبيقاتها ومقارنتها باستخدام الطلاب الذكور بجامعة الملك سعود عن طريق توزيع إستبانه .

كما أرجو أن تقوم الطالبة بالتنسيق مع قسم تطبيقات الحاسب للطالبات بالكلية حيال ذلك .

وتقبلوا تحياتي ... والسلام ،،،

وكيل الجامعة
للدراسات العليا والبحث العلمي
عبدالمحسن بن وني الضويان

صورة لمكتبنا . مع الأوراق
صورة لسعادة الدكتور / عميد كلية علوم الحاسب والمعلومات .

المكرمة صورة للشعبة
مع الأوراق المرسلة من الطالبة
مع التحية
c/10

RIYADH, 11451 - P.O.Box 2454 - Tel.: 4670108 - Fax: 4677999
١١٤٥١ ـ ص.ب ٢٤٥٤ ـ تليفون ٤٦٧٠١٠٨ ـ فاكس ٤٦٧٧٩٩٩

بسم الله الرحمن الرحيم

Royal Embassy of Saudi Arabia
Cultural Bureau
London

المملكة العربية السعودية
وزارة التعليم العالي
المكتب الثقافي في بريطانيا

الأكاديمية
رقم الملف: R289/2

إفـــــــادة

يفيد المكتب الثقافي السعودي في بريطانيا أن الطالبة/ مريم بنت ســـعد عوشـــن مبتعثـــة وزارة التعليم العالي للحصول على درجة الدكتوراه في تخصص علم المعلومات من جامعة لفبره فـــي بريطانيا، وأنها ترغب في زيارة جامعة الملك سعود لجمع المعلومات النوعية الضرورية لبحثها للحصول على درجة الدكتوراه.

نأمل تسهيل إجراءات زيارتها للحصول على المعلومات التي ترغب في جمعها.

تم تزويد المذكورة بهذه الإفادة بناءً على طلبها لتقديمها لجامعة الملك سعود.

الملحق الثقافي في بريطانيا

عبد الله بن محمد الناصر

NO. ٤/٤٥٠٩ DATE: ٢/٤٢٧/٦/٢٩ ENC. ــ
29 BELGRAVE SQUARE, LONDON SW1X 8QB TEL: 020 7245 9944 FAX: 020 7245 9895 E-MAIL: sacbuk@sacb.co

Appendix
(D)

Focus Groups Interview Questions:

Q1 What do you do when you go online? Some people go online for work-related activities, some do it for pleasure, and for others it's some of each. How about you, all work, all pleasure, or a mix? How would you describe the mix, mostly work, mostly pleasure, or about half-and-half?

