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Title:
A study of some effects of information technology programs on Emirati women students' lives

A STUDY OF SOME EFFECTS OF INFORMATION TECHNOLOGY PROGRAMS ON EMIRATI WOMEN STUDENTS' LIVES

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A Dissertation submitted to the University Of Bristol in accordance with the requirements of the degree of Doctor of Education in the Faculty of Social Sciences, Graduate School of Education.

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ABSTRACT

This study attempts to investigate the effects that Information Technology studies are having on a group of national women attending a College of Higher Education in the United Arab Emirates, a rapidly developing Gulf State. It tells a story of these young Emirati women by listening to their perceptions of their information technology (IT) learning and how it is impacting their lives both at college and at home. Thus the study takes a phenomenographical approach and is underpinned by the gender aspects that impact the technological, cultural and societal contexts surrounding the students' lives.

The study is based on both quantitative and qualitative data gathered using a variety of methods: questionnaire, interviews, diaries and written reports. The questionnaire and interviews were developed in line with the literature mainly from "Western" sources, but, as the work progressed, more Arabic international and local literature was integrated with the findings.

The data analysis reveals the overall satisfaction of the majority of students with their IT studies in that they feel these are preparing them for the world of work. However, the data uncovers their ambiguities about the likelihood of becoming economically active, due to the societal and cultural customs that are currently limiting their opportunities. The contradictions between the national and local level of contexts which impact the women's aspirations become obvious as they reveal the power relationships that are part of Emirati societal practices. Despite these complex controls, the picture given of technologically-enabled homes, appears to be playing a part in empowering them to achieve their dreams of fully contributing to their nation's development.

Recommendations are made to local educational management that would allow national women's voices to be heard so that the current male-dominated view of education could become more inclusive.

56,900 words

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I would like to dedicate this study to my youngest son,

Neil Sherwood, who died on March 25th, 2000.

DECLARATION

I declare that the work in this thesis was carried out in accordance with the Regulations of the University of Bristol. The work is original except where indicated by special reference in the text and no part of the thesis has been submitted for any other degree.

Any views expressed in this thesis are those of the author and in no way represent those of the University of Bristol.

The thesis has not been presented to any other University for examination in the United Kingdom or overseas.

Signed: _____Patricia M Richardson_____

Date: _____25 March 2002_____

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1 CHAPTER ONE

INTRODUCTION

1.1   RATIONALE FOR THE STUDY

The study stems from my experiences and observations as a teacher of Information Technology (IT) on a women's campus of a College of Higher Education in the United Arab Emirates (UAE). During my six years of teaching experience, I have surmised that the existing IT curriculum does not take into account the women students' needs resulting from specific local contexts. There has been little examination of the context of the women's lives in a country where the expected role of women focuses on the home and family, rather than as working women, even though the UAE government supports a different role for women as suggested by the UAE President's following statement:

> "Women have the right to work everywhere as long as they are given the appropriate respect.... their basic role is that of bringing up children but, over and above that, we have to support a woman who chooses to perform other functions as well."[1].

Labour figures over the past decade indicate that few Emirati women enter the work force and family tradition has, in the past, discouraged women from working outside the home, especially before marriage. Therefore, if, as the indicators suggest, many women graduates who achieve a vocational award do *not* participate to any extent in the job market, how relevant and useful are their higher education studies?

Recent innovations in the college system under investigation have introduced the idea of distance learning with delivery of some courses on-line. This lead me to consider whether or not this type of delivery would limit the amount of personal freedom that girls have gained from coming to college and if delivery on-line might be used by families as a means of control by keeping them at home. On the other hand, the use of information technology for global communication through on-line courses may have the opposite effect, and broaden women's contacts which, in this traditional Islamic culture, may not be welcome. Although these topics could form an exciting study, they would be very sensitive cultural issues to investigate and it is unlikely that I would be given access to the very informants, both men and women, whom I would need to question.

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[1] http://www.ecssr.ac.ae/04uae.women_introduction.htm

Bearing these factors in mind, I decided to investigate less sensitive cultural areas about decisions in which women students were involved, about how the technology impacts their lives both at college and within their homes. These girls have already shown that they wish to advance into the technological age by choosing to study IT which could position them at the forefront of development in their country. By studying certain aspects of the young women's lives, I hoped to ascertain how information technology helps them to develop this special role that they have chosen for themselves at the beginning of the 21st century.

If, as the literature suggests, their expected role is inside the home, how do they use, or intend to use, their computer learning? As Emirati family life is a culturally closed community and not open for discussion with the majority of outsiders, any changes that IT learning may be making to these young women's lives, is mainly undisclosed.

From previous EdD unit papers and from informal discussions with students and colleagues, it appears that many students have modern computers and access to online information sources at home. How these resources are affecting the private lives of girls is not usually discussed in the classroom, as it is culturally insensitive for outsiders to ask personal questions about Emirati family life. Thus the majority of expatriate teachers, who culturally are considered "outsiders", are not usually aware of family backgrounds and home circumstances which may affect student learning, unlike in other more open societies.

1.2 THE AIMS AND RESEARCH QUESTIONS

Following my initial interest, I proposed some working aims and research questions although for the type of research I intended to carry out there were no specific starting hypotheses. I thought that Glaser & Strauss' (1967) "grounded theory" approach might be suitable although some initial hunches enabled me to focus my efforts. These hunches were my pre-conceptions about the situation and they influenced the research design, as well as sensitizing my interpretations and analysis of the women's words yet Ashworth & Lucas (1999) argue that such pre-conceptions should be bracketed out as much as possible.

My initial hunches about how computer technology may be impacting life for women students were:

1. Computers are becoming an integral part of home life and have an enabling effect.
2. Computers affect women's roles and responsibilities within the family.
3. Controls are exerted from within the family over women's use of computers in accordance with cultural and religious beliefs.
4. Women students make wider uses of computers from that taught in the current IT curriculum.
5. Plans for on-line delivery may have a restricting influence on women students as an indirect and unforeseen result of this educational initiative.

My initial idea was to investigate ways in which students engage with computers at home and look at how these experiences might impact on their information technology learning at

college and after graduation. However, as the research progressed I reformulated the focus to take advantage of the rich data that was being revealed. Initial analysis suggested that there was more potential to uncover previously unpublished information about the effects of the technology on these young women's lives, rather than investigating the effects on their learning.

This new focus flows from the concept that at some point in her life, each student has chosen to study information technology to advanced level, which now may be affecting her 'lifeworld'. Using the pseudonyms HEC for the College of Higher Education system and EWC for the case college, the final research questions were:

1. Why do students at EWC chose to study information technology as their major?

2. What are the expectations of students at EWC about the IT curriculum and do they feel it is meeting their expectations?

3. Do students at EWC think that the computer has any consequences for their role in the family and if so what are these?

1.3   IMPORTANCE OF THE RESEARCH

As Mary Belenky said in "Women's Ways of Knowing" when referring to educational institutions in the United States, "most of the institutions of higher education in this country were designed by men, and most continue to be run by men." (Belenky et al, 1986:191). These writers argued that women were undervalued and not listened to and that educational models were all about male traditions and wants. They suggested that these organisations practise a form of exclusion by not listening to their students, as this prevented the learners participating in their own development. Because it was women who were least listened to and who also had to cope with socially defined assumptions about gender roles, the problems were exacerbated. "All women have to grow up having to deal with historically and culturally defined notions of femininity and womanhood – one common theme being that women, like children, should be seen and not heard," and, "in everyday and professional life, as well as in the classroom, women often feel unheard even when they believe that they have something important to say" (Belenky et al, 1986:5).

Belenky suggested that feminist teachers and scholars in the States were questioning the structure, the curriculum, and the pedagogical practices of educational institutions, but in this small Islamic state, where culture, political and public institutions are thoroughly inculcated with Arab-Islamic values, (Richardson, 2000a; Minnis, 1999) women's voices are still rarely heard in public debate. And yet, as Belenky states, "in order to design an education appropriate for women we must learn about the academic experiences of ordinary women." (1986:191)

At the HEC, female students make up more than half of the student population, so it is important that these young women are encouraged to voice their opinions and tell of their learning experiences to become part of the structures surrounding them, whether these are economic, political or social in nature.

As well as the case being of interest due to the United Arab Emirates status as a Muslim society undergoing rapid change, the results may add to the tradition-modernity debate regarding women's status that currently exists in much of the Islamic world. More practically, the results could also be important to EWC, the HEC and other learning communities:

For HEC Management:

a)   To find out to what extent the IT curriculum is relevant to women students' needs and adjust its perspective towards life-long learning if necessary, rather than its current economic enabling purpose;

b)   To find out what IT resources are available to women students at home to enable management to assess the feasibility of plans to use distance learning via the computer as a mode of delivery;

c)   To work with the local community representatives to maximize job opportunities for women by providing appropriate working environments, if necessary.

For Women Students

d)   To have their views heard as part of the women's student body;

e)   To enable their specific learning needs to be vocalized and have an influence on the IT curriculum;

f)   To have an input into the working conditions that would help them maximize their job opportunities;

g)   To help them realize their potential through their studies both at college and at home.

For International Education

h)   To increase awareness that some current educational policies may limit women's achievement by not listening to their learning and social requirements.

i)   To increase awareness in international education circles that western vocational education models must be adapted to local cultural contexts by listening to the voices of local participants.

1.4   THEORETICAL AND METHODOLOGICAL ORIENTATION

I took a phenomenographical research approach as I wished to hear about students' experiences of their studies and using computers at home, as well as listening to how the technology may be affecting their lives. In this type of research, the world from the student's perspective is studied and aims to formulate categories of description of the different kinds of

conceptions held by the students themselves (Ashworth & Lucas, 1999). Students' ideas about their studies could then be used to address any relevant deficiencies in the current educational provision.

The study included both quantitative and qualitative research. One positivist view of quantitative research is based on a view of knowledge and validity of truth as having an objective, external reality that can be reached through using controlled scientific methods. In this case, the "facts" of student use of home computers and reasons for study choice was accessed through using standardised, fixed choice questions which elicited short, factual data. These were then analysed systematically to investigate relationships between the sets of data. I used a questionnaire for preliminary work to give a broad sweep of the data and to pinpoint specific issues that indicated a need for more in-depth study.

The elaborative part of the research was qualitative as I wished to understand the culture under study and to position myself "inside" the work, not as an impartial external observer as required in quantitative research. This locating was appropriate for conveying in-depth information and achieving the empathy that I required with my participants, unlike quantitative methods (McCullogh 1994).

The epistemological standpoint for the qualitative research is that "the actor acts towards his world on the basis of how he sees it and not on the basis of how that world appears to the outside observer" (Blumer cited in Vulliamy & Stephens, 1990) and this philosophy assisted me in hearing the participants' viewpoints.

I used a feminist approach to the research because it provides us with a critical look at the traditionally male-centred view of schooling and applied critical theory "to direct our attention to the relationship between education and the larger socio-political network" (Mehran, 1999:213). I viewed the work thorough a feminist lens because (a) I saw its purpose as empowering and emancipatory for women and (b) there were significant gender issues surrounding my role and involvement as researcher because of the UAE context and the accepted roles of women in that society and (c) the aim was to hear previously unheard women's views. These were compounded by my personal commitment to feminist values and beliefs that have been influenced by my own "life story".

The ideas and procedures for listening to women's accounts were influenced by Mary Belenky's seminal work (Belenky et al, 1988) where her research team listened to previously unheard voices of women in higher education with similar emancipatory goals in mind, although in a different geographical and cultural context.

Although my notions about the "lifeworlds" of the students have been built up from my immersion in their education experiences, my perceptions that the Arab women's lives are restricted compared with their Western counterparts have been constructed through my "Western" value system. However, my students might not see their lives in this way. McCulloch (1994:16) recognises this difficulty and cites Davies who viewed this problem as

'defining others' problems for them'. My situation is similar to Davies' findings (cited by McCulloch 1994:20) which concluded that Third World women were discontented "at the analyses and strategies of Western women who insisted that inequality between the sexes was the fundamental issue; while Third World women argued that the primary problem was the widening inequality between their countries and the West which has resulted in the widespread poverty of their peoples." Therefore any conclusions I reach about Emirati women's lives can only be seen as an "outsider's" view and must be seen as such.

Feminist research is sharply influenced by feminist theory and as Duelli Klein (1983 cited in McCulloch, 1994:18) says, "'Feminist' for me implies assuming a perspective in which women's experiences, ideas and needs ... are valid in their own right," thus seeing reality as differentially experienced and constructed. She claims that feminist methods must, and can, differ according to specific needs of the research project, opining that qualitative framework is superior for truly feminist research. In this case, my view of truth aligns with post-modern feminist thinking, in that the Arab women's unique life experiences must be accepted as valid as they are based on their constructed knowledge of their own social reality. Although valid for the holders, their validity for the research must be tested by comparing a variety of data sources to increase their credibility.

In the final chapter I reflect on whether or not I was able to hear and interpret these experiences accurately or whether the differences between my participants and myself as researcher were culturally too wide. As McCulloch (1994:15) says, "Where researcher and researched are from different communities, ... there are clear epistemological questions to be addressed; whose views count, for example?" Also "where cultural differences ... are complicated by economic differentiation and ethnocentrism, exploitation must be considered."

Despite these concerns, it was only because of my *gender* that I was able to elicit the information about the women's home lives, as they would not be allowed, (nor feel able), to discuss these experiences with a *male* researcher, which added to the feminist research perspective. Thus being female allowed me to site myself inside the research and to develop a supportive relationship with my participants so that they felt confident enough to disclose *private information to me. A male (whether known to them or not) would not be allowed to sit in a closed room with a female student and converse intimately for the length of time required for interview. Only in my current role as their female teacher could I be party to conversations about their opinions and lives. Thus the qualitative research activities were enabled and influenced by gender.

So I came to the research with feministic views and espousing a mixture of quantitative and qualitative methodology because I could use a variety of oral and written data collection methods to elicit information from the students. As can be envisaged, I was immersed in the research which supports Hammersley's (1992) ideas about a researcher's role in the production of data as; "treating the research process as part of the topic: breaking down

assumptions about reason being separated from emotion, subjectivity from objectivity, minds from bodies."

1.5   BACKGROUND TO THE RESEARCH

The EWC college under investigation is part of the HEC system of eleven higher education colleges in the UAE, offering a vocational curriculum solely for Emirati nationals. The first colleges were set up in 1988 by Canadian management and staff who modelled the curriculum on the Canadian Community College system. Colleges, segregated by gender and on separate campuses, are located in each of the largest Emirates. The management and staff are now recruited from over twenty countries, with a majority from Australia, Canada, the United Kingdom and the United States, although there has been an increase in recruitment from other Arab and Asian countries recently.

After their oil revenues started to accrue in the early 1970s, the UAE government began investing massive resources into education. Although Emirati women have had access to public schooling since 1955, this is the first generation of young women with access to free public higher education and currently demand for places at the HEC exceeds the number of available places

HEC policy and curriculum is linked closely to the government's Emiritisation program that has an explicit purpose to nationalise the workforce within the next twenty years. The aim is to increase the indigenous human resource base of this small nation state by preparing national graduates for employment in both the public and private sector of the local labour market, which currently consists of over 90% expatriate workers.

1.6   STRUCTURE OF THE DISSERTATION

Having outlined the reasons for the study, the research questions and the theoretical and methodological orientation in **Chapter One**, I structured the dissertation so that the reader can clearly see a picture of the surrounding contexts of these young women's lives, so that the findings may be understood in the whole framework of their lives, not just in college or at home. These insights are revealed mainly through the qualitative interview data and the stories that unfold in the women's conversations. **Chapter Two** describes the macro level of contexts within the regional and local scene, briefly examining geographical, political and historical influences on developments in the UAE that have brought Emirati society, particularly women, to their current position. Next the economic and educational developments explore the massive changes that have impacted UAE society over the past thirty years followed by a look at women's place in these changes. Much of the international literature reviewed relates to the Middle Eastern region and Arab societies as a whole and, because of the great diversity within the region, does not always relate directly to the Emirates. Also, the few academic texts available about Arab women refer mainly to Arab, Muslim women but only one cultural guide that I found refers to Arab, Muslim, Emirati women and issues are not always appropriate to the specific socio-cultural contexts of UAE life. Thus

I make use of the "grey" literature of local press articles to add authenticity and credibility to the contextual descriptions.

Chapter Three outlines the research framework and design giving details of the perspective, participants and researcher's role. Because of the cultural sensitivities that had a major impact on the study, important ethical considerations are then explored in depth followed by rationale and descriptions of data collection, management and analysis processes. Both cultural and linguistic issues were seen as challenges for the data collection and interpretation, thus make up a large part of the final section on problematic aspects.

Chapter Four takes the reader to the findings that result from the intensive analysis process of the data collected from both quantitative and qualitative sources and link with current literature that assisted in authenticating my interpretations of the phenomena under investigation. In an effort to hear the women's voices, relevant conversations are reproduced to demonstrate the discourses used by students and researcher at interview. These are added to the quantitative data that are presented mainly as simple frequency tables to typify any interpretations that may be applicable to the study population or to wider situations. The academic literature review and reports from local sources are included with the findings to support any over-arching themes or concepts that the data reveal.

Chapter Five provides an overview of the findings and elaborates on the ways in which computer technology and studies are enabling women's opportunities, followed by a description of the macro and micro levels of influence.

The concluding **Chapter Six** reflects on the study overall and reports on intended and unintended outcomes of both the research processes and the findings that may be of importance to the different educational and learning communities mentioned above. Recommendations for these communities and the way forward, taking into consideration the research findings, complete the dissertation.

2   CHAPTER TWO

THE GULF STATES

2.1   GEOGRAPHICAL

The United Arab Emirates and the five other members of the Arab Gulf Cooperation Council (AGCC) are situated in the Middle East, which refers to the twenty-one members of the League of Arab States plus the non-Arab countries of Iran and Turkey, a configuration consistent with UNESCO, UNICEF and the World Bank designations. The region itself is notably diverse in levels of political development, economic prosperity and educational achievements. (Christina et al.1999) The six rich Gulf states, Bahrein, Qatar, Kuwait, Oman, Saudi Arabia and the UAE have a combined population of ten million and are surrounded by other populous states with combined populations of 200 million. The Middle East contains some of the world's wealthiest states whose per capita income is as much as seventy-five times that of the poorest in the region, so these differences must be taken into account when comparing developments (Hoogvelt,1997).

In most parts of the Middle East, there remains a legacy of colonialism and dependency on the West for forms of economic and educational development, but nationalism, pan-Arabism and Islam have also influenced the region (Hoogvelt,1997). Although cooperation in the region has not been easy to maintain, and opportunities have been lost due to political instability, organisations such as the Arab League Educational, Cultural and Scientific Organisation (ALECSO), dedicated to initiating educational and scientific studies and reforms throughout the Arab World, show that regional cooperation and integration can be successful and that education plays a major role in driving societal reforms.

Historically, there have always been connections between the Arabs of the north and the southern Arabs. The Northern Arabs were more skilled, better-educated, possessed more business acumen and were more experienced in handling the complexities of modern life. When oil was discovered in the Gulf states, they migrated south to share their expertise and gain from the new wealth. Because they are similar in religion, language and basic cultural

beliefs, they have played a greater role than other nationalities in influencing the socio-political life-styles of the Gulf Arabs (Secombe, 1988).

Diversity is also seen within the six Gulf States which represent a variety of socio-political economies, historical backgrounds and a broad range of religious and political ideologies (Garrett & Farghaly, 1987) and yet "the premise of Arab solidarity, cemented by bonds of Arab brotherhood and Islam" helps link each independent Gulf State into one regional group (Shaw 1983 cited in Garrett & Farghaly, 1987:320). Unlike other members of the Arab League, there is a feeling of mutual understanding and destiny within the AGCC because:

- they all rely on foreign nationals for both basic and sophisticated jobs;

- citizens are outnumbered by expatriates and

- they are all ruled by sheikhs from the dominant tribe. (Garrett & Farghaly, 1987:321).

Having set the geographical situation, the next section briefly outlines some historical legacies that have affected development.

2.2   HISTORICAL LEGACIES

Until the mid-20th century, the Arabian Gulf had little connection with the world outside its Middle East region. The Arab people lived a traditional life centred on the desert and the sea. Their identity and connectedness came from their tribes with similar social and family organisations, legal systems, interpersonal relationships, values, housing arrangements and marital customs (Melikan,1988). Unlike the Arab countries to the north, the Arabian Peninsula has traditionally had less contact with other cultures resulting in less internal diversity. (Christie,1996)

The British formed naval treaties in the 19th century with this area (known then as the Trucial States), but there was little input to economic or social systems. Britain had some political influence with the local rulers and forbade any foreign relations with other countries, further isolating the area from outside influence. However, unlike other colonies, the Trucial States had no well-defined position within the British imperial framework; they were not colonies, crown colonies, mandates or protectorates; they were simply states in treaty relations with Britain. Likewise today "they cannot be described as absolute monarchies, dictatorships nor constitutional monarchies; they are a group of Arab states with a unique political system" says Zahlan (1989:73). It was only later, due to international interest in the discovery of vast oil resources in the Gulf in the 1960s, that the western colonial powers cynically drew the national boundaries to ensure there were oil-rich states with small populations and oil-scarce states with large populations which 'pre-empted any future pan-Arabism or pan-Islamism", comments Hoogvelt (1997:118).

As soon as the British left the region, Sheikh Zayed, the ruler of Abu Dhabi, changed the region's political structure to form the United Arab Emirates in 1971, an independent

2.3   POLITICAL STRUCTURE

The federal government now consists of a President, (Sheikh Zayed), a Prime Minister; and a Supreme Council made up of the rulers of the seven states. Since the 1970s, the government has used the oil revenues to build up the economic infrastructure. The rulers have absolute control of the country and there is no democratic voting system.

2.4   ECONOMIC DEVELOPMENT

Even though "growth" has been enormous in the Gulf States in the last thirty years, economic 'development' was problematic, because the traditional Western model of development through industrialisation did not apply due to a lack of raw materials, the shortage of skilled labour, and the absence of technical expertise (Garrett & Farghaly, 1987). As Hoogvelt (1997) states, the oil-rich Gulf States were forced to import labour, creating the dichotomy between indigenous nationals and disenfranchised expatriates that continues today. The indigenous population still forms less than 25% of the estimated 329,0000 [2] total population with only 10% of nationals employed in the total workforce and less than 1% in the private sector[3]. Table 2a relates to the total UAE population and does not distinguish between nationals and non-nationals.

Table 2a	UAE POPULATION BY AGE GROUPS AND GENDER					
AGE GROUPS	2000**			2001**		
	Females	Males	Totals	Females	Males	Totals
0-4	130000	143000	273000	138000	152000	290000
5-9	134000	147000	281000	141000	156000	297000
10-14	122000	137000	259000	129000	145000	274000
15-19	95000	109000	204000	100000	115000	215000
20-24	98000	182000	280000	104000	194000	298000
25-29	111000	310000	421000	118000	329000	447000
30-34	101000	299000	400000	107000	317000	424000
35-39	87000	287000	374000	91000	304000	395000
40-44	52000	211000	263000	55000	224000	279000
45-49	33000	138000	171000	34000	147000	181000
50-54	17000	67000	84000	18000	71000	89000
55-59	11000	33000	44000	11000	35000	46000
60-64	7000	14000	21000	7000	14000	21000
65-69	6000	8000	14000	6000	9000	15000
70-74	4000	5000	9000	4000	5000	9000
75-79	2000	2000	4000	2000	2000	4000
80+	3000	3000	6000	3000	3000	6000
Total population	1013000	2095000	3108000	1068000	2222000	3290000

*2.1.1.1   **Estimated provisional rounded figures taken from UAE Population Census 2001 by Abu Dhabi Chamber of Commerce*

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[2] Provisional estimated figures taken from the 2001 Census by Abu Dhabi Chamber of Commerce
3 Gulf News, 7/8/99; "The Challenge of Emiratisation", Special Report

As Table 2a illustrates, the female population is approximately one third of the total nationals and non-nationals, with less females in every age group below 75. The gap between the sexes widens most noticeably from 25 to 60 as the imported work force consists of mainly males in this age range.

Socially, a large middle class of Emiratis has emerged since the discovery of oil. As nationals are only involved in the administration and distribution of the oil revenues and not in the oil production processes, no working class has developed that could be trained for essential technical jobs. This social stratification has lead to a superior attitude towards technical work and a preference for white-collar management positions in the government ministries. Until recently, these job opportunities have existed for college graduates, but this job market is becoming saturated. National graduates are being forced to look for jobs in the private sector but there is much resistance due to lower salaries, longer working hours and fewer benefits than in the public sector, conditions opposite to many western countries (Richardson, 1999).

Al Alkim (1993:12) admits that "the nation's dramatic economic success has been due largely to the work of expatriates and foreign workers who had the needed expertise", resulting in the UAE becoming the fourth richest oil-state worldwide with an increase in GDP in 1999 of 10% and a total annual oil revenue of 50 billion US$.[4] Nevertheless, the government is rightly concerned that the economic development is still being lead by foreign expertise, and an Emiratisation law has recently been passed to ensure that nationals are in all key jobs within the next twenty years. These political imperatives have huge implications for the higher education system but should also be considered in the context of local cultural factors.

Although the UAE people appear to have welcomed the vast changes in their fortunes, there are concerns that the traditional social fabric is being irrevocably changed. According to an Arab academic;

> "the exploitation of oil brought in its wake a disruption of interpersonal relationships; tribal identification gave way to a class system based on wealth, individualism emerged, the values of education replaced the values of the family, whilst the father lost his traditional role of dominance and guidance. Frugality gave way to luxury, affluence and consumerism; egalitarianism to formalism; simplicity to complexity." (cited in Melikan, 1988:115)

2.5 CULTURAL FACTORS

Culturally the Emirates represent a stronghold of Muslim values that drive all aspects of life. The 'Shariah' law which is the single justice system, comes from the Quran which defines codes of behaviour for all areas of life, thus there is no separation between civil and religious law. Its culture, political and public institutions are thoroughly inculcated with Arab-Islamic values and the recently instigated Emiratisation policy is partially driven by expressed concern

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[4] Gulf Business News: Gulf TV September 2, 2000

from the government and Emirati society that traditional Arab/Islamic values are being eroded by "western" values, even though this appears to conflict with their desire for economic globalization and demand for international business practices. Despite these conflicts, UAE educational policy and practice is strongly influenced by cultural and religious ideologies (Richardson, 2000). To bring into perspective the enormous changes in society that have taken place in the last thirty years through connections with other peoples, some traditional values are outlined in the next section.

2.6 TRADITIONAL LOCAL SOCIETY

The following traditional societal expectations before the exploitation of oil, indicate the important tribal and collective values of the Gulf Arab:

- *"Elders of the tribe administered traditional justice;*
- *Life evolved around the family and identification with the tribe;*
- *Roles were clearly defined - choices in career, marriage and relations were few and limited - whole life could be charted and predicted;*
- *Values were not questioned; a strong faith in God and religion was taken for granted;*
- *Life was frugal, differences in observable wealth were few, no formalities that stressed social stratification;*
- *Status depended mostly on age and piety and not on wealth;*
- *People trusted and accepted each other;*
- *Individualism was not encouraged;*
- *There was a strong feeling of community "(Meilikan,1988:115.)*

Given the change from tribal to a modern, materialistic lifestyle, how has the small population of Emiratis maintained their particular Arab/Islamic cultural identity in the face of overwhelming influences from the other ethnic groups residing in their country and the drive for economic modernisation? There appears to be two main reasons: (1) through isolation from the expatriate community by having little social contact with them and (2) through the adherence to the Muslim way-of-life. The latter identifies the Emiratis strongly with their Arab neighbours and, globally with the Muslim world. It is this strong connection based on their religious affiliation that gives them a sense of security and belonging. Because of their oil resources, they have a need to connect economically with the capitalist-driven global markets, but politically, socially and culturally, they resist being overwhelmed by other global influences. As the governance is by dictatorship, (however benign), it is easier to keep control of developments, as there are few avenues for formal opposition in this non-democratic Arab society (Richardson, 1999).

2.7 EDUCATIONAL DEVELOPMENT

During the last 25 years educational developments in the Gulf states have been phenomenal. (Garrett. 1987; Christina et al, 1996; Hoogvelt, 1997). Education is seen as one key to modernisation and economic growth, which represent the primary goals of Middle Eastern development (Christina et al, 1999). The impetus is for educational planners to devise systems that meet the needs of the indigenous human resource base to reduce reliance on

expatriate labour. All Gulf States are implementing nationalisation policies that directly affect educational development, especially in the tertiary sector.

As Chart 2b shows, enrolment in all education sectors in Arab states illustrate the catch-up process for female education since 1970. The top line representing primary school enrolment shows that by 1994 the gap between male and female enrolments had almost closed with female secondary school enrolments (the second line down) standing at nearly 80%of males by the mid-90s. The ratio of female to male enrolments of only 2:3 in the tertiary sector is much lower as is shown by the solid line, with a slower progress rate for adult literacy, given by the line intersecting the tertiary line. Compared to these positive developments in all educational sectors, the bottom line shows a very small increase in female economic participation for the region indicating the misalignment between educational achievement and women's workforce participation.

It must be noted that the chart represents a much wider region of the Arab world than the Gulf States but gives some indication of the progress that has been made in female education generally.

Chart 2b

Closing male-female gaps:
Arab states; 100=male level
Source: UNDP, Human Development Report 1995

- Primary school enrolment (6-11)
- Secondary school enrolment (12-17)
- Tertiary school enrolment (18-23)
- 'Adult literacy
- 'Economic participation
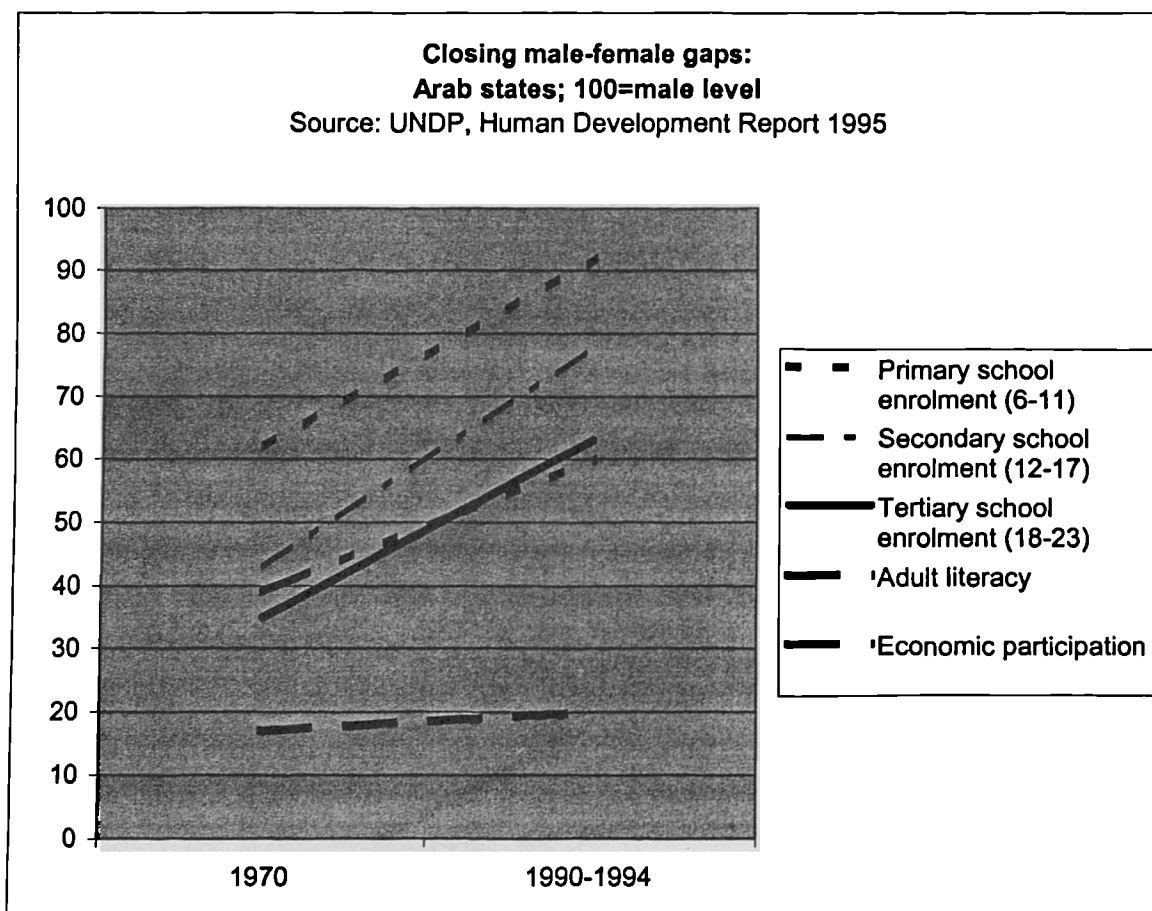
In the UAE, the educational policy, implemented by the Ministry of Education (MoE), is based upon two fundamental principles of the State constitution: the provision of free education to all

citizens and the improvement of the quality of education to meet the needs of the individual students and the society's economic and cultural development (Nazzal, 2000). Although primary and secondary education is compulsory and considered a citizen's right, the quality of public education regionally causes concern to the business and academic communities. Dr Hanif Al Qassimi, Vice-President of Zayed University, a women's university opened in 1998, recently claimed "a major difficulty universities face is the serious problem of a weak academic background. The public school education system here is so poor that there is a huge gap between what students can do and the expectations of the university." He commented that students struggle with their studies due to the reliance on rote-based learning in the public schools and asserted that quality education is the key to national development: "If a country wants to produce a better quality of people, education is the key."[5]

One of the explanations for this situation was that, following independence in 1971, the UAE educational systems were copied from Egypt, administered and implemented primarily by Egyptian and Palestinian teachers. It was these Arabs who played a dominant role as agents of change during development, not western teachers. The resulting education system is, in general, designed to prepare students for admission to Egyptian-type universities where rote learning of academic texts is the main learning mode compared with the more active methods required by western counterparts. The first UAE public university, Al Ain University, opened in 1977, continued this tradition and produced academically-oriented graduates with few work-related abilities. The local press often publishes complaints about the inability of these graduates to fit into the job market, and governments regionally are now being encouraged to redesign their secondary and tertiary systems to more effectively address the manpower needs of the region (Christina et al,1999).

In 1994, Dr Sulaiman Al Jassim, a local academic, said there was a need to plan and outline strategy to gradually replace expatriates and emphasised the inclusion of women:

> "We need, firstly, to design an education system which will help us achieve the goal of nationalisation. We need graduates in engineering technology, information systems, computers and other specialities. The English language should be used to communicate as it is used all over the world. Women also need to be educated. Women's participation will raise the qualitative and quantitative input. They could be utilised in professions such as teaching, computers, health science, administrative work, business etc."

In order to produce a national workforce, a "western" style institution, the HEC, was opened in 1988. The Chancellor's vision for the HEC stresses the pursuit of excellence in the provision of educational (academic) programs for the citizens of the UAE, but with a strong emphasis on preparation for employment. Accordingly, the HEC's primary function is to provide high quality, vocationally oriented educational programs."[6]

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[5] Daniel K.S., 2001; "Varsities 'hampered by poor public education in *Gulf News* Vol 23 #229 18/5/2001

[6] HEC Program Quality Assurance Development Document, PQA Committee, 1997

From humble beginnings, the HEC currently boasts around 11,000 Emirati students and delivers awards from certificate to degree level. Table 2c shows the HEC growth since its inception:

Table 2c[7]   HEC Growth

Year	Total Enrolment	% Increase from previous year	# Graduates	# Campuses
1988/89	239			4
1989/90	653	173		6
1990/91	910	39		6
1991/92	1137	25	64	6
1992/93	1215	07	99	6
1993/94	1743	43	110	8
1994/95	2324	33	116	8
1995/96	4176	80	154	8
1996/97	5149	23	280	8
1997/98	6682	30	1437	9
1998/99	8223	23	1909	10
1999/00	9740	18	2210	11
2000/01 (projected)	10700	10	2500	

According to this report, the dramatic growth in 1995/96 is attributed to the introduction of the Certificate Program with 1485 new students. The Vice Chancellor also reported that in 1999 the HEC enrolled 53% of the total pool of high school graduates (n=10270), showing it is becoming the tertiary institution of choice compared with UAE University and Zayed University, (the other government higher education institutions), who enrolled 37% and 10% respectively.

Of the 1544 HEC students who made up the ninth graduating cohort in 2000, 62% (n=959) were female and 38% (n=585) male. Of the Academic Divisions shown in Table 2d the Information Technology division graduated the most students [8] illustrating the popularity of IT courses and their perceived status to students:

Table 2d

Academic Division	Female	Male	Grand Total	% total
Business	407	204	611	40%
Communication Technology	22	1	23	1%
Engineering	0	204	204	13%
Health Sciences	21	3	24	2%
Information Technology	509	173	682	44%
Grand Total	959	585	1544	100%

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[7] HEC Update; April 2000 Issue #2
[8] HEC Graduate Report 2000; Central Academic Services; May 2001

The number of students graduating from Information Technology increased by 14% in 2000 over 1999 figures, with a subsequent decrease in the Business division. There were no females Engineering graduates because this subject is not offered in the women's colleges. Similarly, some other programs are not offered in the men's colleges. However, the figures illustrate the preponderance of female graduates due to men having more study alternatives abroad.

2.8   LABOUR FORCE

The HEC Graduate Report 2000 states that the UAE is recognising and rewarding higher education with employment opportunities. Out of the year 2000 graduating cohort, 93% (n=1431) responded to the survey and of these 77% are working and/or continuing their education. Of all employment sectors, 39% are employed in the government sector, with 39% being employed in the private and semi-government sectors, but there was no sector data on 22% of the working graduates. The figures, however, do not indicate the percentage of female working graduates which would be useful to this study.

As mentioned previously, expatriates make up 90% of the current labour force which comprises 55.4% of the total UAE population[9]. Emiratis have little interest in manual or technical jobs as they are considered inferior employment and these jobs are filled by the "mass of people" from the low-wage countries such as India, Pakistan, and the Phillipines who work overseas to support families back home (Garrett & Farghaly,1987; Melikan, 1988). A recent newspaper article[10] reported Ministry plans to nationalise 63% of its jobs by 2008, an increase from the 23% recorded in 1998. Directors of different government departments have already been nationalised and over 83% of heads of sections and 63% of heads of units are now UAE nationals, showing the rapid progress made towards Emiratisation.

This supports the view of Dr Howard Reed, Director of Dubai Women's College, [11] that Emiratisation means increasing the percentage of UAE citizens by nationalising certain categories of jobs to some expatriates and international organisations, whereas other nationals view it as implementing quotas and sending expatriates home. Relating the meaning to education, he believes it refers to "maximising the number of nationals that are willing and qualified to work, and providing them with career opportunities," but he envisions some challenges to this aim:

◆   Structural imbalances;

◆   Hostile work environments;

◆   Educational-gender imbalance;

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[9] 1995 Census figures: Ministry of Planning & Development in Abu Dhabi Chamber of Commerce
   Annual Report, 2001
[10] Staff Reporter, 2001: "National women employees laud civic body" in *Khaleej Times*, 22/6/2001

♦ The lingering restrictions on women;

♦ Habits of dependence on others;

♦ Inefficient and ineffective schools.

2.9 TRADITION VERSUS MODERNITY AND WORKING WOMEN

The tensions between tradition and modernisation are great for the Gulf Arabs, especially as developments have occurred so rapidly. A comment by an Arab teacher illustrates the tensions in education:

> *"Our efforts will continue to guarantee the country well-educated youths who keep pace with international developments along with a commitment to traditions and values of the Arab and Islamic cultures."*[11]

There are frequent references in the debate on women's education and work to the region's Arab-Islamic identity. Graham-Brown quotes Moroccan sociologist, Fatima Mernissi, as asserting that "Arab identity" has been conceived in a way which regards change as threatening to the moral order, and thus impedes the development both of democracy and the emancipation of women (Graham-Brown,1994:7). Hijab suggests that it reveals a fear that what constitutes "Arabness" is not defined enough to resist erosion by the process of modernisation (Hijab, 1994:43). She opines that the Arab society's struggles to construct identities and heritage are tied to efforts to preserve the family and community, similar to existing southern European and Asian cultures that view the family as the nucleus of social organisation and women as the core of the family (Hijab, 1994:44). Much of the local literature confirms this struggle between the onslaught of views, beliefs, values and practices imported through the large expatriate community and the culture and tradition of the small indigenous population.

The United Nations suggests that some of the obstacles that block women's advancement worldwide are the deeply rooted traditions that underlie cultural beliefs and a poor understanding of significance of women's issues. Arab women's fight to overcome such issues are not dissimilar to those that faced women in Europe and North America in the 19th and early 20th century during times of rapid industrialization (Hijab, 1994:45). Thus, the issues of heritage, identity, religion, patriarchy, the family and community, and women's central role within the family are not issues unique to the Gulf region (Richardson, 1999).

Although these socio-cultural aspects are affecting Arab women's entry into the workforce, Hihab says research shows that when society or families need women to work, socio-cultural obstacles to participation begin to dissolve. Following migration of male workers to the Gulf after the discovery of oil, women in countries such as Jordan and Palestine took over many of the jobs that had been vacated by the men (Hijab, 1994). Because the UAE government need to have more control over its workforce, it already urges all nationals to help develop the

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[11] Dr Howard Reed, 2001; "Emiratisation: The Challenge" in Ms Sage, DWC Student Newspaper; No16, Jan, 2001

country and has implemented equal opportunities in the labour laws to encourage women to work, in an attempt to change societal mores. However, unlike poorer Middle Eastern countries, there is little need at family level for Emirati women to earn income to support the family, although anecdotal evidence suggests that some local families are becoming over-burdened with debts brought about by the new materialistic values.

Even though, as stated, there is a pressing need for labour power and there have been substantial investments in education, numbers of women in the Emirati workforce remain low. Reasons for this are explored later but it is often assumed that religious ideology restricts women from working.

2.10   WOMEN AND ISLAM

"The difficulties of coming to terms with the question of women and Islam are compounded by the tendency, both outside and within the Arab world, to label any pervasive social practice "Islamic", say Khalidi & Tucker (1994:9). They caution that the role of religion must be kept in perspective because historical and political forces have shaped "western" views of the issue, not only of the situation of women in the Arab world. Two women students supported these warnings when they pointed out in a magazine article[13] that people tend to confuse inherited customs with Islamic principles and think that Muslim women are victims of their religion and that any irrational treatment meted out to them has religious sanction. They stressed that Islam does not preach discrimination but respects the rights of all humanity, including women, and acknowledges the constructive role women play in society. Golnar Mehran (1999) confirms in her feminist article about post-revolutionary Iranian women that the Islamic framework surrounding women's rights and responsibilities do not limit Muslim women to the domestic realm.

However, Khalidi & Tucker are less equivocal on the issue and state that the Quran contains material that can be used to support the arguments both of those who wish to argue for the equality of women under Islam as well as those who wish to restrict women's rights (Khalidi & Tucker,1994). As Subbagh (1994:xvi) says: "Each country interprets women's rights under Islam somewhat differently, and within each country social class is a determining factor in the way in which women's personal rights are treated." Yet many of the traditions and social constraints families place on women in the region apply as much to Christian as to Muslim women including the concept of "honor" in the sense of being able to control sexual activity before marriage, state Khalidi & Tucker (1994:12).