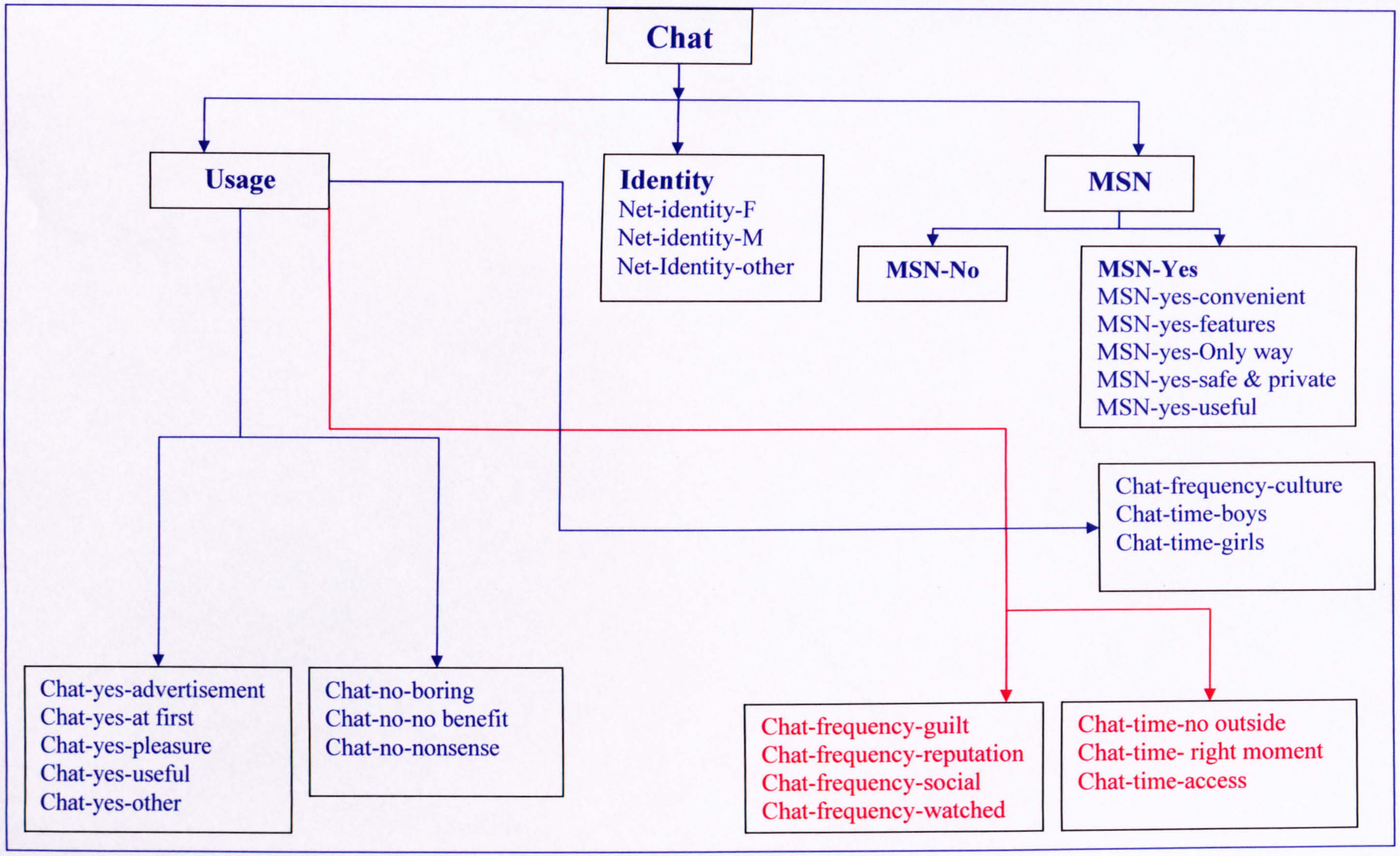
Q2 What is the first thing that comes to your mind when you hear the phrase, "chatting rooms"? Why do you chat online? Is it enjoyable to chat on the Internet? Why do males chat more than females? Do you have a cyber-identity? MSN and ICQ, do you use them? Like them? Why?