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[12] "112 teachers receive Khalifa award" in *Khaleeg Times* 22/10/00
[13] Al Marri, Haya & Mohammed Afaf, 1996; "Changing Times" in *Gulf Weekly* 18-24 July 1996,11-15

2.11 WOMEN'S TRADITIONAL ROLES & RESPONSIBILITIES

Crocetti (1996), an Italian women who lived in the UAE for several years, describes in her cultural guide some Emirati customs surrounding family membership. Unsubstantiated evidence given by my students support some of Crocetti's information, thus increasing its credibility. She states that the woman is always a member of her father's family, even after marriage into another family, although she usually lives with her husband's family. Any offspring belong to the latter and, as a deterrent to divorce, the older children automatically remain with the father's family. However, patrilineal descent means a woman's brothers and father can still defend her if mistreated or dishonoured by her husband or his family. As Crocetti says "Patrilineal descent strongly discourages marriage to members of other families or tribes. Women take strength and wealth in the form of children and inheritance away from the paternal families and to their husband's family when they marry someone outside the paternal family" (1996:145). Thus the prevalent form is cousin marriage which widens family control and narrows marriage choices in order to maintain economic integrity and solidarity of the patrilineal clan (Tucker, 1993).

In Islam, polygamy is allowed for men but my students tell me that this practice is declining as it is not popular with young women who have little desire to become a "second" wife. I am also told that, although all marriages are "arranged" by the family, a girl is able to refuse a suitor and is not forced into an unwanted marriage. Although this evidence is unsubstantiated, it does suggest another change to a societal practice that is being brought about by this generation of young women.

Further anecdotal evidence suggests that many women give up work after marriage even though rulers encourage Emirati women to extend their roles to include work, albeit with a proviso concerning their main duties as wives and mothers. Recently the President's wife, Sheikha Fatima, is reported in a local paper[14] as saying:

> "Sheikh Zayed's faith in women was limitless. His continuous support for women is based on his deep belief that society needs the energy of all its citizens and that the whole of society, men and women, should participate in the work for national development. It is one of his enduring dreams for the country to succeed in the elimination of women's illiteracy and for the UAE women to have a deep faith in their basic duty of family caretaker according to Arab and Islamic traditions, no matter how much education she gained or how far she went in her career."

The ruler of Sharjah's wife, Sheikha Jawaher, confirmed this view when speaking to the first batch of women graduates from Sharjah University[15]. Whilst she urged the women to pursue successful careers, she cautioned them:

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[14] "All fields open to women: Shaikha Fatima"; in *Khaleej Times*, 11/9/1999
[15] Zeitoun Dooa, 2001; "Don't neglect main role – Jawaher" in *Gulf News*, 7/6/2001

"You must not forget your important role in life as mothers and generation-raisers and hold on to your religious values. This requires compromising between your duties and not letting one responsibility overshadow the other. But remember that your contributions to your homes are your first priority and that nothing compares to your role as wives and mothers."

Sheikha Fatima saw no conflict between women's wish to keep abreast with modern technology *and* their desire to preserve their Arab and Islamic heritage because Islam encourages learning for everyone, she acknowledged. However incongruously, these socio-cultural ideas about education appear to relate to policy theories critiqued by Marshall when she comments: "Liberal and critical theory allows women into the public sphere but still leaves women with all the duties of the private sphere (it is fine if a women wants to be president as long as she can manage her family's needs for nurturance and support too)" (1999:8).

Graham-Brown says this view of women's role is not unique to the region, "Most Islamic groups stress the importance of male authority and emphasize the primacy of women's roles as wife and mother" (Graham-Brown, 1994:7).

However, not all Emirati women agree with these views as demonstrated when the Police Chief provoked an outcry from many national women with his proposal that women should be paid to stay at home to raise children and increase the national population instead of working[16]. Women expressed strong views that Emiratisation policies included women and were reported as being angry that women's achievements and contributions since the formation of the federation could simply be dismissed in favour of giving birth to more national babies.

It appears that Emirati women are caught in the tensions between the government's need for women to join the workforce and the traditional roles and responsibilities of women as family caretakers. Except for the reference to being an active member of the *political* scene, Emirati women's current position follows that of post-revolutionary Iranian women described by Mehran below:

> *"Contrary to widespread belief among scholars and laymen alike, the ideal female citizen of the Islamic Republic of Iran is not to return to the past when women were secluded from public life and banned from presence in non sex-segregated settings. She is not to be what her mother and grandmother before her used to be: domesticated and isolated. The new Muslim woman is not to become Westernized either. She has to be covered according to religious practice, and abide by the cultural norms of modesty prevalent in Muslim communities. The seeming contradiction is that the ideal woman of the post-revolutionary period is to be traditional and modern at the same time. She is expected to be a good wife and devoted mother as well as an active and educated member in the social, political and cultural affairs of her society, all at the same time" (1999:202).*

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[16] Abdullah, Eman, 1996; "Babies yes, but work too – women" in *Gulf News*, 13/5/96

2.12   WORKING NATIONAL WOMEN

Hijab (1994), writing about women and work in the Arab world comments:

*"Of all the world's region, women in the Arab world perhaps suffer from
the worst case of invisibility. Even as recently as 1990, figures of
women's recorded participation were below 10 percent of the total labor
force in seven Arab countries"* (Hijab, 1994:41).

One of the issues in the Arab world is the issue of women's economic activities,"not so much
as a problem of the lack of economic participation or legal disability, but rather of social
constraint and marginality" (Tucker, 1993:ix).

According to the Emirates Strategic Centre for Social Research's (ESCSR, 2000) the number
of national working women changed dramatically after the discovery of oil and almost
quadrupled from 1980 to 1990, jumping from 5.3% to 16.3% of the total work force. Many,
they report, were absorbed into the public sector, particularly in traditional areas such as
education and health, accounting for 39.8% of total employees in the federal civil service by
the end of 1993.

A recent local newspaper article[17] reported that an increasing number of qualified national
women are entering the job market. Dubai Municipality, the second biggest employer among
the fifteen local government departments, was reported as currently employing 450 national
women employees, many holding responsible positions. Although these women only
represent 4.7% of the municipality's total workforce (locals and expatriates), they represent
38% of its Emirati workforce, still similar to the 1993 figures.

And yet, the low number of educated women in the work force conflict with the figures for the
educational progress made over the last decade. It would appear that the dichotomy between
education and attainment in the work force that the 1995 UN Human Development Report
revealed still operates: "Women have been more successful in overcoming cultural barriers to
building their capabilities than in overcoming the barriers to using these capabilities" (cited in
Business Middle East, 1995). This report stated that even though female adult literacy rates
relative to men have grown faster in the Arab States over the past two decades, economic
participation by Arab women remains by far the lowest in the world and they cite cultural
prejudices as the main cause. It cites a mid-1990s World Bank document that reported 11 per
cent female participation in the UAE labour market which was well below the average
worldwide and even among other Gulf countries. This suggests that educational access and
employment for UAE women are not as closely related as in modern Western societies,
similar to the situation for middle class 19th century women in the UK.

An editorial in Business in the Middle East[18] reasons that this situation is due to the
historically low social status of the region's women compared to that of men, resulting in fewer

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[17] Staff Reporter, 2001: "National women employees laud civic body" in *Khaleej Times*, 22/6/2001

[18] Database:Women in *Business - Middle East* September 1-15, 1995

opportunities to participate in wider society. They point out that this was one reason why Gulf Arab girls were not educated until the 1970s oil boom when governments, wishing to enter the international arena in business and commerce, adopted modernising and relatively liberalising policies. As Clarke & Chambers (1989) in their research on computer education opined, successful competition in international markets requires the development of the maximum potential of each individual member of society, irrespective of gender (cited in Okebukola, 1993:182). A reason for men to accept working women, says one Emirati man, "is from the objective perspective that the UAE has a very small population and that local labour is in comparison with expatriate labour, inadequate. If we rely only on male labour, the percentage of the local work force will be that much smaller."[19]

Thus women's education rose faster in an attempt to catch up with men. However, even these educational achievements for women do not appear to have had much impact on women working until the late 1990s. The 1995 report cited above stated that formal employment still seemed to be closed to women in most Gulf countries. Even today survey data cited in a local newspaper article[20] suggests that one third of women graduates do not enter the labour market.

Is this pessimistic picture accurate for Emirati women at the beginning of the 21st century?

The following Table 2e taken from research by a colleague at Ras Al Khaimah Women's College[21] shows the number of Emirati women employed from 1998 to 2000 in local government departments. It confirms that in the majority of government workplaces, the percentage of national women is less than 20% of the workforce, except for the traditional "female" areas of Youth and Education, Labour and Social Affairs, Higher Education and General Information. Overall it shows only a slow increase in women's participation during recent years, despite the steady increase in graduates leaving university and college.

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[19] Al Marri, Haya & Mohammed Afaf, 1996; "Changing Times" in Gulf Weekly 18-24 July 1996, 11-15

[20] Sanaa Maada, "Study offer options for recruitment of nationals in private sector"; in *Khaleej Times* 19/12/02

[21] Bonnie Milne, 2000; Seminar paper given at HEC Annual Conference, Dubai, August 2000

Table 2e NATIONAL WOMEN IN THE UAE GOVERNMENT WORKFORCE

Ministry or Department	Year	Number of National Women	% of National Women of total dept. workforce	% Change over previous year
Higher Education	1998	31	41%	
	1999	34	43%	+2
	2000	34	41%	-2
General Information	1998	33	39%	
	1999	37	33%	-6
	2000	37	33%	0
Labour and Social Affairs	1998	481	38%	
	1999	495	38%	0
	2000	497	39%	+1
Youth and Education	1998	10975	34%	
	1999	11939	34%	0
	2000	11958	34%	0
Interior	1998	53	18%	
	1999	37	30%	+12
	2000	73	31%	+1
Public Works and Housing	1998	79	17%	
	1999	83	17%	0
	2000	90	18%	+1
Economy and Trade	1998	30	18%	
	1999	36	30%	+12
	2000	38	31%	+1
Foreign Affairs	1998	47	17%	
	1999	54	19%	+2
	2000	57	19%	0
Finance and Industry	1998	80	17%	
	1999	89	18%	+1
	2000	90	18%	0
Minister of State for Prime Minister's Affairs	1998	45	17%	
	1999	46	18%	1
	2000	47	17%	-1
Health	1998	1437	13%	
	1999	1304	13%	0
	2000	1694	13%	0

Department	Year	Number	Percent	Change
Planning and Development	1998	30	13%	
	1999	33	14%	+1
	2000	33	14%	0
Information and Culture	1998	73	11%	
	1999	78	13%	+2
	2000	80	16%	+3
Transportation	1998	13	10%	
	1999	18	13%	+3
	2000	31	15%	+2
Justice	1998	36	5%	
	1999	47	6%	+1
	2000	53	6%	0
Electricity and Water	1998	48	3%	
	1999	58	3%	0
	2000	58	6%	+3
Agriculture and Fishing	1998	17	3%	
	1999	30	3%	0
	2000	31	6%	+3
Petroleum and Mineral Resources	1998	5	10%	
	1999	5	9%	-1
	2000	5	9%	0

Department	Year	Number	Percent	Change
Ministry of State for High Cabinet Affairs	1998	1	8%	
	1999	3	14%	+6
	2000	3	14%	0
Youth and Sports	1998	7	8%	
	1999	7	7%	-1
	2000	7	7%	0
Radio and Television Broadcasting	1998	39	7%	
	1999	39	7%	0
	2000	39	7%	0
Prime Minister's Office	1998	3	6%	
	1999	3	4%	-2
	2000	3	4%	0
Islamic Affairs	1998	7	3%	
	1999	11	3%	0
	2000	11	3%	0
Ceremonies and Hospitality	1998	3	1%	
	1999	3	1%	0
	2000	3	1%	0
Total of National Women employees	1998	13043		
	1999	14777		+7
	2000	14945		+1.1

According to Milne (2000), UAE women are also making their mark in the armed forces and the police, illustrating some of the impact that Emirati women are having on their society.

Yet in spite of these advances for Emirati women in some areas, Salhi Hamoud, [22] a local reporter, says that social constraints often prevent national women working, especially after marriage, even though women form the majority of the educated class among nationals. Despite the encouragement of the UAE leadership promoting female participation in the labour market and the active involvement of the President's wife, Sheikha Fatima, to eliminate constraints amongst society, he cites the prevailing cultural norms as perpetuating gender disparities in hiring practises and on the job .He also argues that, despite the progress that national women have made in education and labour rights, real advances are yet to materialise in the labour market, particularly in the private sector, and in society's perception of working women.

Recently the Deputy Ruler of Ras Al Khaimah[23] emirate confirmed this assumption when he called for the emancipation of women, saying customs and traditions were preventing them from joining the labour force. Ironically, his daughter read his speech at a college seminar on women and job opportunities because it would be inappropriate for a national man to address a gathering of Emirati women, which shows his own acceptance of the social practices he wishes to change.

There is much less data about national women working in the private sector. A 1997 survey undertaken by the incumbent Director of EWC about job aspirations of 3rd year students in Abu Dhabi, Al Ain and Dubai[24], confirmed the low status of private sector jobs in students' minds. From the 68% response rate, 65% percent of respondents were negative about working in the private sector.

Those students who did not want to work in the private sector disliked the following:

- split shift working (morning and evening shift)
- lack of job security
- lower salaries
- long working hours.

However, the 35% who expressed favourable attitudes thought private sector jobs more challenging, provided better opportunity and more motivation than the traditional public sector opportunities. The main reasons given for preferring government jobs were:

- better holiday pay
- pension benefits
- maternity leave
- shorter working hours.

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[22] Salhi Hamoud, 1998; "UAE women seeking niche in job market" in *Gulf News* 11/1/98

[23] Nazzal Nasouh, 2000; "Customs, traditions hindering women's progress in society" in *Gulf News* 26/4/2000

[24] Staff Reporter, 1997; "UAE women more keen to take up jobs than men"; in *Emirates News*, 5/11/97

Participants at a local conference "Women in Management: Challenges and Opportunities for the Year 2000" believed that Emirati women's own attitude towards work as a filler between college and marriage and the stereo typing of woman as poor managers are the major obstacles in their careers.[25] There may be some truth in the perception that some young women see work as an adventure until they get married, fostering an image of working women not being committed to work, reported Dr Howard Reed, Director of Dubai Women's College[26] in a 1996 article. Because earning a livelihood has traditionally been the responsibility of the male family members, some people still view women working as a privilege and not a necessity. Because Emirati society is a wealthy one, economic necessity is not a reason for working, he comments, although more students are coming from less wealthy families now as access to higher education expands. Anecdotal evidence of an increasing number of families applying for student grants for transport and materials, supports this view. So the perception that women do not need to work may be erroneous because of today's economic burdens; the generation of wealth has created a materialistic lifestyle to accompany it and the social status measured in material assets. Dr Reed also reported that some students drop out of studies to earn an income for the family whilst others take summer courses to speed up graduation so they can join the job market earlier.

It would appear that Emiratil women have many hurdles to overcome if they are to change cultural prejudices about their role in society. The young women studying at EWC have chosen to become educated and contribute to the development of their nation. What aspects of their lives are being impacted by their studies and what are their views about their future? Do they see the societal and cultural barriers towards women as restraints to be overcome or are they content with the status quo? How do they perceive their path towards fulfilled lives? Do they wish to become wives and mothers even if it means they have to fight to achieve additional personal goals?

A conflicting picture emerges from the literature reviewed about the opportunities available for Emirati women, but social change is occurring. Amani, an IT student has witnessed this change during her seven year stay at EWC, ironically, because of her father's wishes for her to stay at college and not remain at home nor find employment!

> Amani   When I enter this college you know 99% of the girls (did) not finish the
> college but to get married but . now most of them ( ) it's decreasing .
> Now most of them they say we want to finish our college to work to
> show that we are something .. we need to ( ) show ourself that we can
> do something ( ) not only the men who say we are the men we are the
> best no .. we want to say that we can do something. We are not the best
> but we will do .we (shall) prove (to) you that we can do things better
> than the men

---

[25] Staff Reporter, 1996; "Women told to overcome obstacles to progress" in Gulf News 24/11/96

[26] Al Marri, Haya & Mohammed Afaf, 1996;"Changing Times" in Gulf Weekly 18-24 July 1996,11-15

Interviewer	So you have seen this change?
Amani	Yea I've seen this change
Interviewer	Since you've been in the college? How long have you been in the college then?
Amani	((laughter)) 1993 ( ).

Although there is a lack of academic literature relating to the UAE specifically, a description of conditions in Middle Eastern countries generally and the Gulf States specifically, sets the scene for the political and economic situations which have significant effects on educational development. It is at the local level of social and cultural customs where the diversity within the region appears strongest and gives rise to contradictions between international and local reports about Arab women's economic activity. The literature sources reveal the tensions that surround Emirati women's lives with their government exhorting them to become educated and participate in the public arena but, at the same time, to remain faithful to their private roles as wives and mothers. Sources also give a clear picture of the position of national women at the crux of the tradition-modernity debate that is crucial to UAE national development at this point in time.

3   CHAPTER THREE

RESEARCH DESIGN

3.1   THE RESEARCH PERSPECTIVE

The research methodology I chose shares social science perspectives and uses as models ethnography, hermeneutics and phenomenology. In an attempt to hear the students' perceptions of their studies, I focused on phenomenographical methods. According to Marton, phenomenography is defined as:

> "The empirical study of the limited number of qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualised, understood, perceived and apprehended" (Marton,1994 cited in Ashworth & Lucas 1999:4).

'Experience' refers to the mental processes mentioned above, but in phenomenography the emphasis is on experience that "has been reflected on so that it can be discussed and described by the experiencer" (Ashworth & Lucas,1999:4). This focus is described as a 'second-order' perspective (Marton, 1981 cited in Ashworth & Lucas 1999:4). The aim of phenomenography is to construct categories of description of the different kinds of conceptions held by the subjects themselves, through the interpretation of the researcher to produce a "clearer and more articulate account of student conceptions than students would themselves generate unaided" (Ashworth & Lucas, 1999:4).

As these authors state, it is a primary requirement for phenomenography to be "sensitive to the individuality of conceptions of the world", (p4) thus it must be grounded in the lived experiences of the research participants. I selected the phenomenographical research approach because I wished to discover how information technology (IT) studies and use are conceptualised, understood and perceived by the women students. By listening to the students' experiences, I attempted to enter their "lifeworld" which for this purpose means "the whole context of personal meaning of the experience under research" (Ashworth & Lucas, 1999:5).

Phenomenography is related to enthnographic research and shares a focus on consciousness and experience with hermeneutics, states Moustakas (1994). However,

traditional hermeneutics was seen as a rigorous process of understanding the author's meaning of human texts within its *original* cultural settings but the modern 'philosophical hermeneutics' views the process as "inevitably reflecting the 'prejudices', the pre-understandings, of the interpreter" (Hammersley and Atkinson,1995:13). Using hermeneutic analysis, the students' words and texts used to describe their experiences were interpreted "so that the intention and meaning behind the appearances are fully understood" (Moustakas, 1994:9). Thus when I analysed the conversations and documents, the underlying social, cultural and historical contexts that have influenced the words of both informants *and* myself, were considered, because, according to this philosophy, I too, was a part of the social world under study (Hammersley and Atkinson, 1995).

To this end, Chapter Two set the local scenes that contextualised the students' responses, as do the descriptions of the research activities presented later in this chapter, on which I, as researcher, had an impact. "The understanding of meaningful concrete relations implicit in the original description of experience *in the context of a particular situation* is the primary target of phenomenological knowledge." (Moustakas 1994:14)

Although qualitative research methods are most suited to this phenomenological study, I also wished to get a broad picture of computer use at home. Because the total number of students studying IT at EWC was fairly small and as I could access this entire group with relative ease, I decided to include in the design a quantitative instrument at the exploratory stage. I could then use the qualitative methods to deepen and elaborate data, thus integrating both approaches in the overall design. I adapted Miles & Huberman's model as in Figure 3i to clarify the stages and purposes and focus the design.

Figure 3i: Design Linking Qualitative and Quantitative Data
adapted from Miles & Huberman 1994:41

Quantitative ⟶	Qualitative ⟶	Qualitative
(exploration)	(deepen, elaboration)	(verification)
questionnaire/survey	interviews, diairies, documents	focus group
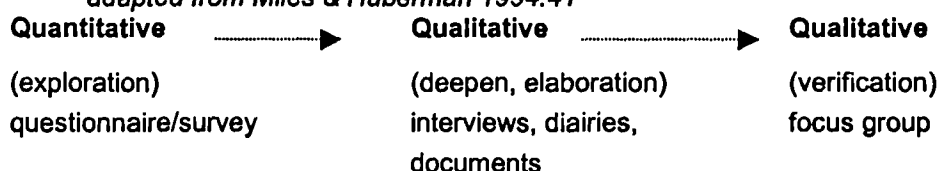
Although this design appears to be a linear process, in reality several research activities occurred concurrently and interlinked to each other rather than as separate elements. My research displays similarities to the "grounded theory" model described by Strauss (1967) where methods and procedures are open rather than fixed and often occur sequentially. For instance, an analysis of the initial questionnaire data formed the basis for interview questions that, in turn, suggested other appropriate collection methods such as documentation, diaries and the possible use of vignettes, as the work progressed. By constantly comparing the different sources, I questioned the omissions and inconsistencies in the data, similar to grounded theory researchers who "continually recognise the need for obtaining information on what influences and directs the situations and people being studied" (Addison 1989 cited in Moustakas, 1994:5).

The conceptual framework developed through an inductive process of iteration and revision as new information emerged and themes and concepts were worked out from an on-going analysis of

the data, rather than from any pre-constructed hypotheses or conceptions (Moustakas,1994, Bamberger, 2000).

The contrasting positions of philosophies underpinning qualitative and quantitative research appear to be incompatible and resist integration, but Miles & Huberman (1994:41) suggest that the argument between these approaches on the grounds of different epistemological preferences is essentially unproductive and that both methods are interconnected, "not only at the level of specific data sets but also at the level of study design and analysis". This premise helped me decide to use the two sorts of data and associated methods.

The main reasons I integrated quantitative and qualitative methods was so that I could confirm data produced via triangulation and to elaborate and develop the data extricated from the initial questionnaire to give richer detail. For example the analysis of the survey data indicated similar patterns of usage and frequency of computer use at home as well as likelihood of gaining employment after work, which needed further elaboration. Integration of data also helped me to initiate new lines of thinking as the study progressed, such as widening the initial focus from the impact of home computer use on student learning to the impact of IT studies in their lives, because the initial quantitative analysis and first qualitative data showed more potential in this wider context (Miles & Huberman, 1994; Chung, 2000). Analysis of this quantitative data also informed the development of the subsequent interview questions whilst analysis of interview data and diaries clarified and illustrated the quantitative data and strengthened the emerging picture.

The quantitative survey also added reliability to the research activities by using standardised procedures that gave more precise results, in contrast to the qualitative interviews and documents which gave rich detail and allowed comparison across cases thus overcoming the "abstraction inherent in quantitative studies" (Firestone, 1987 cited in Miles & Huberman, 1994:41). It also supplied background information and located unusual cases (Sieber 1973 cited in Miles & Huberman, 1994:41) such as those students who were not connected to the Internet at home and the minority who did not expect to find employment, allowing responses that diverge from the general patterns to be followed up with qualitative methods (Bamberger, 2000).

The qualitative methods allowed me to hear real life experiences grounded in the local contexts. The term "life story" is used to describe the student's narratives which, according to Miller (1997), refers to the account given by an individual which can be supported by additional external sources such as newspaper reports, official records, photographs (Denzin, 1995 cited in Miller 1997:18). However, Miller says there is now less need for such verification due to the emergence of the narrative viewpoint in qualitative research whereby stories per se are seen as valid because they represent an individual's truth *within the context of the whole experience* at that time. However, although I heard many stories from my informants that I believed were valid truths for themselves, I researched local sources that supported their accounts.

A cross-section of individuals needed to be sampled to achieve a varied basis for generalisation, rather than for the purpose of generating a statistically representative probability sample. This would enable general concepts about the social phenomena under investigation to be constructed.

Although I was able to access the whole population for the exploratory survey, it was impossible to interview a large number of students due to time constraints and the voluntary condition of participation. As sampling for proportionality was not the primary concern, I was able to use purposive sampling to reach the opinions of the target population. However, during analysis I had to guard against using "snippets" of information given by individuals as representative of the whole population, or only look at the dramatic stories rather than the more mundane (Silverman, 1994). By comparing data from different sources given by the same student, I was able to verify to some extent the truthfulness of the individual's account of experience regarding common aspects of IT studies, usage and effects, but I was still interpreting individual rather than representative cases.

3.2 RESEARCH PARTICIPANTS

By administering a questionnaire to 106 students studying IT at EWC during the academic year 2000/2001, and receiving a 100% response rate, I am able to say that the research was carried out with a *population* of Emirati women students studying IT at this college and that the results should thus have good external validity. However, the results may be not generalisable to *all* students in the other five HEC women's colleges.

3.2.1 Selection criteria

The study population was picked from within my own teaching institution. From my immersion in the college culture and my knowledge of the UAE and its education system, I was aware that this generation of young women are in the vanguard of societal changes. As mentioned previously, this is the first generation of women to have access to public tertiary education thus they are already unique in their achievements. In addition, the girls had decided to study a leading edge vocational course such as computing studies or information technology thus displaying the characteristics needed to be in the forefront of developments in the Emirates. Thus, their membership of this special group became the selection criteria for the study population and all EWC students in years 1, 2 and 3 of the Higher Diploma IT programs were asked to participate in the initial quantitative research.

The main selection criteria for the subsequent qualitative interviewing were accessibility and theoretical sampling as well as voluntary participation. A representative sample of informants is not always what is needed, say Hammersley and Atkinson (1995:137): when the primary concern is eliciting information, the aim is to target people willing to talk and divulge. Thus, in order to hear a variety of computing experiences, I needed volunteers from the study population in each year group and each course who were:

    a) using computers at home and

    b) who possessed the linguistic ability to communicate such experiences plus

    c) a willingness to talk about those experiences.

Thus, for my first interviews, I selected seven third year students to interview. The sampling was purposive and I used my knowledge of the cohorts' linguistic and communication abilities to select

five students from my own teaching program and two whom I did not teach. Selection was based on the best judgements that I could make in the circumstances (Hammersley & Atkinson, 1995:139).

During this process, one student, having been interviewed, advised me that her peer, whom I had intended to ask, would not have the confidence to respond in detail and she proposed another student because she thought this colleague possessed more confidence, thus making use of the "snowball" sampling technique whereby one informant uses her judgement to suggest a useful informant to the researcher (Silverman, 1993). I followed her advice with successful consequences.

Having transcribed the first batch of seven interviews and done an initial analysis, I selected another five students from the other cohorts, using similar criteria, resulting in these "key informants" forming a collection rather than a statistical sample. Thus about 12% of the study population were interviewed, which, with the other data sources, gave a broad and varied basis upon which to base my conclusions. The later informants were selected on the basis of Glaser & Strauss' 'theoretical sampling', i.e. choosing those whose testimony seems most likely to develop and test emerging analytic ideas (1967:138). So for this batch, I included those who gave contrasting survey responses to the emerging general pattern such as whether or not students had Internet access at home as this *may* have been indicative of different attitudes to modern technology within the family. However, I viewed these assumptions cautiously as Ashworth and Lucas suggest:

> "... selecting interviews who seem intuitively likely to have different lifeworlds and, within these, different experience of the putative research phenomenon, is worthwhile. Yet this depends on the assumptions built into the 'intuitive likelihood'. Such assumptions should be identified and set-aside, in the sense of acknowledging them and being aware of the possibility that they are false."
> (Ashworth and Lucas 1999:9)

(See Appendix A for data about informants).

3.3 THE RESEARCHER'S ROLE

The relationship that forms between researcher and researched can influence the data gathering process. An outsider has the advantage of viewing the context and the participants more objectively but, as in this case, could risk offending cultural sensitivities. On the other hand, an inside researcher, although more sensitive to the cultural context, could take important aspects for granted and miss investigating vital information.

As a member of the IT faculty and a teacher to approximately two-thirds of my informants, I interacted with these students daily in a variety of teaching roles. Thus I knew these student's personalities and academic abilities and had formed preconceptions of individual characters. The remaining one-third was unknown to me personally, although they were probably aware of me by reputation. In a researcher's role, I made efforts to treat all participants equally, but the known participants might have felt more comfortable with me at interview, but the opposite situation could also have arisen. I interviewed all participants in the same room for similar durations and I

attempted to use the same protocols of greeting, empathising and questioning to help overcome this situation.

The hierarchical power relationship between teacher and student may have extended to the relationship that formed between researcher and researched. As Denzin (1970:59) says, it could be difficult to overcome the status difference and may possibly create problems "in penetrating private worlds of experience". I did not feel that my interviewees were reluctant to disclose information because of our teacher/student relationship, although it could have influenced their responses, as I discuss later.

The interviews were friendly and relaxed occasions and all students were very willing and able to converse about how their studies and computers were affecting their lives. In effect, it was seen as a privilege to be asked to interview and engendered disappointment in those not invited.

However, the power play was not restricted to the teacher-cum-researcher, because, in this society, those involved needed only to complain to a family member with "wasta" (connections/ status in Emirati society) about my investigation and my job prospects could be affected. Thus it was through my insider's knowledge as a teacher that I was able to prevent giving offence as a researcher.

As an inside researcher, I was familiar with the college culture and the education system and so shared common knowledge with the participants. However, we did not share a common first language and this had major implications for making sense of the data, as it is through words and text that people create their worlds and relate their experiences (Maykut and Morehouse 1994:18). I simplified the English used for questions, both in the survey and at interview, but this was difficult to do at times without simplifying or altering the content. I also frequently had to re-phrase the interview questions for understanding (See Appendix B for transcript example). In return, the language used by the interviewees to express their thoughts was simplified owing to their responding in a second language. However, by being familiar with their communicative language, I had a better chance of understanding and interpreting students' responses than a researcher without this knowledge.

The role of researcher in this situation was therefore problematic, but by continuously explaining my purposes as a researcher and reassuring participants of confidentiality, I was able to create a empathetic relationship between researcher and researched.

As mentioned previously, authorisation for the investigation was given with the proviso that participation was voluntary. It was especially important to protect these young women and myself from any adverse reactions arising from any research activities and therefore ethical issues were important aspects to consider.

3.4   ETHICAL CONSIDERATIONS

3.4.1   Ethical Principles

Ethical concerns are seen as a very important part of the research design and conduct of the research (Mason,1996; Silverman, 1994; Miles & Huberman, 1994) Confidentiality and anonymity

are of major significance for this study. Mason points to the difficulty in maintaining anonymity and privacy when there are small numbers of participants especially in qualitative research because of the nature of the data used. In Arab societies, a young women's reputation must to be protected and custom dictates that young women should not be known to national men outside her family group, so most students will not allow themselves to be photographed or have their names published, to preclude being talked about in local society. Although this custom is slowly changing, it is imperative that participants trust that their full names or identities will not be revealed. I stressed this both at the questionnaire presentation and in my interview-invitation letter. Students were told that inclusion of their student ID number on the questionnaire was to enable follow-up, but I stressed that it was not compulsory. Out of the 106 responses, only three did not write their ID number and I believe this suggested their trust in me.

3.4.2   Consent to Participate

The issue of consent to participate requires participants to be fully aware of what they are being asked to be a part of, including dangers and obligations involved and that the risks and gains for them are balanced. Even though I explained the aims of the research, it is unlikely that the students truly understood what involvement implied, due to the lack of an institutional research culture and because the students are not academically widely read. Thus the responsibility lay with me to follow Bogdan and Bilklen's (1992) advice carefully and to ensure that they were protected from harm throughout all the research phases, presentations and future publishing. Any participant was free to withdraw and/or refuse to answer any questions at any time but, as Mason suggests, it is necessary to constantly revisit the issue of consent during the study. However, I was very aware of my persuasive influences and to students' need to please me as their teacher (Mason 1996).

As a method of authentication and one way of ensuring participants' understanding, I showed two students their interview transcripts and they confirmed the accuracy of the transcripts and said that they were happy for the material to be used.

3.4.3   Ethical Approval

At an early stage, I realised that no formal studies have previously been carried out involving EWC students. The reasons were probably due to the inherent ethical and linguistic difficulties as well as the cultural sensitivities. To ensure that I was not putting myself at risk, I asked the EWC Director's permission and was surprised at his reluctance to authorise research involving the women students. His main reasons were those I mentioned above and the necessity to probe for information that is considered private in Emirati society. However, despite his concerns, he gave me a supportive introduction for a meeting with Dr Sulaiman Jassim, an Executive Director, who was pleased to give me his authorisation, as long as I did not offend any cultural considerations. I was pleased to be able to tell the case students of this high-level authorisation as they come from a status-conscious society and Dr Jassim's permission carried much weight.

3.5   DATA COLLECTION METHODS

3.5.1   Questionnaire

As discussed previously, I took both a quantitative and a qualitative approach to the research design in order to address the research questions and thus used several methods for data collection. A phenomenographical investigation such as this inevitably entails face-to-face data collection with subjects, but initially, I undertook survey research to explore background information. To elicit data about behaviour and attitudes I prepared a questionnaire divided into five sections containing 18 short questions in simple English (*See Appendix C for questionnaire*):

Part 1   Personal Details

Part 2   Choice of IT (Information Technology) Career Program

Part 3   Use of Computers at Home

Part 4   Delivery of On-Line Courses

Part 5   Jobs on Graduation

The survey comprised a variety of fixed-choice questions as they lend themselves to simple tabulation (Silverman, 1994). Some required a Yes/No answer; others needed prioritising or rating of short factual statements, as shown in Tables 3a and 3b:

Q7. Do you have a computer at home?   Yes ☐   No ☐

Table 3a: Types of question – Prioritising

Q5 What are the two MAIN reasons you chose an IT program? (Choose your 1st and 2nd reason by putting 1 and 2 in the boxes	
I like using computers	☐
I like computing subjects	☐
The career or job I want needs computer knowledge and skills	☐
I'd get a better job than if I chose a non-IT program	☐
I don't like the other programs e.g. Business Administration, Health Science, Communication Technology	☐
My sister or friends chose an IT program and I want to be with her	☐
My sister or family relative has taken an IT program before and recommended it	☐
I like the teachers on the IT program best	☐
I don't like the teachers on the other programs	☐

Table 3b: Types of question – Rating

17 How likely is it that you will get a job when you leave college?

Extremely likely ☐	Likely ☐	Not likely ☐	Not at all ☐

I piloted the questionnaire with a group of 16 students and asked for comments about any difficulties in completion. There were a few minor linguistic problems and Q.17 above caused problems. It initially read: "How likely is it that you will *find* a job when you leave college?" Some students interpreted this as referring to job *availability*, so I asked the advice of an English colleague who recommended the wording above.

Representativeness of the sample was not a methodological issue as I distributed 106 questionnaires to *all* the IT cohorts by arranging access to classes through their instructors. This personal approach enabled me to explain the survey's purpose and inform students of its voluntary and confidential nature. After classes I received all 106 completed survey forms.

3.5.2   Interviews

The main tool for collecting data in phenomenographical study is the qualitative interview, enabling the researcher to gain insight into how the informants make sense of their experiences (Ashworth & Lucas, 1999, Richardson J, 1999). A widely accepted definition of an interview is that it is a conversation with a purpose, yet interviews have been variously described as unstructured, informal, in-depth, non-directive, focused and open (Lincoln & Guba 1985, Maykut & Moorehouse,1994). Thus the researcher decides the most appropriate approach to enable the research question to be answered within the chosen framework.

Interview invitations showing time and place were prepared including a list of topics for discussion which reflected and extended the survey categories *(See Appendix D for invitation)*. By giving participants a chance to think about the language to use when responding, I hoped to reduce anxiety and produce more detailed accounts. I invited 14 students to interview and 12 accepted.

The interviews were arranged in a private meeting room that was quiet and comfortable. At the start, I asked informants' permission to use a tape recorder and repeated that their names would not be disclosed. Using a prepared list of questions to focus on issues that would enable the research questions to be confronted within a realistic time, I adopted a flexible approach to the questioning "allowing the discussion to flow in a way that seems natural" in an informal conversational style (Hammersley and Atkinson, 1995:152).

After each interview, I wrote brief notes about the social interactions that had been constructed and I followed Ashworth & Lucas' (1999) advice to built up participant profiles from both survey and interview data to provide evidence of internal validity and access to particular lifeworlds.

3.5.3   Other methods

As a supplementary data collection method, I requested second year Information Administration students to complete diaries of home computer use over a short period of time. Such solicited accounts are "useful ways of eliciting information about the personal and private" say Hammersley and Atkinson (1995). Although the students were given freedom to complete the diary forms, I included headings to elicit similar categories of information from each informant *(See Appendix G)*. I used this data to compare with data emerging from the survey and interviews as a form of triangulation to increase the validity and reliability of the findings.

I also requested third year students' written reports about their period of work placement which could give some indication of the application of their IT learning in a working environment.

Table 3c	Number of cases in each data source						
Data sources	1st year		2nd year		3rd year		N of cases
	IA	BIT	IA	BIT	IA	BIT	
Questionnaire	14	20	13	12	32	15	106
Interviews	2	-	2	1	5	2	12
Work Placement Reports					13	6	20
Home Computer Use Diary			7				7

Other informal data collection methods such as taking notes on an on-going basis about interactions with the students which, although I was not authorised to include in the study, aligned my thoughts and may have contributed to the construction of a vignette. Such a vignette follows Merryfield's (1990 cited in Miles & Huberman, 1994) idea of a "narrative scene" where the researcher constructs a narrative from the findings and presents them to a group of case participants for verification. As Miles & Huberman say, "it is a potentially useful integrative device for reconstructing and communicating key phenomena – and interpretations of them – in a case" (1994:82). I was concerned, however, that my participants did not have the linguistic capabilities to understand the issues in the vignette, unless they were *considerably simplified*.

An alternative way of extending or even validating data derived from interviews would be with a focus group. Ideally in a focus group the discussion unfolds among the participants rather than between the researcher and the respondents (Chung, 2000). I intended arranging a sample of respondents from each cohort to discuss the findings in their mother tongue with an Arabic speaker as moderator. I felt that conducting the discussion in Arabic would help students express themselves more fully, but it would necessitate tape recording, transcription and translation by an Arabic speaker and I concluded that this request was too much of an imposition on a busy colleague. Also, by the time I reached verification stage, half of my cases had graduated and were thus unavailable.

3.6   DATA MANAGEMENT AND ANALYSIS

As Rubin and Rubin (1997) say, data analysis in qualitative research is the final listening stage to hear the meaning of what is being said and is the exciting phase of a study as the researcher begins to discover concepts and themes embedded in the data.

Miles and Huberman (1994:2) admit that "phenomenology has been called a method without techniques", but report that many researchers are now clarifying their procedures. This is vital, they suggest, as there is little guidance to protect the researcher from self-delusion and

presentation of unreliable findings. However, credibility is lent to research by ensuring the analysis process is undertaken with rigour and openness.

Maykut & Moorehouse (1994:123) believe that data analysis should be started early and be ongoing, but Bogdan & Biklen (1992:154) posit that simultaneous data collection and analysis is difficult and advise novices to do the bulk of analysis after data collection is complete. However, they do recognise that some 'in the field' analysis is necessary to inform the data collection, as in this investigation.

The analysis started with the selection of research questions followed by the development of the research tools that provided direction for the research. Following the collection of the completed questionnaires, the survey responses were tallied and counted manually before being entered in an Excel spreadsheet. To start analysis, results were displayed in individual worksheets as in Table 3d to allow comparison of data sets. Counted responses were tabulated and simple percentages of the total respondees were calculated: (*See Appendix F for spreadsheet*)

Table 3d: Excel spreadsheets

Worksheet 1	1st year cohorts
Worksheet 2	2nd year cohorts
Worksheet 3	3rd year cohorts
Worksheet 4	Summary IA
Worksheet 5	Summary BIT
Worksheet 6	Total IA and BIT

Because this quantitative data was collected for exploratory purposes only, I saw no reason to do further statistical analysis as the main focus for this phenomenological study was on qualitative interviewing for data collection, as outlined previously.

I listened to the interview tapes several times before I started an analysis from the transcript to "sensitise" myself to the "train of thought of the research participant" (Ashworth & Lucas, 1999:12). Then I transcribed the interviews verbatim as soon as possible after the event so that my recall of any mis-heard responses could be maximised. This was important because much of the participants' English was communicative, rather than technically correct. However, my knowledge of this communicative language increased the likelihood of comprehension, thus increasing the accuracy of transcription.

I used MSWord Table format to present the data rather than create a database as a table was easier and quicker to set up. I used a transcribing machine to rewind the tapes as required and included protocols to show pauses, emphases, remarks and emotional reactions such as laughter, because verbal communications are transformed during the process of transcription, say Ashworth & Lucas (1999). To test the accuracy of my transcriptions, a colleague repeated the transcription of one tape. A comparison of the two transcriptions showed a very high level of similarity, increasing the reliability of the transcribed data.

A preliminary analysis of the transcripts from the first batch of interviews identified issues to follow up and allowed me to re-design the interview questions for the second batch. Once completed, a more detailed analysis of students' accounts began that entailed reading and re-reading the transcripts, and splitting them into "meaning units", which were identified where there was a shift in meaning (Karlsson 1993 cited in Ashworth & Lucas, 1999:13). Merging the table cells put the relevant questions and responses in each meaning unit together. Within each unit I gave a particular idea or theme a unique code. *(See Appendix H for Coding Categories Table).*

3.6.1   Coding Interview Data

I produced the following main categories related to the research questions as the analysis developed:

1 Computer equipment	7 Decision-making
2 Computer use	8 Understanding
3 Working	9 IT learning
4 Attitudes	10 IT and Culture
5 Preferences	11 Reasons for concern
6 Family	

I developed these coding categories inductively from the data and assigned a code to each broad concept. Having identified these main categories, on re-reading, I broke down the responses and assigned them codes that indicated inclusion in one of the main categories.

I then used the "Find" tool in MSWord to locate every occurrence of this code in each transcript e.g. where a response indicates an *attitude* (main category) to working women (sub-category), it was coded as *"a ww"* in an end column and then the relevant meaning unit was "pasted" to a Word document entitled *"Attitude to Working Women"*. This new document included all the responses referring to that particular concept or theme. The coding is <u>not</u> a quantitative system as no counting is involved in the process, however, the amount of meaning units in each document gives a rough indication of the amount of discussion that took place about this issue. *(See Appendix J for List of Word documents produced).*

This approach is similar to Spradley's (1979) and Strauss's (1987) formal systems of analysing qualitative data (cited in Rubin and Rubin 1997:229) which looks for ideas in the data, groups similar information together and then relates different ideas and themes together which are then interpreted within the context of the research questions and presented as themes.

"Themes offer descriptions of how people do or should behave", states Rubin (1997:234) and by putting related themes together, a wider description results. Ashworth & Lucas (1999) opine that themes represent a generalisation, rather than universality, and are broader and more tolerant of diversity. They say themes might emerge when (a) a number of participants experience the phenomenon in similar ways or (b) in contrast with another theme or as a sub-theme to elaborate within a theme.

Although the coding system enabled me to gather together responses that indicated emerging themes and allowed a descriptive analysis to be written, it was limited in its ability to explore

deeper conceptions of the students themselves. As this was a phenomenological study in which I attempted to discover how information technology studies are conceptualised, understood and perceived by the women students, it was necessary to re-analyse the interview data by re-reading and re-analysing the coded documents and the transcripts. Then the underlying categories of description of the phenomena under research could be drafted and integrated into the descriptive analysis giving the interpretation deeper meaning.

By being punctilious in recording all research activities and relevant documents within a computerised file management system, I have produced an "audit trail" of my research effort (Lincoln & Guba, 1985 cited in Maykut & Moorehouse, 1994). Such documentation allows me "to walk people through" my work to understand the path I took and assess the trustworthiness of my findings (Maykut & Moorehouse, 1994).

3.7   METHODOLOGICAL ISSUES

As I do not have a research background and despite extensive reading on this type of research, I consider myself to be a novice in respect of conducting such investigations, therefore any limitations in this study may be attributable to this.