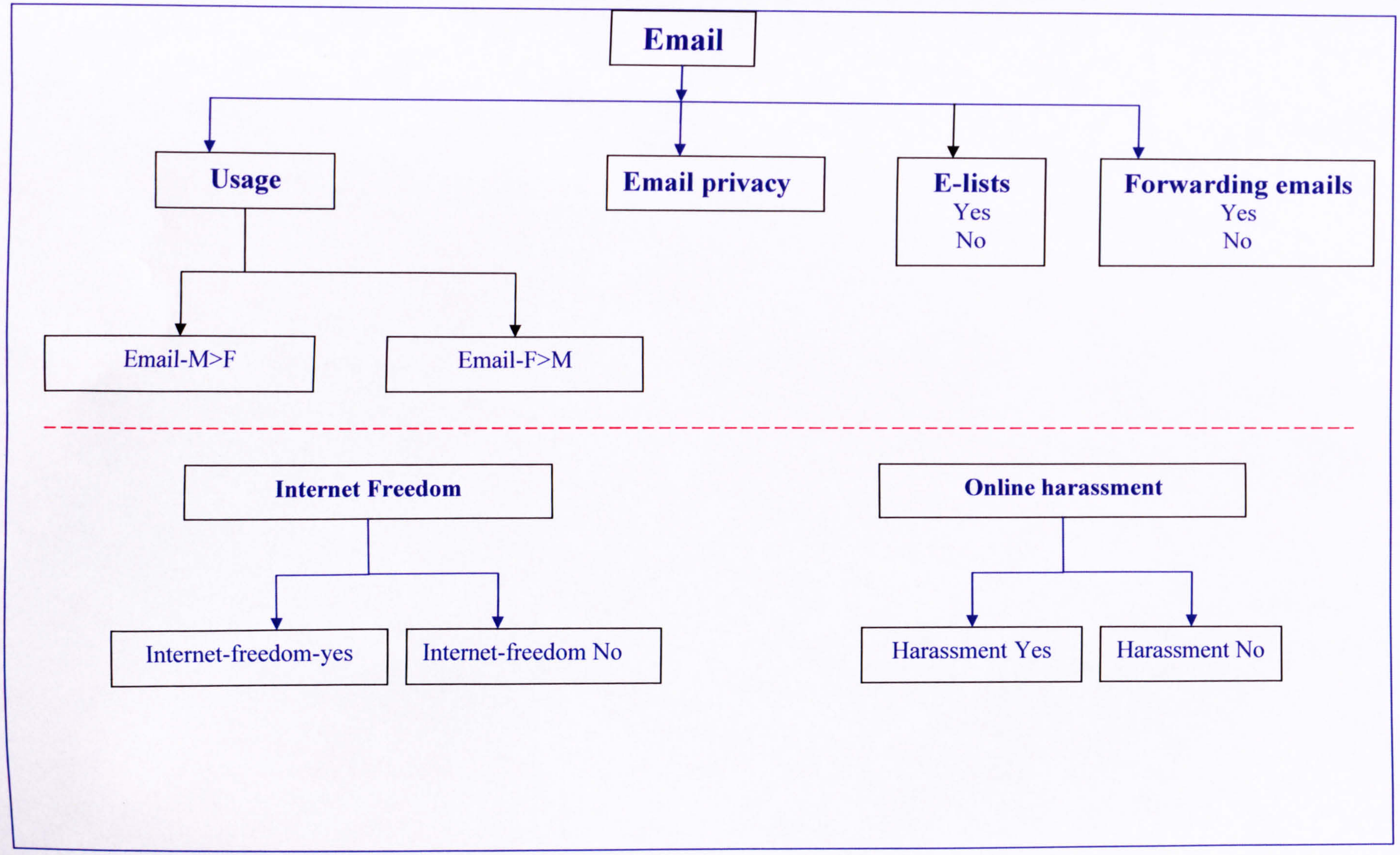
Q3 Why do males use email more than females? What about forwarding messages to friends and family? Are you on any electronic mailing lists, sometimes called "list-servs", where people with a common interest can send messages to everyone on the list? Do Internet users believe that their e-mail activities are private and confidential?

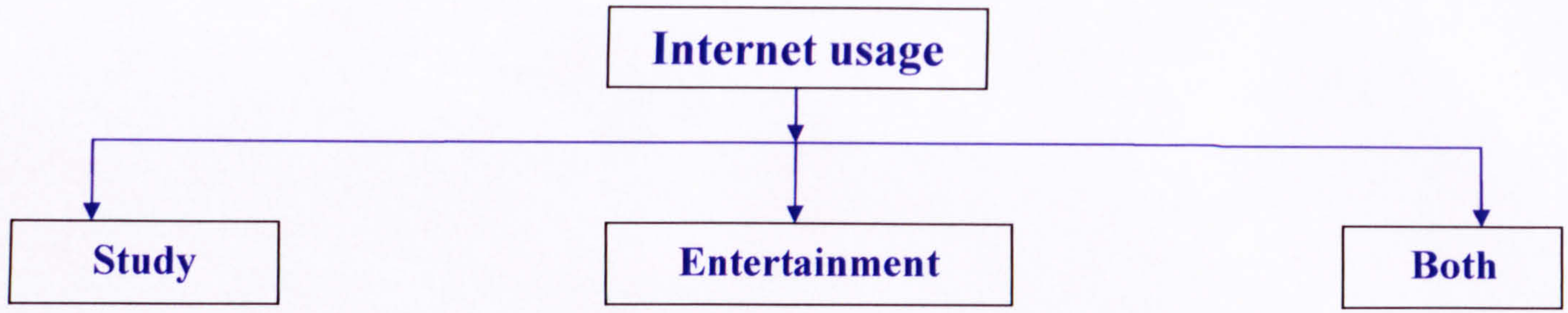
Q4 Do you think that the Internet provides endless freedom to people in Saudi Arabia ?