It has been a major tenet of research that concepts such as validity, reliability and generalisability are addressed. To satisfy this in qualitative research, these concepts have been borrowed largely from positivism. However, several authors, including Lincoln and Guba (1985) and Creswell (1994) have challenged this and argue that there is no consensus on matters of validity and reliability in qualitative research. Lincoln and Guba use the term "trustworthiness" to account for the "credibility" of naturalistic research. Williamson[27], (online; 1999) states that in the "real world" of naturalistic research, (i.e. one set in its natural surroundings), a "trustworthy" and "truthful" study would be one that has been designed to investigate a phenomenon and its context as fully as possible and would take into account the constructed nature of reality by including the views of all participants.

Hoeffl (1997) says, in conventional inquiry, internal validity refers to the extent to which the findings accurately describe reality, but the naturalistic researcher assumes the presence of multiple realities and attempts to represent these adequately, using credibility as a test for this. She cites Patton (1990) as stating that such credibility relies less on the sample size than on the richness of the information gathered and the analytical abilities of the researcher, which can be enhanced through triangulation of data. Lincoln and Guba (1985) use "member checks" where respondents corroborate findings as another technique to address this issue. Thus the credibility of a qualitative research report relies heavily on the confidence readers have in the researcher's ability to be sensitive to the data and to make appropriate decisions in the field (Eisner, 1991; Patton, 1990).

In quantitative research, external validity refers to the ability to generalise findings across different settings. Hoeffl comments that, in the naturalistic paradigm, the transferability of a working hypothesis to other situations depends on the similarity between the situations. In this study, the

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[27] gradeng.en.iup.edu/mmwimson/710_Trust_Valid_Paper.htm

uniqueness of the various contexts at macro and micro level, plus the limited sample size, make generalisation problematic.

Kirk and Miller (1986 cited in Hoeffl 1997) comment that qualitative researchers often focus on achieving greater validity in their work at the expense of reliability (termed dependability in naturalistic research) but Lincoln and Guba address this by claiming that "since there can be no validity without reliability (and thus no credibility without dependability), a demonstration of the former is sufficient to establish the latter" (1985:316 cited in Hoeffl, 1997, online,p13).

Therefore, judgement on the credibility and dependability of my findings can only be exercised if there is transparency on my part as researcher about the design and conduct of the research in a systematic way.

Another concern arises because the HEC colleges do not have a research culture yet and this was one of the first research studies undertaken with students, thus my participants were not familiar with academic research procedures. They were reasonably familiar with questionnaires as data collection tools but their interviewing experiences usually linked with assessments to test language ability. They were not familiar with interviews formats where the researcher wants to proceed as conversational partners rather than a more formal interviewer/interviewee role. Thus their expectations of the interview probably differed significantly from mine.

I was also concerned that differences in cultural background, and being interviewing in their second language, might cause misunderstandings between myself as researcher and the participants, particularly through the different understandings individually being constructed to make meaning of the world (Holloway 1997:145).

Thus the interviewing process was fraught with problems for all participants: the linguistic problems, the unfamiliarity with the type of interview, the expectations surrounding the teacher/student relationship, as well as the different cultural values that influence our making sense of experiences.

To conclude, this chapter illustrated the purposes and interactions of quantitative and qualitative research methods that comprised this integrated research design. It illuminated the way that major ethical challenges resulted from the UAE cultural contexts and the challenges posed by differences in language and culture between participants and researcher. It also emphasised the need for transparency at each research stage so that the data analysis and subsequent interpretation of the findings were firmly embedded in the particular research contexts, allowing the "truthfulness" of the lifestory accounts might show through.

Chapter Four presents the findings from the quantitative and qualitative data sources, combined with information from relevant literature. The questionnaire data analysis is presented as simple frequency tables and charts supplemented with relevant quotes taken from the interview conversations and other written documentation, giving a rich descriptive interpretation of the effects of the IT studies and technology on the students' lives.

4 CHAPTER FOUR - FINDINGS

4.1 REASONS FOR STUDYING INFORMATION TECHNOLOGY

What motivates these young women to study IT and what previous education and experiences with computers at home, in school, or maybe at work, affected their decision? Are their expectations of their IT studies being met? As Selwyn (1998:209) says, "students must want to use IT and perceive it as being a real utility if they are going to develop effective 'technological literacy' for the twenty-first century." Does their selection support the findings of academic research of the last fifteen years? In this segregated higher education system, are gender issues perceived as having a significant impact as in mixed-gender situations? Although most of the research literature relates to computer education in mixed-gender schools in the west rather than this case's unique cultural situation, any continuing studies that give insight into how computer technology can be incorporated into women's lives to enable them to develop "broader visions about a future with

technology", whatever their race and culture, must help to close the gender divide (Butler, 2000:229).

From her useful review and critique of the literature, Butler cites various studies that show gender differences in access, attitudes and computer use have existed since the early 1980s causing *concern about possible consequences for women's and men's futures* (Chen 1985). "The computer will be equally used by men and women alike in the coming decades" says Lockheed (1985:116) and many jobs will need an understanding of the general use of computers and/or *specific knowledge of certain aspects of computing in our increasingly technological society*, observed Clarke & Chambers (1989), therefore both women and men should make the most of all opportunities to become computer literate.

Okebukola's 1990 and 1993 research with a sample of Australian high school students found that boys displayed a significantly lower level of computer anxiety and a significantly higher level of computer interest than girls. From a review of the literature and his own work, he concluded possible causes of gender inequity:

   a) Girls find computers fit in more with a male-oriented culture (Chen, 1986);

   b) A majority of computer games available for children favour male titles and themes of violence more familiar to boys (Lepper 1985);

   c) Girls conclude that computers are a male thing because they observe mostly men and boys using computers at school (Sanders, 1990)

   d) Girls associate computing subjects with mathematics and science, reinforcing the stereotype of computers as a male domain;

   e) Boys are allowed more time in computer rooms;

   f) Teachers exhibit sex-biased attitudes towards computer use. (Okebukola, 1990 & 1993).

These conclusions were supported by Durnell's research with Scottish secondary students that found statistically significant differences between sexes regarding experience of, and attitudes to, computers and their use. Their work indicated that girls were less likely to own computers, to have less access at home or make use of computers at school, leaving girls with less experience of computers than boys. Girls were also less motivated to join male-dominated learning spaces and had less confidence about their computing abilities if not taught in a supportive environment *(Durnell et al, 1995)*. In addition, research suggested that fewer women than men are computer educators and thus girls had fewer female role models (Reinen & Plomp 1993 cited in Butler, 2000).

These themes of gendered access and attitude continued throughout the 1990s resulting in educational recommendations for assisting girls with computer technology, many linked to curriculum change, the computer classroom environment and the type of computer tasks that could achieve a more positive attitude amongst girls towards computers. Yet, still at the end of the decade, there was a lack of research in ways that "males and females, both students and K-12 educators, are using computer resources" so that learning can be maximised (AAUW's Gender Gap, 1999 cited in Butler, 2000:229). However, as Selwyn argues, educational computing

research has generally overlooked the contested nature of technology, saying technology "at its best offers a number of options which determine the variable impact of technology on people. The students' interactions with IT are not as simple as the 'user /non-user' dichotomy constructed by much of the previous research." (1998:196)

Concern remains for the continuing gender gap in the selection of computing studies at school and in higher education resulting in female under-representation on computing courses, especially in higher levels of computing (Durnell et al, 1995; Clegg et al, 1999). As well as declining female enrolments in other countries, Clegg reports a drop from 28% in 1990 to 18% in 1999 in women's entry to UK computer science courses (Wright, 1997 cited in Clegg et al, 2000:123) and argues this is due to the continuing dominance of a male "cultural construction of computing", rather than women's lack of ability. These authors cite Siann's (1997) notions that women show a 'we can, we don't want to' approach to computing studies and suggest that IT courses combined with other subjects which "demand the exercise of highly developed inter-personal as well as intellectual skills" appeal more to women rather than the abstract knowledge implicit in computer science courses (Siann 1997 cited in Clegg et al, 2000:124).

Within the gender-segregated HEC colleges, the gender issues of access to computing resources are not pertinent, yet the access to types of computing courses is relevant. All the IT programs are applied courses linked to business, rather than computer science courses. However, the Business Information Technology (BIT) content is nearer the 'hard' end and focuses mainly on hardware, programming, networking and systems analysis and is available at all men and women's colleges. However, a Software Engineering program that has been running in the men's colleges for several years was previously considered unsuitable for women, but now is available at one women's college, due to demand from staff and, possibly, students.28 The Information Administration (IA) program, which focuses on software applications, communications and IT training skills, (similar to the ITC UK curriculum), is only available at the women's colleges, mainly because of its historical development from an office administration course, thus adding to the gendered picture of provision.

The issue of females as computing role models is partially pertinent, for example at EWC, out of six instructors on the BIT program only two are women and yet on the IA program which deals with the 'soft' ITC content, the majority are women, giving a stereotypical image of women in software and men in hardware.

Nevertheless, IT courses at higher diploma level are popular at the women's colleges and, after a year in Foundations studying general education courses and building up their English Language abilities, students choose between English-medium career programs in Business Administration, Communications Technology, Health Science and Information Technology. Therefore, at some point, the students in this study have had to make the decision to increase their knowledge, skills and understanding of information technology. Having made a decision to study advanced IT,

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[28] HCT Catalogue, 2000

students then select either BIT or IA as their major. This decision is important as it may affect aspects of the future such as employment, further study or even life at home.

Unlike the girls reported in various reviews above, the case study students did not appear to view computing as a male domain and a male-oriented culture, or did not openly acknowledge the concept. The IT programs at HEC are always over subscribed and they remain the most popular career major as illustrated in Table 2d which shows that 53% of the total female graduates for that year, (n=959), graduated in information technology.

Only one IA student, Iman, a 2nd year student, acknowledged a gender bias in the IT content when interviewed:

Interviewer	Why did you chose IA and not BIT?
Iman	I think IA is more helpful to my work not BIT ..and I don't like to go and study the hardware. I think it's for men more than women. And I feel ((thoughtful)) it's like interesting when I sit and using software rather than hardware

However, at home, most of the girls thought that their mothers were not interested in computers as students talked about sharing the computer with fathers, brothers and sisters but only Nour mentioned that her mother was computer literate. This concept of a gendered generation gap in computer use is not unique to Emirati society as Facer et al (2001) reported a similar situation, but, in the UAE, results more from a lack of access to education and isolation from the work force of previous generations of local women.

Interviewer	Who has the most knowledge about computers in your family?
Nour	Father mother and sisters or the whole of the family .. My mother is also computer literate .. father does not use computer at home.
Samah	My father is taking some courses in his company and also my brother and myself but my mother she doesn't use the computer.
Interviewer	And is your mother computer literate? Does she use the computer?
Mona	She doesn't care that much.
Interviewer	She doesn't use the computer?
Mona	No.
Interviewer	Is there anybody else in your family with negative feelings about the computer?
Alya	( ) My mother a little bit ( ) I tell her no I want it I need it for the college and she said it's OK but she doesn't' know that much about the Internet and the computer .. you know she is just staying at home she is a

> housewife . but my father he is head of TV station so he know everything about these ..

The main reason given in the survey responses for choosing an IT major of either Information Administration (IA) or Business Information Technology (BIT) was that students *"liked using computers"* (see Table 4a). Just over half the study population, 55 cases equivalent to 52%, (N=106), reported that their affinity with *using* computers influenced their choice.

Table 4a   First and Second Reasons for Choosing an Information Technology Program
        – total population. (*Sorted in descending order of N of cases of 1st reason*)

Questionnaire item	1st reason		2nd reason	
	N of cases	% total study population N=106	N of cases	% total study population N=106
I like using computers	55	52%	19	18%
The career I want needs computer knowledge and skills	13	12%	17	16%
I like computing subjects	11	10%	25	23%
I'd get a better job than if I chose a non-IT program	8	8%	16	16%
I don't like the other programs	7	7%	14	13%
I don't like the teachers on the other programs	3	0%	0	3%
My sister or family relative has taken an IT program before and recommended it	0	0%	3	0%

Table 4a does not include those questionnaire items that received nil responjse nor the NAC (not answered correctly) responses.

All other questionnaire items received much lower responses, as shown in Table 4a. Only 11 cases, equivalent to 10%, (N=106), reported that their liking of *"computing subjects"* was the *main* influence on their decision, with only a further 25 cases i.e. 23%, giving it as a second reason. However, the students may have had difficulty in interpreting the item wording and distinguishing between the practical computer applications and discipline areas referred to in the items, 5a and 5b *(See Appendix C)*. Nevertheless, of the students interviewed later, not one person named a specific computing *subject* affecting their choice, which suggests that either the subject areas played little part in their choice of program or they were uninformed about the program content at decision-making time.
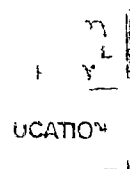
The following Table 4b presents the reasons for choice in separate year cohorts and the two IT majors i.e. Information Administration (IA) and Business Information Technology (BIT). Throughout the findings, the cohorts are referred to by the program abbreviation followed by the year e.g. IA2 represents the second year Information Administration group; BIT3 represents the third year Business Information group. Individual cases are given a name, followed by their program and year group, e.g. Mona, IA1.

Table 4b   First Reason for Choosing an Information Technology Program –
                year cohorts divided into study majors

| Questionnaire item | 1st year cohorts | | | | 2nd year cohorts | | | | 3rd year cohorts | | | |
| | IA (N=14) | | BIT (N=20) | | IA (N=13) | | BIT (N=12) | | IA (N=32) | | BIT (N=15) | |
	N of cases	% cohort	N of cases	% cohort	N of cases	% cohort	N of cases	% cohort	N of cases	% cohort	N of cases	% cohort
I like using computers	5	36%	13	65%	7	54%	7	58%	14	44%	9	60%
I like computing subjects	1	7%	3	15%	0	0%	0	0%	4	13%	3	20%
The career or job I want needs computer knowledge and skills	0	0%	1	5%	1	8%	3	25%	7	22%	1	7%
I'd get a better job than if I chose a non-IT program	4	29%	2	10%	1	8%	0	0%	1	3%	0	0%
I don't like the other programs	2	14%	0	0%	3	23%	0	0%	1	3%	1	7%
I don't like the teachers on the other programs	1	7%	0	0%	0	0%	2	17%	0	0%	0	0%

Table 4b does not include those questionnaire items that received nil responjse nor the NAC (not answered correctly) responses.

In each year cohort, more BIT students indicated that liking *using computers* had a greater influence on their selection than the IA groups. This suggests that BIT students have a stronger affinity with computers, especially in the first year, but in either programs, very few students thought program *content* influenced their choice, bearing in mind the limitations of the item language mentioned above.

At interview, students were asked to expand on their choice. Abeer, BIT3, chose her major because of specific computing activities, "I like programing and creating programs" and also mentions a particular interest in the technical side of working with computers:

> "I'm interested in how computers work and how they function 'cause I would like to be able to create my own system as well as have a good career".

On the other hand, Iman, IA2, clearly differentiates between the two program's content, stating that she chose IA specifically because of a *dislike* for technical studies and expressing more affinity with software applications.

Interviewer	Why did you chose IA and not BIT?
Iman	I think IA is more helpful to my work not BIT ..and I don't like to go and study the hardware. (... ...) And I feel ((thoughtful)) it's like interesting when I sit and using software rather than hardware

4.1.1. Conception of the Nature of Computer Studies

The students interviewed appeared to have quite a clear understanding of the nature of computing studies as consisting of different aspects of computing: generally known as the "hard" and "soft" ends (Clegg & Trayhurn, 2001). When making their choice of major, they correctly conceptualised the hardware, programming, networking content of Business Information Technology (BIT) as nearer the 'hard' end of computer science and the Information Administration (IA) program, which focuses on software applications, communications and IT training skills as situated at the "soft" end. The students perceived the "hard" end as requiring a higher intellectual level with technical aspects that needed a more theoretical delivery and memorising of information with less delivery and assessment through practical projects. They conceptualise the "soft" end as easier, more practical, task-oriented and relevant to general use, both at work and in the home.

Mona's ideas come from her peers who told her that studying BIT is a more theoretical experience compared to the practical experiences she associates with IA.

Mona	First of all I wanted to study BIT but unfortunately my marks in Foundation didn't allow me to join it .. that's why as my second choice I chose Information Admin .. but in fact Information Admin is also a good choice because I like know what's new in the software field .. I think it's better than and easier also than

fixing computer with wires and stuff

Interviewer   So what do you see as some of the differences between BIT and IA?

Mona   What I see at the moment is that from what I study now also ( ) what BIT students told me is that all their study is related with the text books and they memorise things but about us we do practical things .. we do projects.

Although the figures in Table 4a and 4b above do not indicate a great awareness of specific computer subjects influencing decisions, the *practical* nature of IT subjects and the ways in which the technology could be used were considered important, as the following comments by two IA students indicate:

"I chose IA because it depends more on practical work rather than studying from books."

"I like to use computers in my free time to do like brochure and invitation cards banner for my nephew (for) his birthday so ( ) I thought that if I joined this program I will do more and I will create things like this ."

This theme of practical usefulness was endorsed by several IA informants (both at interview and in written comments on the questionnaire) who saw the program as an opportunity to use MicroSoft applications:

"I love using the computer using the Office 2000 or the office 97"

"How to use the software Office better."

"Mainly working with computers and working with the latest software which I like to have the knowledge about it."

"I'll be good or I can say expert in all software in Office and everything .also in management . two in one .. software and management".

The comments indicate an identification of the IA curriculum with usage of MicroSoft commercial software that has been installed in all computer laboratories and learning centres across the HEC system, rather than other software manufacturers. Thus students perceive their information technology learning as mastering this particular software and they may be being influenced to use the computers in ways that are preordained by specific software manufacturers. (Murphy,2001; Engels, 2000).

4.1.2. Affinity With Computers

Both the quantitative and qualitative data clearly illustrates the students' liking of computers but it is closely intertwined with a perceived practical usefulness of the technology. It is difficult to separate the two concepts because those interviewed tended to talk about both in the same sentence.

Nour (BIT3) and Amani (IA2) both express their affection openly for the computer in a playful, possessive way, personifying the machine in human terms.

"I'm in love with computer [(laughter)." (Nour)

"Actually I love using the computer .. computers are intelligent things that the human invented." (Amani)

Others use the words "love" and "like" for the computer and for its use interchangeably, probably because there are not two different words in Arabic to express this sentiment, so when translating into English they do not distinguish "love" as a stronger emotion:

"I love computer and I love to learn the programming I love to learn what software is."

"I like to use computers in my free time to do like brochure and invitation cards banner for my nephew (for) his birthday ..."

"I love using the computer using the Office 2000 or the office 97"

Underpinning this affinity stemming from their *use* of the computer, is a concept that they are learning something, not only *with the* technology but *from* the technology. Pea (1993:51) uses Gibson's definition of *affordance* when referring to this concept as "the perceived and actual properties of a thing, primarily those functional properties that determine just how a thing could possibly be used". Students like being able to perform the tasks that computers afford them and whilst doing these tasks, such as word processing, they perceived themselves and other people as being helped to improve their cognitive abilities. Pea suggests that computer tools serve as "reorganisers of mental functioning" and that "what humans do in the activity changes when the functional organisation of that activity is transformed by technologies" (1993:57). For example, by using a word processor instead of pen and paper to carry out a writing task, by using the autochecker, or a document format, the way the user thinks about the writing process can be changed by the technology (Richardson, 2001). Amani thinks such affordance is a vehicle for changing people's attitudes towards computers and Lina views it as a facilitator:

Amani   Even the people before used to have a negative . used to say that computer is unuseful they change their mind now .. when they need something they discover that the computer helps me to do this kind of thing produce a report or something . they change their mind .

Interviewer   Why do you like computers?

Lina   Because it make my work easy because I'm writing poems and writing stories ..so it's better for me to write it in computer writing in hand .. [I have to] write it again in computer so I write it direct.

4.1.3. Practical Usefulness Linked To Tasks And The Role Of End-User

At interview students describe clearly how they use computers as administrative tools through the business-related content of their majors and thus conceptualise computing "as a skill to be practised rather than simply the application of logical, rule bound procedures" (Stepulevage &

Plumeridge 1998 cited in Clegg & Trayhurn, 2000:125). They view themselves as "end-users" of the technology, a role that requires a set of practical skills which their IT studies are providing.

The students are still constructing the meaning of their role as end users of computers as they progress through their studies and they probably have not reached the stage that Davis (1993) defines of "perceived usefulness": "the degree to which an individual believes that using a particular system would enhance his or her job performance". Davis' empirical research found "perceived usefulness" to be the dominant factor in an individuals' technological acceptance and was 50% more influential than any other factor in determining usage (cited in Selwyn 1998:207). However, Davis referred to adults at work, rather than students undergoing computer training.

Samah, recently returned from her period of work experience, has begun to make the link between her studies and job performance and her role as an end-user.

> "In fact it was nice to find out that what we had learnt at the college was really useful and actually applied in the work placement activities."

Of the twelve students interviewed, only two, (Iman and Fawza), were employed by local companies whilst two others (Lina and Mona) had previously been employed, thus students' understanding of such "perceived usefulness" related to their job performance may not be so developed. However, Iman, who with Fawza is on study leave, did see the link between her role as an end-user and her computer learning:

Iman	( ) It is good for my work and because you know when I came here I learn lots of things so when I go [back] to my work I will change for example the system. ( ) I will do some presentations for my division because sometimes the visitors come and there's no PowerPoint and I have to make it ready and I will make brochure for scholarship ..I think it is useful because I choose this program
Interviewer	So you'll go back into the work and be able to contribute more?
Iman	Yea

The meaning of "perceived usefulness" to the students and acceptance of the technology has a wider remit and relates to computing tasks which are not necessarily work-related but are useful within the family.

| Amani | I use the computer in many things like using the Office 2000 or the Office 97 before creating documents working with Powerpoint ..not only for the school for the college even for my own interest sometimes I do something for my brothers or my sister or my cousins .. |

4.1.4. Career Opportunities

In contrast to the majority who studied IT because they liked using computers, only 13 students, i.e. 12%, (N=106), said their choice was mainly linked to their desired career or job, with even less, 8 cases, i.e. 8%, thinking they would get a better job having studied an IT major than another discipline.

Although Table 4b indicates that there is some growing awareness of the benefits of IT job-related skills as the IA students progress through their studies, this awareness appears to decline with the BIT final year group at a time when they would be more likely to link their IT abilities with possible job opportunities. This decrease may be related to marriage plans after graduation. However, the small number of cases linking study choice and job prospects cannot be interpreted as representative of the total population.

The results of the survey suggest that the students are mainly motivated by an affection for the practical computing tasks that they think will result from their IT learning rather than any specific jobs they could access. The lack of influence of job prospects may be due to their lack of knowledge about careers available and the job skills needed for particular work. Economic participation by Arab women is reported to be the lowest in the world[29] and EWC careers counselling services are under development, thus the women may have little knowledge about the work environment. Although 66 cases, i.e. 62% of the study population (N=106), stated that it was "very likely" and another 28 cases, i.e. 26%, that it was "likely" they would go out to work, they also intimated that this decision was not under their control, thus planning for a specific career may not be a priority.

This lack of career information was reported by the Under-Secretary at the Ministry of Labour and Social Affairs at a local conference, when he compared the UAE situation with US youth who "have more career insight than their UAE counterparts because they have more access to career information, better employment opportunity and more parental involvement in career planning.[30]" One difference between the two youth groups is that US students often work to pay for their studies, whereas UAE higher education is free and few students need to find work.

When questioned about job preferences, except for the two interviewees who were on study leave from employment, only one student had a career in mind, again suggesting that the women do not link IT studies with specific job possibilities. Alya's first year studies in IA appear to have had a strong effect on her:

> Alya   I have chosen this major because I knew that after I graduate I'd be a teacher so I'd love to be a teacher

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[29] Database:women in Business Middle East September 1-15, 1995
[30] Staff Reporter; "National Workforce with a Technical Edge" in Khaleej Times 24/10/01

Interviewer	Tell me why you'd like to be an information technology teacher
Alya	First because I like to deal with people . I don't just want to stay and dealing with files and stuff like that with computer I'd like to deal with students with people ...( ) I love this I love it I really love it ((said passionately)) because I work and I'm doing my project all of these things I feel that it enjoyable so I want to teach these things
Interviewer	So have you wanted to be this a long time or since you came to the college?
Alya	Before when I was in school I said I would never be a teacher because all our teachers they said be everything except teachers hard working ,, but when I came to the college I have changed my mind .. I said ..there is no job without hard . without a bit of pain so now I've chosen.

4.1.5. Personal Affiliations

In this society where personal affiliations are strong, it is surprising that personalities have little influence on choice as shown in Tables 4a and 4b. The indications that family alliances do not affect study choice conflict with my personal knowledge that sisters often enrol in the same program.

Overall, the qualitative data suggest that students are motivated to study IT mainly because of an affection and affinity for *using* the technology that has resulted from their previous experiences with computers at school, home or work. This is closely associated with a pragmatic attitude to computers in everyday situations and the practical abilities for word processing and other software applications is valued by these young women which is supported by various studies (Siann et al 1990, Durndell et al, 1995). Yet, despite the fact that most women students expect to find employment, the advantages of computer technology on job prospects does not have a major influence on their decision-making.

4.1.6 Modernising Effects

At interview, when asked to expand about her choice of major, Abeer, BIT3, recognises that seeing films about computers and her school experiences were strong influences, supporting Martin's (1991) work that suggested a liking for working with computers tends to be related to school studies.

> "I loved computers since I was in grade 9 ..I was watching movies everything was about computers so I was learning about computers by watching only and then we had some classes when I was in grade 10 and 11 and I was doing my test in my

> part time in school I was going (to) the computer rooms and learn sometime about
> it. But it was only basic things small things but when I came to college it give me
> more information and I take some courses outside and it's really helped me a lot".

She conceptualises computers as something modern through which she can access the modern world. Her ideas about computers link with the glamour of movies, possibly the fantasy world and the stories woven around their abilities and the people involved. Lina also views the computer as something almost magical when she says:

> "You wake up and you can just click one click and the computer's open
> and will guide you .."

Abeer refers again to the glamour and excitement she feels when describing the networking part as "cool" – a term used by adolescents when describing something modern.

Abeer	I like computers I like dealing with it and working around opening it and plug in the cards and play it was an interesting subject especially the networking part it was really cool ..we enjoy it ..cabling and cut the cables as if we are technician and put everything inside it was nice.
Interviewer	So has it met your expectations?
Abeer	Yea it did and now I learn many things .but computers it's not about [what] you learn today but tomorrow. It might be something more (evolving) so you have to learn the (evolved) part so each day it's different each day.

The underlying notion that computing is dynamic and provides her with changing experiences that keep her interested is obviously important to Abeer. Other students also see an image of the modern world in the dynamic and changing nature of the technology:

> "I like to know more about computers because it always change."

> "Most important technology now is computer."

> "I love to know new things and technology is developing quickly."

> "It means the future .."

Whilst the concept of computing studies being challenging and difficult appealed to others:

> "I like to take something challenging and it was the most difficult"

> ".. cos it's changeable subject and I like to be challenge (sic).

The girls have constructed personal understandings of computing studies but as the girls progress through their studies, are their initial expectations being met and are they aware of any gaps in the IT curriculum that they would like to be included? The following section reports on expectations and achievements.

4.2 EXPECTATIONS OF PROGRAM MET

4.2.1 Work Preparation

The HEC information technology (IT) course outlines are written in competency based terms aligned with work related knowledge and skills *(See Appendix K for examples)*. A method of assessing learning is to test the IT learning outcomes in the workplace, therefore all third year students undertake a 8-12 week period of work experience in local organisations and students expect to be placed in positions that relate to their majors. This work placement is seen as an important part of the IT curriculum because it enables students to apply their learning in an authentic working environment as well as gain experience of real life situations. This is particularly important to the Emirati girls as for many of them the work placement is their first experience of work as well as interacting with different nationalities, including national men outside their families.

Data regarding both 3rd year groups' impressions of work experience were collected from written reports that students prepared on return to college. Having requested the work placement reports from my colleagues, I was given thirteen IA3 reports, and six BIT3 reports. Questions about work placement were not asked on the questionnaire because it is only done by third years. Unfortunately, only a few of the reports collected were from students who had also been interviewed, but these three provided a good source for comparison of data to increase reliability of findings. Table 4c shows the data sources.

Table 4c   Data sources about work placement

	IA	BIT
Number of Work Placement Reports collected	13	6
Number of cases presenting Work Placement Reports and attended interview	2 (Samah & Fawza)	1 (Alya)

Standard EWC practice requires all students to offer suggestions in their reports for curriculum improvements. These can be taken as an indication of gaps in the IT curriculum, as perceived by the students when reflecting on their work experiences. The comments listed below outline these gaps identified by IA3 students:

1. Training on using MS Outlook
2. Courses in Flash since it is needed for Web Page design
3. Visual Basic
4. Some IT course such as "Java" and "Visual Basic"
5. By increasing the number of other courses, which might be helpful for us in the workforce for example Oracle, Visual Basics or Java.
6. I wish I can learn how to use new computer softwares like Oracle

7. I would love to improve my skills by learning more about networking (connecting printers, photocopiers, computers, etc.) and designing programs. These programs should be taught at college beside the other programs.

8. A serious networking course

9. Trouble shooting for us and provide a course that is part of IT department. We will be able to fix our computers

Comments 2 – 6 relate to learning software other than the MicroSoft packages around which the IA curriculum is based, software that are included in the BIT courses, as are the hardware and networking topics mentioned in comments 7 to 9. The IA students identified specific aspects in the IT curriculum they have not accessed that they feel their employers required.

Whereas the BIT students' recommendations were less subject specific, and related more to generic abilities, possibly indicating more satisfaction with their computer studies content.

♦ Skills that should be taught more are communication skills and there should be classes for students on how to deal with stress and panic

♦ I would recommend that the college give more information to the companies about each major's curriculum because that helps when preparing the work plan for students

♦ The internet is the key to success in the IT world which is changing every minute therefore I suggest the college update the courses. I think IT students should know how to develop a Web Enable System.

♦ I believe Arabic typing skills should be taught at the college.

These work placement comments give some indication of gaps in the IT curriculum as perceived by some 3rd year students but they may not represent the views of the whole case population.

Samah, IA3, views her IT studies in her written report as very relevant to real work:

"In fact it was nice to find out that what we had learnt at the college was really useful and actually applied in the work placement activities."

4.2.2. Experience of Personal Growth

As well as discovering the link to real work, Samah also sees the experience as an improvement of her personality, illuminating her concept of personal growth that has resulted from her studies:

"The most helpful skills that I have learnt in the college are the teaching and presentation skills. Throughout my studies at the college I have learnt how to use time efficiently and productively. Also I learnt how to plan ahead and prioritize task. In fact I have developed a number of personal qualities at the college ..decision making, confidence, assertiveness, communication skill etc."

On further questioning, Samah clarifies her personal growth notion by saying that through her study experiences she will become a different person; more confident and communicative, and that she specifically chose her IA major because she was aware of her development needs:

"I've heard that the student will be able to be more confident for herself
and communication skills will be increased and I need that for myself
because I saw that I'm very weak in communicating with the people .. so
I need to be more confident about myself that I can speak and that I can
communicate with everybody .. and also I have already the ability of
using the computer and I like (   ) having computer skills."

Tazha also relates her study experiences to work through the development of useful abilities other
than computing but realizes that these may be achieved through any study program, not only IT.
Her idea of personal growth is closely linked to the practical usefulness of the course:

Tazha   It was many skills for example communication ..teaching skills I was
             explaining some things ..presentation skills time management
             interpersonal many skills I gained from the IT I don't know if the same
             skills are the same in all the sections or the majors but I'm talking
             about the IT .many skills I used in my work placement.

Thus the students' conceptualisation of IT studies are not all about developing computing abilities
by learning through doing practical tasks; those questioned clearly perceive a broader personal
development, not just becoming computer experts. However, their studies are not totally meeting
their expectations:

Interviewer   Now that you've almost finished your study have your expectations been
              met or not?

Samah   *Not fully hundred per* cent but at least I ( ) what I want to be

Interviewer   When you were at work placement how well do you think your IT study
              prepared you?

Samah   The work placement experience give me the chance to feel the real work
              environment and to carry responsibility more in the work and I have to
              do things professionally ( ) so that was a good experience for the
              student to be in the work placement

Interviewer   And had your study prepared you fully to take that responsibility?

Samah   Not fully because some of the subject that in the program doesn't match
              what in the work placement because what they think is not what our
              program or the requirement doesn't match the work placement.

Interviewer   Can you think of any particular examples ..?

Samah   "They thought that we are ( ) programmer students so we have to do
              some sort of programming software but we don't know how to I mean we
              don't have any knowledge about the codes or html language .. so we
              somehow we apologise and we thought of giving them another thing ( )
              and to also to practise our skills."

Samah identifies a problem that employers are not aware of the differences in the IT curriculum of the two majors, BIT and IA. This appears as a consistent theme in the written reports especially with IA, where students were seen as computer studies students rather than having ITC abilities:

Fawza also mentions this problem, as did other students either at work placement or through their expectations of the majors.

> "The college should give the Information Administration students a networking course because the company thought that we have an idea about BIT program and according to that, part of the orientation program was about networking. I (enjoyed) it but I faced some difficulties in understanding some phrases, as I do not have any background about networking."

Hala   ... when I was working with the my supervisor was programming programmer and he asked me to do you know something more relative to programming but I didn't know how to do it ..he explained to me but still I don't know the basics that's why I couldn't continue .. then he gave me something else to do.

It was not until the students went on work experience in their final year, however, that they began to realise that employers' notions of information technology abilities were more aligned with the "hard" end of computing rather than towards the IA students' software end-user abilities, causing some disappointment and frustration. The students' understanding of their IT studies then changes to a less satisfactory picture as they begin to conceptualise their studies as deficient in several areas, especially the IA group, who, because they enter work experience labelled as information technology students, they were expected by some employers to have a different range of IT knowledge and abilities.

Lina, IA2, has overcome these differences between the programs by combining her studies outside and inside the college, showing a high level of initiative, effort and commitment to improving her education. She is the only student in the sample expressing critical views about her IT studies, possibly because of her wider experiences of studying:

Interviewer   Do you think that your studies were as you thought they were going to be?

Lina   No ((laughter)) a little ...maybe because when I entered the college I was intending to go to the BIT section

Interviewer   Why was that?

Lina   Because most of the work is in hardware programing .. I like to do programs but when I was with my friends they told me why you don't go to Information Administration I told them what is it and we go to the IA Centre and they explained for me what it about all softwares .. so I made up my mind to enter the IA here and outside the college I will enter the IT ..the BIT

Interviewer   And how do the two parts of your study outside college and your study

here fit in to what you want to do later?

Lina Information administration is all about the software while the information system is all about the hardware .. how to program how to create things but some of the subjects are related together so I know most of ( ).

Interviewer You said that you used programming languages at home so how has your study helped you to be able to use programming languages?

Lina Maybe because I study in Ajman University I study the C and C++ and I study the Prologue and the coding in html ..very deep in html .. when I come here it help maybe in E-commerce doing the FrontPage because I use the coding rather than FrontPage

Interviewer So you are in fact getting the benefits of both the hardware and the software side of things

Lina Right.

Hala, IA3, is the only other student who also sees the need to enhance her IA studies:

Interviewer Have your study expectations been met or not?

Hind Somewhat because I wanted to study more programming softwares but ( ) I'm planning to join some institution to study some programming .for example ( ) it's part of the IT department something important in the IT program

Despite the perceived gaps in the curriculum, interviewees expressed a high level of satisfaction with their program. Tazha IA3, Abeer BIT3 and Iman IA2, (who plans to return to her job), clearly enjoyed studying IT whatever the focus and appear satisfied with their decision:

"I gained many many things from the IT working in Microsoft Office and other softwares which we get at the beginning of this year .. it's really a nice program I gained many informations from it." (Tazha)

Samah's comment in her work placement report sums up the mostly positive attitudes that the students expressed in their written reports and at interview towards their IT studies, which is interesting if, after graduation, many young women do not enter employment, as the national statistics suggest:

"In my opinion, education system in EWC has been a successful program in preparing the students for the business market in the country." (Samah)

This positive attitude is supported by an HEC survey of the graduating year 1999-00 (males and females) as shown in Chart 4d below:

Chart 4d   Working Graduate Satisfaction with their Academic Preparation

Working Graduate Satisfaction with their Academic Preparation - Graduating Year 1999-00
Total # of Graduates = 845

- ☐ Very dissatisfied 1%
- ■ No data 1%
- ☐ Dissatisfied 4%
- ■ Very satisfied 34%
- ■ Satisfied 60%
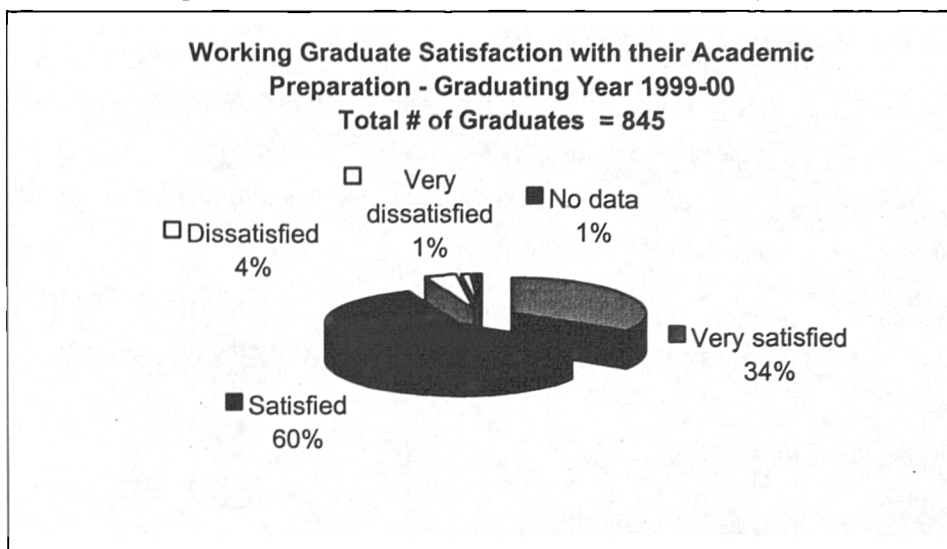
4.2.3   To Stay at Home or Not

Although the vast majority of the women said they were likely to find employment and were enthusiastic to use their education in this way, the labour market statistics and anecdotal evidence from recent EWC Alumni gatherings suggest that many leave the job market soon after graduation, often when they get married.

The interviewees' comments show that such decisions are not under their control and, according to custom, are in the hands of the future husband and his family. All those interviewed appeared to accept the status quo in decision-making when either their own family or their in-laws made decisions for them. However, these family arrangements are culturally sensitive issues and were not open to further discussion within the context of this research.

Mona, a first year student, believes strongly that the study experience is a pathway out of the home for girls:

> Mona   I don't expect any girl any women to study and get her higher diploma
> (..) and she staying at home [strong conviction] because the reason for
> me coming to HCT (..) and then I'm not here to study four years of my
> life study four years of my life and then stay at home ..

Yet if many graduates do not find employment outside the home, what do the girls think about continuing study or even working from home? Would they welcome the proposed HEC initiatives regarding distance education which will result in some courses and, eventually, whole programs being delivered on-line?

A questionnaire section elicited student views about studying on-line from home. Besides anecdotal evidence from colleagues, I am aware that all the study population have experience of on-line delivery as part of their full-time studies. However, the plans to deliver some courses

completely on-line would result in part-time college attendance. Thus the issue of whether students would prefer not to attend college is pertinent and non-attendance may have a considerable impact on their lives and the lives of their families.

The study population is clearly divided in half on this issue as shown in Tables 4e and 4f, with a small majority of women preferring to study at home. However, more students think their families would prefer them not to come to college, especially the IA families, denoting potential conflict of interests between the women and their families.

Table 4e   Preference for on-line delivery at home – IA and BIT
(Discrepancies in totals caused by NAC (not answered correctly) responses.)

Q. Would you prefer to study on-line so you would not need to come to college?	IA (N=59)				BIT (N=47)			
	Yes		No		Yes		No	
	No of cases	% of cohort	No of cases	% of cohort	No of cases	% of cohort	No of cases	% of cohort
Student preference	30	51%	29	49%	24	49%	23	49%
Family preference	41	69%	17	29%	24	29%	18	38%

The figures in Table 4f indicate the IA groups growing preference to study at home as they progress through their studies until a majority prefer home study in their final year. This could indicate a genuine preference, disillusionment with college or acquiescence to family pressure about their futures as graduation approaches. Three-quarters of IA 2 and IA3 think their families would prefer them to study at home, possibly because of increasing parental anxiety about not being able to control their daughters' activities which may affect their reputations and influence their marriage prospects. BIT yearly figures are more stable but Table 4g also shows this increase in family preference for BIT3, suggesting that family views towards college change as graduation approaches.

Table 4f   IA students' views about study on-line

(Discrepancies in totals caused by NAC (not answered correctly responses.)

	1st year IA (N=14)		2nd year IA (N=13)		3rd year IA (N=32)	
Q. Would you prefer to study on-line so you would not need to come to college?	Yes	No	Yes	No	Yes	No
	No of cases	No of cases	No of cases	No of cases	No of cases	No of cases
Student preference	6	7	6	7	18	15
Family preference	7	7	10	3	24	7

Table 4g   BIT students' views about study on-line

(Discrepancies in totals caused by NAC (not answered correctly responses.)

	1st year BIT (N=20)		2nd year BIT (N=12)		3rd year BIT (N=15)	
Q. Would you prefer to study on-line so you would not need to come to college?	Yes	No	Yes	No	Yes	No
	No of cases	No of cases	No of cases	No of cases	No of cases	No of cases
Student preference	10	10	6	6	8	7
Family preference	9	8	6	5	9	5

The few interview responses about online learning were brief such as Nour who only has a vague idea about the concept whilst Abeer shows more knowledge, giving a relevant example of distance learning and sees it as a way of continuing her studies, with her husband's permission:

"For me it's like a school on line it isn't lecture ( ) is that the idea?" (Nour, BIT3)

"I saw one on CNN on-line training he was in China and taking classes in America it was really cool and I find it interesting because I was thinking of doing that because I cannot fly over there and do it. So I do it here and I ask my husband he says OK see if there are university that are doing this and if they agreed on you ( ) why not?" (Abeer BIT3)

Lina may have more idea of interactions needed in the learning process which home study lacks:

"It's good for the people who do not like to go outside but we cannot survive without the teacher because if we need explanations we can go to speak with them while in the Net there's no any communications just the computer and you and the person who is on the othe line. So it will be better it has

advantages and disadvantages." (Lina, IA2)

Although only these three students were specifically asked about their views of online learning, more were quizzed about where they preferred to study and about their families' views on this subject. Nour, one of the eight BIT3 cases (N=15) who preferred college, identifies social reasons for attending:

Interviewer	Would you welcome being able to spend more time in the home rather than coming to college?
Nour	No I prefer coming to college
Interviewer	Why is that?
Nour	Socially it's (better) ..stay at home all the time you get bored and on the way from home to college you face many things like I said something to change (your) whole day at home ( ).

Although she prefers studying in college, she accepts periods in her life when she may remain at home. Alongside Hala and Iman, both IA2, she sees the Internet as her access to study:

Interviewer	How could you use your learning your IT learning if you were not going out to work after graduation?
Nour	I have to take courses because ...I have access to internet
Interviewer	You would expect to continue with your studies even if you were at home?
Nour	Maybe I stay at home for one year two years it doesn't mean that I'll stay at home for my whole life.