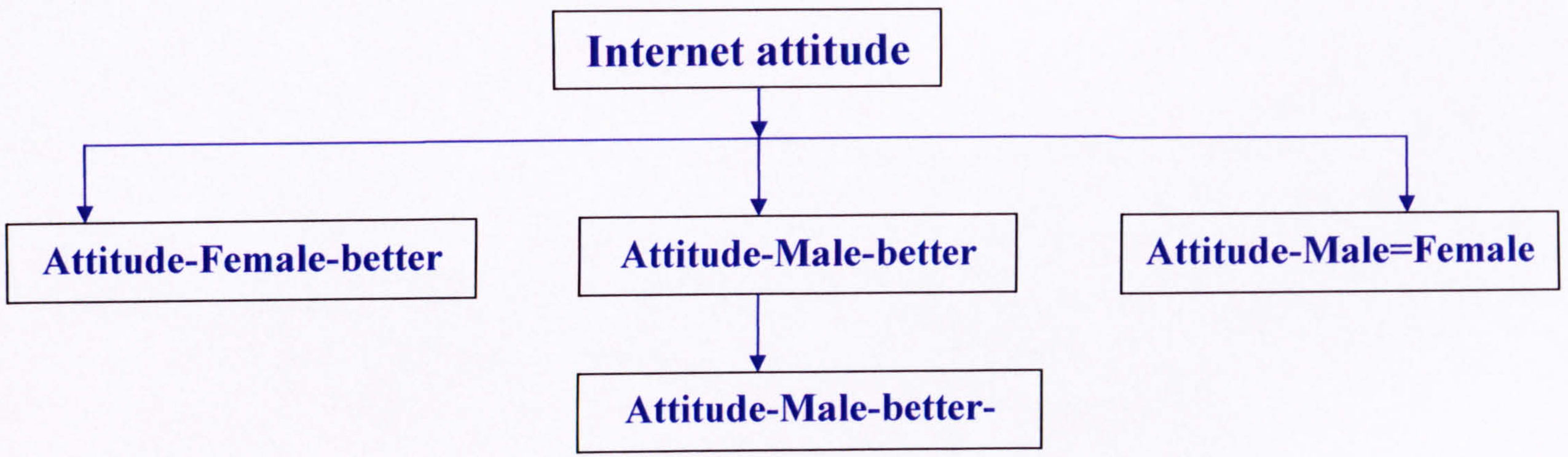
Q5 Do you or other people have gender stereotype views in relation to Internet use?

Appendix
(E)


Chat
Usage
Identity
Net-identity-F
Net-identity-M
Net-Identity-other
MSN
MSN-No
MSN-Yes
MSN-yes-convenient
MSN-yes-features
MSN-yes-Only way
MSN-yes-safe & private
MSN-yes-useful
Chat-frequency-culture
Chat-time-boys
Chat-time-girls
Chat-yes-advertisement
Chat-yes-at first
Chat-yes-pleasure
Chat-yes-useful
Chat-yes-other
Chat-no-boring
Chat-no-no benefit
Chat-no-nonsense
Chat-frequency-guilt
Chat-frequency-reputation
Chat-frequency-social
Chat-frequency-watched
Chat-time-no outside
Chat-time- right moment
Chat-time-access


Email
Usage
Email privacy
E-lists
Yes
No
Forwarding emails
Yes
No
Email-M>F
Email-F>M
Internet Freedom
Internet-freedom-yes
Internet-freedom No
Online harassment
Harassment Yes
Harassment No


Internet usage
Study
Entertainment
Both


Internet attitude
Attitude-Female-better
Attitude-Male-better
Attitude-Male=Female
Attitude-Male-better-