Interviewer	Do you think that your life at home has changed since you got a computer at home?
Hala	Yea I think it played an important role in my life and I can't nowadays live without Internet you know before when I feel bored I go to the Internet ..explore and I'm studying ( ) you know 2 days (ago) there is a ( ) free site where you can learn flashing and yesterday was my second lesson to show you how to use flashing and you know its very nice and I'm practising and I got the like the manual the handouts and they give me quiz
Interviewer	So you're studying? And that's the software Flash? ( ) And that's to make webpage?
Hala	To make webpage yea
Interviewer	I think we have it in college
Hala	We have the Flash and I don't know how to use it ( ) and if you join this site they will give you maybe 100 lessons and you go lesson by lesson you can't jump to the third lesson unless you pass the second and you have an account ..very very nice.

Iman (IA2) is unusual because even though she is on study leave from work she says she and her family would prefer her to study at home:

Interviewer   Can you tell me why you would prefer to take some of your courses at home?

Iman   I like for example here in the college and they offer the courses on line I can ...at home study without coming here for example sometimes I might be sick I can continue studying ( ) without missing anything so I would prefer it and also before I came to the IA when I was confused which major I have to go I also think after 3 or 5 years they may offer work at the Internet so it would be useful at that time to stay at home with my children ((laughter)) at that time I don't know my future ... I can work through the Internet

Interviewer   You said that your family would prefer it if you were studying at home?

Iman   Yes my parents prefer it because before I came also to the college I spoke with my father about this some colleges outside of the UAE so he really agreed about this idea and he told me go ahead if you can do it but at that time I don't have more information about the Internet and how can I do this ( ).

I think they will accept it also because for example if other lady and she's married and her husband also would prefer ((her)) to be at home rather than go to the college ..for lady it's better to stay at home to cook or take care of the children the house rather than go out.

Interviewer   And you agree with these views? You'd be quite happy?

Iman   Yea I can work and I can cook and come to the Internet. I can do my work ( ) and do searching for example in the Internet

Interviewer   Did your family have any worries about coming here to college?

Iman   No but they prefer it (study at home) because it's a new idea and ( ) because most of the colleges offer now studying on intern(et) ..studying on the line. ( ) and at that time my mother was sick so my father prepared to stay at home me and my mother.

Lina, also IA2, says her family wants her to stay at home to cope with her domestic duties and that they would even go as far as buying a computer for her to persuade her, but she appears in control her own decisions:

Interviewer   In the questionnaire you said you would prefer to come to college but your family would prefer you to study at home. Can you tell me a little bit more about why they'd prefer you to study at home?

Lina   Maybe because I am ((laughter)) having a high responsibility at home so anything that happens in the home is my responsible so they will think it's better ..they will provide everything for me in home computer the Net everything just to not let me come here but ( ) it's my own decision

Amani, BIT/IA2, already has experience of home study and she also is responsible for her own decisions. Lina and Amani are the two oldest case students, so their maturity plus their unmarried state may give them more control over their actions.

Interviewer	You said you would actually prefer staying in the home and doing some courses. Can you tell me why?
Amani	I search a lot in the Internet and they offer like Internet education ..we can get a diploma or certificate from the Internet when I enter one of these sites it's like but without the teacher but it's like giving us the handouts and the exercise and everything so I studied and also they give me a special password like this so I do my exams .at the end of a period of time they will give me a diploma ..like we are implementing this year in our college like we used to doing in our presentation we ( ) enter the Internet to do our work inside the Internet so it's useful
Interviewer	And what do your family think about that sort of study? Would they prefer you to stay in the home?
Amani	It's my own decision because ..they give me my own responses to do anything at home and also my father he let me take some courses so I already took some courses ..I took Visual Basic some of English courses FrontPage courses some of the courses which I'm interested on.

Mona, IA2, is indecisive about her preference but accepts the idea in principle:

Interviewer	If there is a possibility of putting some courses on line so that you can study at home, would you prefer that?
Mona	It depends on my time whether I have time or not and also what type of course ..then I'll choose but it's fine with me.

Alya's experiences of interacting with teachers and IA peers during her first year at college have changed her mind already about studying at home. Interestingly, it was her parents who persuaded her to enter college rather than study from home:

Interviewer	What is your opinion if there was some study you could do at home?
Alya	You know when I was in the high school I said I like it because I only when I came from school I spend my whole day just studying .so I said to my parents(..) I want to do this but they said no be in the normal way but when I came to the college I said the atmosphere was very nice you know you meet your teachers you meet your friends ..if you have a question you can go and immediately to your teacher and ask them like that but even I think I can do studying on line it's OK
Interviewer	But you like coming to college to meet people and to communicate?
Alya	Yes

Tazha, IA3, expresses indignation about staying at home, where she can socialise and be part of a task group. However, she accepts that when she gets married she will stay at home where on-line delivery could be beneficial:

Interviewer	Would you welcome being able to spend more time at home rather than coming to college?
Tazha	( ) better than home sitting at home? what can I do sitting at home?
Interviewer	Why do you like to come to college to study?
Tazha	I like to contact with people ..I like ( ) contacting with people is the best thing comparing it with sitting at home and only watching the TV and that's it. I like to have something to do ..I like when people say for me go and do this job
Interviewer	If part of your learning were put online so that you could take some units at home, what are your thoughts about that?
Tazha	If I'm married I would say for me it's perfect because I have to manage my time studying doing my works and for example if I have children taking care of them but as a girl now without doing no more thing nothing to do no I prefer to come here and do my work here at college
Interviewer	From what you're saying are you assuming that you will stay at home when you get married ?
Tazha	Yea
Interviewer	And not work ?
Tazha	Yes
Interviewer	Who will make that decision?
Tazha	My husband ((laughter))

Although there are considerable differences of opinion about the benefits of on-line delivery and the consequences of studying at home, none of the case students have experienced full-time home study, so their views are taken from limited experience and do not take into account the many issues that surround full-time home study, such as the social isolation, the time management aspects and the lack of face-to-face interactions. This is an area for further investigation, if the HEC distance education plans come to fruition.

This section illustrates some of the contradictions in these young women's lives and the tensions between their own interests and those of their families. The majority appears to accept the influence and control from fathers and husbands, but those who do not marry at a young age, have more autonomy about their actions. On-line delivery is recognised as offering many benefits to women attempting to balance domestic duties, care of children and maybe work commitments, but these advantages may take away the freedom that these young women have gained through

entering "public spaces" such as college and work, by returning them to the private world of the home.

If our young women return to the home to study, how will they be able to achieve successes similar to their college experiences, without exposure to the stimulation of the daily social and cultural interactions experienced at college? Do our EWC students have the resources available and accessible to them at home that would allow them to take advantage of on-line delivery? How many of the homes are Internet-connected and would the young women be allowed access to vital information sources? Is the private world of their homes conducive to on-line delivery and to study?

The following section compares the current literature about home computers and their potential as an educational tool with the case students' domestic situation, with a view to discovering whether or not the home with technology is an enabling or restricting environment for these womens' progress.

4.3   USE OF ICT IN DOMESTIC ENVIRONMENT

The purpose of current UK and US educational policy regarding information technology is to prevent "haves and have-nots" in today's technological society. Initiatives centre on providing access to hardware and software in schools, although research shows that this does not necessarily mean that children actually gain access to these computers (Valentine & Holloway, 2001). The UAE government has similar concerns and an initiative entitled the "Sheikh Mohamed Project" is currently underway with directives to provide all UAE public schools with a computer laboratory equipped with the latest technology. EWC is modern higher education college located in a purpose-built enclosed campus, where there are 24 state-of-the-art computer laboratories plus independent learning centres equipped with modern computers and peripherals. Each IT group is scheduled for most of their college time in one specialised computer laboratory where they have tuition and independent learning time, so students can access computers as needed, therefore, at college, the girls are definitely "haves".

As well as this access to college computers, 100% of the case students (N=106) reported having at least one home computer readily accessible. However, at interview, informants describe people within their families who fit into the category of "have-nots" who may have computer access but who do not have access to the learning that enables them to use it, possibly due to lack of opportunity for education or restrictions placed on them from within the family.   How this aspect impacts on some case student's lives is explored later.

4.3.1   Frequency of Computer Use

Whilst at home, the study population report frequent use of their computers as shown in Table 4h, with a majority using it daily, findings which were confirmed in the 2nd year diaries submitted by seven IA2 students. These figures are higher than Harris's (1999) research with adolescent students where 33% said they use a computer daily, with boys being more frequent users than

girls, although she reports there were no significant gender differences in the duration spent on each occasion of use:

Table 4h   Frequency of home computer use

Discrepancies in totals caused by NAC (not answered correctly) responses

Frequency of Use	IA1 N=14	BIT1 N=20	IA2 N=13	BIT N=12	IA3 N=32	BIT3 N=15	Total population N=106
	N of cases	N of cases	N of cases	N of cases	N of cases	N of cases	N of cases
Daily	8	14	9	6	17	14	68
Every 2 days	3	4	3	3	9	1	23
Twice a week	3	2	1	1	2	-	9
Once a week	-	-	-	1	1	-	2
Less than once a week	-	-	-	1	1	-	2

The only significant difference between the year groups is the fourteen BIT3 students out of a total of fifteen reporting daily use. Anecdotal evidence from IT colleagues indicates this high use is due to a final project, but the figures shown in Table 4i do not support this reason as more BIT3 admit they use the computer for entertainment than for study:

Table 4i   Purpose of Use

Discrepancies in totals caused by NAC (not answered correctly) responses

Purpose of Use	IA1 N=14	BIT1 N=20	IA2 N=13	BIT2 N=12	IA3 N=32	BIT3 N=15	Total Population N=106
	N of cases	N of cases	N of cases	N of cases	N of cases	N of cases	N of cases
Study	10	11	9	7	18	7	62
Entertainment	4	7	4	4	13	8	40

4.3.2   Purpose of Use

Whilst students admitted spending time using the computer for entertainment, the girls spoke more often about study deadlines necessitating working long hours at home. Although knowing they were talking to an IT teacher may have influenced the girls to refer to study rather than to entertainment, comparison between data sources confirmed the long hours spent studying.

"When I'm having a project I use it for example between 2 o'clock afternoon until 4 and the evening from 9 to 12 ." (Tazha)

"Most of the time is after six seven o'clock evening times cos I have to rest and things like that take care a little ( ) of my children and seven eight o'clock I start to work on the computer till one o'clock. ( ) When we're under pressure doing projects it's daily otherwise I don't even look at it" (Fawza)

"Every day actually ... I'm in love with computer [(laughter). Usually evening and later because you know I come from college in the afternoon and have some rest and start from evening." (Nour)

4.3.3   Main Home Computer Usage

Responses to the question "What are the 3 main uses of your home computer" are shown in Table 4j and the high level of software program use indicated could support student's assertions concerning time spent on study if the applications were for study-related tasks rather than entertainment. However, further questions were not asked about this usage nor regarding their perceptions of what constituted entertainment, that would have clarified this point. When questioned about the software programs used, MS Office was the most frequently mentioned by the IA students but other examples included Flash and MS FrontPage, whilst BIT students listed MS Office and Oracle, HTML, Visual Basic, Java and C++.

Table 4j   Main Home Computer Usage

Use	1st use		2nd use		3rd use	
	No of cases	% total population (N=106)	No of cases	% total population (N=106)	No of cases	% total population (N=106)
Using software programs	38	36%	26	25%	5	5%
Surfing the Internet for interesting sites	15	14%	16	15%	15	14%
Learning Software	12	11%	9	8%	9	8%
Using e-mail to contact people	12	11%	19	18%	19	18%
Using programming languages	9	8%	5	5%	5	3%
Downloading software to use	4	4%	4	4%	4	4%
Chatting in chat rooms	2	2%	2	2%	1	1%
Downloading music	2	2%	6	6%	11	10%
Teaching family how to use software	2	2%	1	1%	4	4%
Playing computer games	0	0%	4	4%	4	4%
Downloading pictures	0	0%	0	0%	2	2%
Listening to music	0	0%	1	1%	9	8%
Other uses	0	0%	2	2%	8	8%

Harris (1999) reported 77% of lower secondary school students (N=429) having access to a computer at home, yet less than half the number of girls (11%) had sole use compared with 26% of the boys   Although Wellington (2001) admits to an unclear overall picture of computing resources in British homes, he cites one of Sanger's survey (1997 cited by Wellington, 2001) showing that, in 1995, computers were available in 39% of households whilst a 1995 Inteco forecast predicted an increase to 47% by 1998, (mostly amongst high-income families), leaving a disturbing 53% of homes without access. However, these figures compared well with other European countries, reports Wellington, with Britain being "top of the home computer league"

(Olivetti survey 1997 cited by Wellington, 2001). He concludes that statistics suggest that one-third of all UK households owned a computer in 1997, rising to 45% of homes with schoolchildren. Facer et al 's (2001) more recent survey indicates that almost 70% of their UK case schoolchildren had a home computer with 20% of them having exclusive use, showing the infiltration of personal computers into the home.

The United Arab Emirates, with its high per capita income of US$ of 21,141, promotes itself as being a technology-rich nation. Although this case study is much smaller than other cited surveys, all of the IT population (N=106) reported having a computer at home with 30% having exclusive use, which supports an image of computer-enabled households. Out of the seven interviewees asked specifically about computer ownership, four had more than one home computer, usually owning a laptop as well as a personal computer. Unlike the children in Facer et al's 2001 study, these students have already shown their favourable attitude towards computer technology by selecting to study IT, so 100% ownership is not surprising.

Thus all of the 106 student's households include a computer, although only a small majority, 61 cases, view access to a computer at home as essential for IT study, the others seeing it as an entertainment tool. Because students have daily access to state-of-the-art computer laboratories at college, plus the fact that the girls are not allowed to leave college premises without permission, it is more likely they are able to complete their studies in college, compared to students who have more freedom to be off-campus. The frequency of home computer use appears to depend on study deadlines and other domestic duties.

Does this image of home computer availability mean that the women students have ready access and sufficient learning to use the computer to its maximum potential as a learning tool, or do they have to negotiate access and expertise with other family members?

4.3.4   Sharing Computers and Staking a Claim to the Hardware

Computers and associated peripherals are expensive to buy and only 30% of the students claimed to have exclusive use of the home computer. For the remaining 70% the computer is required to function as a shared resource. Similar to the case families in Facer et al's research, the effects of this shared 'ownership' are shown in the way access is negotiated with it frequently being managed around temporal organization (Facer et al, 1999:19).

The existing family patterns of time management influence the negotiations with siblings with linear organization of time predominating and a clear identification that college work takes priority. When asked about sharing patterns, typical responses were as those given by Salwa, IA3 and Nour, BIT3:

> Interviewer   Do you have any particular arrangements for organizing who works at a particular time?
>
> Sara   No we don't have any organisation or organised time for each of us
>
> Interviewer   Does anyone take priority or any thing take priority?

Sara	It depends on everyone and if I have a project that should be handed in tomorrow so I have to work on it so my brother let me all the time working on the computer.
Interviewer	Do you organise when you share it with other people?
Nour	There is no specific like schedule ..my sister ..there 're actually four girls at home so one wants to use it it's for work then it's me. I can delay my work - I can stay till night.

The patterns of use support Facer's argument that the ways in which the computer is used is influenced by the "socialization of the technology within the already-existing micro system of the family" and the location of the computer within the home. Sutherland et al (1999) also recognised that the computers were entering already constituted social space and that the existing patterns of behaviour at home were being reproduced in the engagement with home computers. Fawza and Sara describe such patterns of sibling rivalry, parental authority and conflict over home responsibilities during negotiations for access:

Interviewer	Do you share your computer with your husband?
Fawza	Nowadays three people are sharing this computer me my husband and my sister-in-law
Interviewer	Do you have any way of organising your work between you three people ? Do you have any sort of arrangements or priority?
Fawza	((much laughter)) if I sit first ( ) I'm using the computer ( ) I'll delay my work. "Delay your work or do it in the college wherever you want" ((a conversation between her and her husband)) ..sometimes I say no it's not important thing what I'm doing and I leave my work.
Interviewer	Are there any problems that you've actually had?
Sara	Sometimes ..when we had only (one) computer before we had problems of.. I had to wait until after she finished that was a problem ..and then she was working on her (?)
Interviewer	Can you tell me about a time when you had an argument in your family which had something to do with the computer?
Sara	To finish my work and my sister had one argument about using the computer ..the same time that she was using it
Interviewer	How do you work out who has priority?
Sara	Deadline wise ..too near ((laughter))

4.3.4   Location of Computer in the Domestic Environment

Facer et al (1999) suggest that locating the home computer in 'out of the way' areas of domestic space means that single individuals frequently use the technology. In contrast to the domestic space described in Facer et al's research in a typical English family home, the physical 'make-up' of an Emirati household is very different; a house or houses include a variety of nuclear and extended family members and contain many rooms. Crocetti (1996) describes Emirati families as usually large consisting of from 7 to 13 or more members and including aunts, uncles, grandparents and cousins many times removed, unlike the western idea of the nuclear family. At interview all participants spoke of a variety of relatives living at home including parents, brothers, sisters, sister and brother-in-law, uncles, cousins, and a step-mother.

Nevertheless, the location of the technology in Emirati homes in this study supports Facer et al's premise regarding individual's computer use as 36% of the population, i.e. 38 cases (N=106), had a computer in their personal space such as a bedroom with another 35%, i.e. 37 cases, locating it in named person's room, compared with only 15%, (16 cases), locating the computer in a domestic space like a living room or sitting room which would encourage multiple users.

In the following conversation, Tazha describes her own connected-computer equipment and the family equipment that is sited in domestic spaces:

Tazha	I have a printer it's a big printer that is a printer copier and scanner .. it's one machine and I have a CD writer .. connected to the computer , my computer
Interviewer	And this is your computer? A PC?
Tazha	Yea a PC plus the laptop
Interviewer	So are all of them yours or do they belong to the family?
Tazha	Yea they're mine
Interviewer	And where are there other computers in the house?
Tazha	Two other computers one is in my sister's room and other one is in a special place in the salon ..decorated as a office. They're all ( ) connected to the Internet.
Interviewer	Your sisters obviously use theirs in their room in the study. Who uses it in the office?
Tazha	Sometimes if one of my brothers has a special teacher teaching him about computer or I might teach my brothers there.

In contrast, Nour describes her bedroom where the sole computer is housed in her own personal living space. Both students believe they need sophisticated peripherals to be able to complete all their computer activities. Other informants mentioned similar equipment, although not as extensive.

Interviewer	How many computers do you have in your house?
Nour	Only one ..mine
Interviewer	And where is that located?
Nour	In my room
Interviewer	Is that your bedroom or study?
Nour	My bedroom ( ) Because everything's in my room because its not [just] a bedroom [it's a] living room .everything ..it's mine.

Interviewer	And what additions have you actually bought – you mentioned a printer why did you buy that?
Nour	For printing sometimes we needed a colour printer ( ) here in the college we need to print things coloured [and] at home
Interviewer	And that's for college work ?
Nour	Ahhm (affirmative)
Interviewer	Are there any additional things that you'd like to have for your computer at home?
Nour	I'd like to have a scanner although I don't use it very much ..to scan a picture or something and you discover you don't have a scanner and then you delay your work or you give it to other.

These young women therefore have access to a variety of resources in the home which are embedded in the fabric of the family by becoming a source for domestic cooperation, negotiation, socialisation and, at times, conflict amongst family members. With the availability of computers to help them with their studies, how else does the technology assist these young women? The Internet is readily accessible at college and from my own unsubstantiated observations in computer laboratories, I know much free time is spent using Internet resources for both study purposes and less academic pursuits. What impact has the Internet had on student's lives and what, if any, are the restrictions on accessing and using Internet at home?

4.4 COMMUNICATIONS WITH THE OUTSIDE WORLD

The new communication technologies allow people to form collaborative learning communities with instructors, peers, experts, and even interested amateurs worldwide (Richardson, 1999) and the case students exemplify this by forming a variety of on-line communities with study colleagues inside and outside college, between relatives to maintain family links, and with new contacts. These communities exchange information that is not necessarily study-related but which students view as broadening their minds whilst adding to professional and personal knowledge. The examples below illustrate the students' perceptions of the social aspects that communicating via the Internet facilitates.

Amani personalises her contacts, whom she labels as friends, (whether or not they were previously known) and conceptualises the exchange of learning in social terms. She acts out different roles in the two learning communities she talks about: as teacher and then student:

> "I was interested because I have some friends one from America .. two one is a doctor and one she's a lady and they were interested in learning the Arab language so what I did I created in Visual Basic learning Arabic for foreign ..."

At other times she discovers information which helps change her attitude and conceives a whole new world of information available to her with the technology. Her rather naïve acceptance of the authenticity of the information she receives is typical of Emirati girls' lack of critical thinking, resulting from the traditional compliant and non-questioning attitude required of Arab women (Tucker, 1995, Hofstede, 1997, Richardson, 1999). This lack of critical thinking is similar to the debate surrounding Chinese learners' lack of such faculties when compared with their western counterparts (Khigao, 1997)

> "Sometimes I have some friends outside my country .. I used to have one friend from Europe and I discover that he has different thinking than the people who is in America I used to think that American and British people they are a little bit the same but some different culture but I discover that from Europe they have different mind and culture.. lots of things that I didn't used to know .. lots of issues that I wasn't aware of. so when I get in the chatting I chose the country sometimes like I go to the Japan .. "

> "Once I meet a manager who has a computer company so also we discover the timing the different time between UAE and Japan so he told me ( ) I will be there and chatting ( ) see what's new things like he keeps telling me about products that his company producing and what's happening between MicroSoft and things like this and sometimes he tell me something and .. I think I didn't understand it can you show me the site? So I can read the whole article so he give me the title and I ( ) bookmark it and . when I am free I read it or print it out and .. so I g[h]ave lots of knowledge ..

Other students perceive the learning communities as useful for study and as a way of facilitating group work whilst Hala views her community as something she needs to control with specialist software:

Interviewer	Who do you e-mail and chat with?
Sara	My friends in the college colleagues and some more friends on the outside of the country
Hala	This MSN service you can accept only the people who you know . you can enter their hotmail address and.. I have maybe 8 people ( ) on my list and all of them are girls. ( ) Nobody [else]unless they send me a message and tell me

can you accept me to add me in your list I can accept or not.

Although Fawzha perceives the technology as facilitating the collaborative work within her college group , Tazha uses it to receive information from the local community and Abeer,stretches the net wider by accessing help globally to facilitate her assignments. Thus each of these students see the technological resources as giving them access to the level of communication needed for particular means.

Fawzha   I contacted my colleague when it was also our ( ) group project .. then I need to send the file as attachment to her to add some things to the file of the folder I sent and then discuss it

Tazha   We're doing now ...the workplacement I'm checking my e-mail if I received an e-mail from the company.

Abeer   if I have something in my study like they used to help me with C++ or er.. visual basic doing some programming things small programming things they were helping me like .I'm telling them I'm doing this code check it for me if it's right or wrong ..and they were helping me but more than this (no) helping each other in study part

4.4.1 Internet Access

All EWC computer laboratories are Internet-connected ensuring students access to Internet technology because, as Revenaugh comments, access to computers alone is not enough (Revenaugh, 2000). Even so, "Access is not the same as equity. Just because we put a wire to a school doesn't mean it will be used or used well," argues researcher Saul Rockman (Revenaugh, 2000) an argument that also relates to the 87% of the population (N=106) who reported having Internet access at home. However, students' main home use was software applications, especially IA students, rather than the Internet as shown in Table 4k although BIT students surfed more:

Table 4k   First Main Use of Home Computer

Main Use	Total IA & BIT cohorts	
	No of IA cases N=59	No of BIT cases N=47
Using software programs	25	13
Learning new software	9	3
Using e-mail to contact people	6	6
Surfing the Internet	3	12
Chatting in chat rooms	2	-

The year groups showed similar number of cases for each activity. However, six out of the seven IA2 students who submitted a dairy of home computer use done over one or two weeks noted that they checked their e-mail regularly, which conflicts with the above figures, and may indicate a higher level of Internet communications.

The introduction of the connected-PC in college and in the home has produced a challenge for Emirati families, just like the UK families mentioned in Facer et al's research (2001). As Valentine & Holloway say, "PCs and the Internet in particular, bring dangers of connectivity " (2001:58). They cite research suggesting that, although ICT can enhance global communications and relationships as well as creating opportunities for new social relations, it also exposes people to new vulnerabilities and dangers (Wellman & Gulia 1996 cited in Valentine & Holloway, 2001:58).

4.4.2 Cultural issues

The main problem faced by Emirati families with the introduction of the connected-PC into the home, is that the home is open to dangers produced by access to uncontrolled outside communications. In Emirati society, family honour dictates that men protect females to maintain the family reputation. This notion is not unique as Joseph (1994:199) comments:

> "Family honor is shared with Mediterranean societies and implies that one's sense of dignity, identity, status and self, as well as public esteem, are linked to the regard with which one's family is held by the community at large. The cultural assumption is that a person's actions reflect on his or her family as a whole and the reputation of the family is borne by each family member."

Tucker reports that historically, women bear the burden of family honor in the Arab family. "Any female behaviour explicitly or implicitly connected with sexual relations outside legal marriage reflected immediately and negatively on the good name of the woman's family" (1993:197). Thus, she says, the male family members took their responsibilities for policing their women very seriously and were in favour of severe restriction of unmarried female relatives. This situation remains today in the UAE and limits girls from contact with men other than their "incestuous" family members. Getting connected to the Internet results in access to electronic mail and "chat" lines which, if uncontrolled, are means by which women could bring themselves into disrepute and thereby dishonour the family name. "A woman's honour can be lost rather easily through a tarnished reputation", says Crocetti (1996:146).

Khan protests that women everywhere are bound by societal constraints whether it is by the acceptability of their mode of dress which varies according to cultural norms or by ideas of family honour: "Notions of family honour are invoked to gain psychological control over women until ultimately they internalise 'respectable' modes of behaviour" (1999:131). When questioned about their use of "chat" lines, students usually laughed nervously and looked uncomfortable when admitting that they "chatted", suggesting that such actions went against their concepts of respectable behaviour. Also, because chatting is discouraged in the college, participants were admitting to a teacher that they were not following college guidelines, thus causing such reactions. Thus the incidence of "chatting" was probably under-reported in the survey.

4.4.3 Using Communication Tools

When using communication tools, most interviewees thought chatting more inappropriate than e-mail. Sara clearly thought she was protecting herself from culturally unacceptable behaviour by not using chat at home.

Interviewer	Do you ever use the chat lines at home?
Sara	I don't like to use them
Interviewer	Can you just tell me a little bit more why you don't like to use them?
Sara	Because everybody has the bad impression especially at home because the only thing that they heard is ..chatting and you got to know (men) bad impression about it. I don't know where they get this idea but they've heard some problems happened from this ..chat lines ..I don't want to get in trouble using it ((self-conscious laughter))
Interviewer	You don't want to get into trouble?
Sara	Because I've heard that there are some problems happening with it so I'm (covering) myself.

Most interviewees were quick to give reassurance that they only contact family members abroad or female friends and that they justified their chatting by linking the communication with essential study or improving their language skills.

Interviewer	What do you think of chatting as a method of communicating?
Samah	Actually it's a good way because you see the culture ..I mean of different people and also ( ) it increased my language in which I learn new vocabs from the other people and also the grammar ( ) I mean I cannot write something wrong in the grammar so I have to think logically what I'm going to write so that increase my English a lot.

Interviewer	What do you think of this method of communicating?
Tazha	It's better ..I can't spend all the time talking on the phone comparing ( ) the price and ( ) the computer is also teaching me more skills better than the phone - the phone I'm just talking in Arabic and that's talking spending a lot of money and wasting time but on the computer I'm using my typing skills ( ) I'm reading, I'm thinking I'm using the English which is a practice for me at home.

Abeer, married with children, said she was not restricted and was the only student interviewed who admitted contacting males, but only for help with her study. The impersonal nature of asynchronous Internet "chatting" helps her acceptance of this contact compared to "chatting" with men over the telephone, which she sees as more culturally inappropriate.

Interviewer	In your house were there any restrictions put on you in contacting people or chatting?
Abeer	No there was not restrictions but like talking with guys is difficult in our culture. I had some boys they are talking but like if I have something in my study like ( ) some programming things small programming things. ( ) and they were helping me but more than this (no) helping each other in study ( )
Interviewer	And these boys are they people you knew?
Abeer	I know them over the Net not someone I know before like just over the Net
Interviewer	Do your family mind you chatting with people outside?
Abeer	Yea but not on the phone just chatting
Interviewer	They don't mind you actually doing that?
Abeer	As long as I'm in the right way they don't mind.

Three of the twelve interviewees show their IT expertise by using software that reduces the perceived dangers of uncontrolled communications and helps cut the cost of global communications. Although they distinguish between the two forms of communication they use the term "chatting" interchangeably for e-mail and chat, both of which they consider as "talking" which confuses their descriptions of the situation.

Interviewer	Do you use the e-mail?
Tazha	Yea
Interviewer	Who do you contact by e-mail?
Tazha	My friends my family in Qatar . Saudi .. I always contact them
Interviewer	Do you ever use the chat at home?
Tazha	( ) I use the MS Messenger to talk with my uncle and his sons in Jordan I use that for chatting.

Nour obviously likes to chat frequently but she too controls access to her communications through filtering software.

Interviewer	Tell me about the last time you used the Internet at home what exactly did you do?
Nour	Chatting .. ((slight laughter))
Interviewer	Can you tell me how often you use chatting?
Nour	(Every) time I access Internet sometimes I search for something and chat at the same time
Interviewer	And who do you chat with normally?
Nour	( ) sometimes I find my friends on my ISecure list so I chat with them but then there are other friends.

Interviewer   What do you think of that method of communicating?

Nour   When you deal with computer you know more ( ) good person in communication but we have chat lines this is another way of communication it's OK but it doesn't give you the impression of the other person you can't feel what he feels .. or what she feels and it's not like face to face communication.

Hala communicates with family in North America but limits global communication to females only, even though she appears under no obligation to control her communications as she admits her step-mother is not aware that she uses chat. This scene adds to the picture of social isolation from family members that a home computer can encourage, although a connected PC can replace this with a different world of socialization and communication. Hala says she prefers using her PC in her bedroom although there is another computer in "an upstairs room" which "everyone can use it but they don't".

Hala   You know the MSN service ( ) its like chatting but you can accept only the people who you know and I download this software because you'll be able to talk to other people and ( ) I want to talk to my friend she's in USA. ( ) I told you there is Freewebcall where you can call any where free but the Etisalat cut this service so I thought [of an] alternative so my friends told me if you download this MSN service you can talk to your friends or whom you like only in the USA and Canada and I download this software just to talk to my cousin and my sister in the United States.

Interviewer   And did it work?

Hala   Yes it worked - very expensive if you use the telephone you know.

Interviewer   And who do you contact with the e-mail from home?

Hala   My friends

Interviewer   Have you ever used the chat at home?

Hala   MSN service you know there's lots of chat ..this MSN service you can accept only the people who you know . you can enter their hotmail address and you know ..I have maybe eight people on my list and all of them are girls

Interviewer   And you can contact them and nobody else can contact you?

Hala   No nobody unless they send me a message and tell me can you accept me to add me in your list I can accept or not.

Interviewer   And who has put the restriction on who you accept?

Hala   Me

Interviewer   Nobody else in your house has said anything about this?

Hala   They don't know about it. I have stepmother and she don't know what I am doing.

Fawza, a married woman, expresses concerns about wasting time. Although she finds the e-mail effective to send work between home and college, she differs from others interviewed as she has not learnt to use chat lines because she perceives such communication as addictive and fears such an effect on her family:

Interviewer	You mentioned contacting people, is that through e-mail chatting?
Fawza	No I don't know how to use the chat I don't like it actually
Interviewer	You don't like it?
Fawza	I don't like it because I feel people addicted with this thing like chatting e-mail...as I can see in the college they used to come early morning just to check their e-mails or chatting to each other which I don't like ...I don't know why and I know some stories that ladies addicted till they don't eat just only in front of computer . they don't take a bath for a whole week .. yea I know some ladies that's why I don't like ..even to put the Internet it was a problem for me because I was thinking that my husband would be addicted with the Internet but he's not ((smiling))
Interviewer	But you said you do sometime use the e-mail. Who do you contact?
Fawza	I contacted my colleague when it was also our group project then I need to send the file as attachment to her to add some things to the file of the folder I sent and then discuss it ...and sometimes I do it at home because of the capacity it's bigger and I can't put it in a floppy disk ..I send it to put it in my e-mail and open it in the college.
Interviewer	So you haven't used the e-mail to contact people?
Fawza	Just to say hello and like that. No for personal things no.

Alya, like Fawza, appears afraid of other people's lack of control but admits to using Internet communications. She believes in her own moral code, which she thinks protects her but perceives this as a problem for others. She clearly differentiates between e-mail and chat lines and the inbuilt protection that e-mail addresses allow compared with open chat lines. In speaking of her negative experience with chatting, she describes her perceptions of a male / female interaction which precludes the notion of friendship between young men and women, giving some credence to Crocetti's statement that strict segregation is practised between Emirati men and women because they believe people cannot resist sexual temptation and women are helpless to resist so must be protected at all times (1996:60):

Interviewer	What is your opinions of e-mail and chat lines?
Alya	You know although I have done e-mail and chat and these things but even though I stay there I feel dangerous maybe I can control myself but my colleagues my sisters they might don't control themselves and you know from the boys when I talked to them they are really dangerous ....You know can I say something? ((asking permission to disclose some thought))

Interviewer	Yes
Alya	The first time they said what is your name how are you ( ) take my phone number ((very agitated and sounded cross)) immediately ..they don't even they don't ask about you what you are studying they don't care about just they care that you are a woman .. you are a lady .. this is a dangerous .. you know that's why
Interviewer	But you said you feel that you can control yourself?
Alya	I can control myself
Interviewer	But you're a little worried about your sisters and the younger ones?
Alya	Yea
Interviewer	And this is the same in the e-mail and the chat?
Alya	In the e-mail no it's because it's your e-mail has your file number you can give it just to your friend the person who you want I know there's a (public) they can get it but also you can ignore them but the chat you entered and you won't discover not like the e-mail . they send to you and you send to them who you want and who you want they will send to you.
Interviewer	So the e-mail you're a little happier with but it's the chat that you're actually talking about?
Alya	Yea.

Although Alya's generalizations of boys' behaviour appears naïve and over-reactive, I have come to believe from personal discussions with the young women and colleagues, that culturally, the idea of friendship between men and women outside the family group does not exist, thus Emirati girls' understanding of an overture from any male will necessarily have sexual connotations, leading them to see real danger to their virtue from any contact. Compared with their western counterparts, Emirati girls are less worldly about gender and sexuality, due to their segregation from males from adolescence and their protection from the public arena before marriage.

They would consider it inappropriate to openly discuss with me, as their teacher and a "outsider", about any contacts with males, either physically or virtually via the Internet, that they might have experienced because such behaviour would give a negative impression of them. Although I would not openly contradict any of the information told to me at interview, because, as a researcher, I have to deal with the data that the students choose to disclose to me, I know from personal experience that many of the IT students regularly contact males through chat rooms at college, even though it is actively discouraged with college Internet use regulations. Therefore there is an ambivalence towards their behaviour on the Internet and a silence about their actual activities when talking to an authority figure such as a teacher.

Although this leads me to question the veracity of some data, I realise that the young women would not directly tell me anything that would reflect negatively upon themselves as firstly, Emirati

women and, secondly, as Emirati nationals, and therefore the data on sensitive cultural issues such as this must be viewed in that context.

4.4.4 Perceived Vulnerabilities of the Internet

As Hala mentions above, her step-mother is unaware of what she is doing on the computer, because she studies in her bedroom like 69% of the case population (N=106) who said the home computer was located in a personal space such as a bedroom. Fawza, a mother of two children, and Hala are both concerned about computer users sitting alone in a room and both identify the problem stemming from a lack of computer awareness in the family:

> "It has another disadvantage that children specially the children at a certain age they (are) starting to become alone at home facing that only computer and Internet connecting or contacting with people from outside the home but they don't care about the peoples inside the home ..and the parents they don't know what these children their children are doing with the Internet ...especially some parents they are not educated .. even what the Internet means they don't know". (Fawza)

Interviewer	Are there any ways that the computer helps bring a family together or maybe it has the opposite effect?
Hala	I don't think so - from my point of view ( ) the ..you call it isolation? For example you know using the Internet will be like you'll be addicted you know and you'll be sitting alone in your room either studying or chatting or using the e-mail and it depends on the family themselves if they are well educated and they know how to use the computer ( ).

As mentioned before, parents worry about what their children are accessing through the Internet. Hala uses her skills of persuasion and negotiation to resolve the argument with her step-mother, calling on her parent to trust Hala's personal moral code.

Hala	When we first put the Internet at home my stepmother she was saying to me ..for at first you know when anything new you like to spend more time and when we put the Internet in you know I spend maybe 3 or 4 hours and she thought ah you might be using it for you know .you go to bad site. ( ) I told her I'm adult and mature ( ) trust me I won't do this but you know you're curiosity sometimes leads you to see something you know and her main concern is sex and I told her come on we are adult . I'm not going to I know everything [about] this. ( ) She said you have children small and they might go to the Net and I told her there is a proxy and nobody can access it and there are forbidden sites that you cannot go on
Interviewer	And she's happier now?
Hala	Yea but she's still worried because I have brother at home and she's afraid.

Despite Hala's reassurances, her parent still worries about the younger children which supports Valentine and Holloway's (1999:63) premise that parents fear the invasion of dangers brought into the family home via the Internet because of the unregulated nature of cyberspace. These dangers include access to soft and hardcore pornography, racial and ethnic hatred, neo-Nazi groups and paedophiles according to Squire (1996) and Sardar's (1995) (cited in Valentine and Holloway 1999:64) which has resulted in a 'moral' panic in the US, UK and Australian media against the Internet providing a gateway for "unsuitable material and dangerous people to invade the family home." (Lumby, 1997: McMurdo, 1997 cited in Valentine and Holloway 1999:65)

Thus the Internet-connected PC emerges as a tool that potentially enables online hazards and evils to pollute the home, as opposed to offline activities (Valentine and Holloway (1999:65). Several of the students and their family members identify these cyberspace dangers as "bad sites" which offend their moral code of behaviour. Tazha recognises the difficulty non-native English speakers might have as unproficient spellers when entering addresses that may inadvertently lead to "bad sites":

Interviewer   Do you have any concerns about the Internet?

Tazha   ( ) for example the advertisements the ones in the windows that they're showing I hate these things sometimes when you misspell some site it takes you to a bad site ..what can I say? At the bad site this is the most thing that I don't like or by the Internet I thought it's a way for some bad people are spreading informations or pictures for people well known people which is not nice ( ) I don't like this thing in it.

Other students, like Hala, rely on an internalised moral code to protect and control themselves from the perceived risks of connection similar to some of Facer et al cases (2001).

Interviewer   Are there any restrictions on your computer use or that might cause you problems?

Amani   Only just my father keeping telling me don't go to the bad sites .. look after the things this sort of things whatever you want to do ..do it just see what is right what is wrong .. I stick with the right things.

Interviewer   Is there anybody in your family who has any negative feelings towards the computer?

Mona   Yea sometimes my mum and yea my dad ( ) they just like telling us be aware of the chatting with friends ..they hear because you know when they sit with friends (and) chat .. parents tell them you know I found out that my son is (chatting) he just tells us to be aware of the bad points and also chatting

Interviewer   But he leaves that being able to control yourself he's happy with you?

Mona   Yes.

All the twelve interviewees said the Internet had both good and bad points. They found the Internet useful, especially for finding information for projects, yet all spoke of concerns about siblings having uncontrolled use of the Internet, because of its perceived image and several have taken on the parental role of policing its access with younger siblings.

Interviewer   Are there any restrictions on use?

Samah   There's not any restriction for the children for example ( ) somebody observes them while they are using the Internet otherwise there are so ( ) many useful stuff in the Internet

Interviewer   If say your younger brother were using the Internet would somebody in the family observe him?

Samah   Yes I should be observ(ing) him

Tazha takes on a monitoring responsibility to overcome her parents' fears about her teenage brother isolating himself in his room:

Tazha   For example I can't keep this computer in my brother's room he's a teenager. I can keep it but I know that if it's in his room he'll lock the door and use it as he wants but why did we put it in the salon so we can keep our eye on him watching him what he's searching for what he's doing.

Interviewer   And you do that?

Tazha   Yes he never opens the Net or use the computer unless I'm with him ..or my mother or my (father).

The parent / child relationship is reversed when this father seeks advice from his daughter about whether or not her sister should get connected. Abeer is taking the responsibility of making decisions for her sister's moral welfare because of her knowledge of the Internet and she is seen as a family advisor:

Abeer   So he [father] came up to me and asked me should I put Internet? So I told him if you think that she is good and she wouldn't do anything wrong then she should have the Internet ..but if you think that she is not a person that she can have an Internet then don't give it to her .and because she's working until 5 in her university so she doesn't need to have the Internet at home only if it's really important and my elder sister she has the Internet so .. she can use that one if she need it and he did not put it for her

Interviewer   He didn't?

Abeer   He didn't put it for her (till) now.

Facer et al (2001) suggest one way of controlling use and to protect children from the perceived dangers is by using passwords that are only known to certain family members. As well as controlling and monitoring Internet use by older siblings, passwords are identified by Iman as helpful in protecting her young sister and brother.

Interviewer	Are there any restrictions any controls things you're not allowed to do at home?
Iman	No I('m) allowed to use Internet because my parents know my specialisation here IA but ..not very much with my sister ((smiles)) they don't allow that ..I have a password and my brother my parents told me ..if you want them to use it you have to open it for them without looking at the password ((short laugh)).. and I told my sister you have to use it only once a week
Interviewer	What are your parents and your brother's concerns for your sisters about using it?
Iman	Because they are still young and they may enter bad sites and they don't have more information about Internet and about how to use it ..so they told me even if they use it you have to come and enter the room and look what site they are (in).

The parents in Facer et al's study were afraid that children could use the Internet in wasteful and inappropriate ways with excessive amounts of time and money being spent in hacking and chatting. This study's findings confirm the conceptions that the Internet is a site of anxiety for Emirati parents, supporting Valentine & Holloway's (2001) arguments, (although only one student out of the population mentioned hacking as a pastime). However, most of the young women interviewed have persuaded their parents that they are competent and worthy of being allowed unrestricted access to the Internet, without being monitored, through their own computer knowledge and its necessity for their IT studies. Having a good understanding of the computer is viewed as being essential in controlling its use and the students interviewed felt they are able to control themselves because of their IT expertise and also take on the responsibility of ensuring the safety of siblings.

Alya, IA1, and Lina, IA2, are two of the 13% of the study population who have no Internet access at home. In Layla's situation, she admits to being connected previously but gives her excessive use that caused arguments as the reason for disconnection:

Interviewer	I notice on your questionnaire that you don't have Internet access at home. Can you just tell me a little bit about that?
Lina	Before in the beginning when I enter the college I have an Internet in home I was just checking the e-mail I didn't know anything about them because I was new in the Internet I play with it cost me a lot of money ((laughter)) really and then my mother get angry and then I told her I don't want it because it's already in the college and if I want to do anything I will come here
Interviewer	So why did your mother get angry?
Lina	Because the bill is very high ((laughter)).

In Alya's case, her father has forbidden Internet access to protect her reputation. Alya's experience with boys transgressing the cultural boundaries quoted above confirms the bad impression of her father and his friends. Although Alya accepts her father's decision she is still hopeful that he might

change his mind, showing a desire to be connected like the majority of her peers. In telling her tale, Alya vividly describes an Arabic social scene of males and a typical evening routine.

> "You know because my father doesn't want the Internet at home ..I discussed with him he said OK I might connect the Net at home ..he has a group every night they go to play a ..game ((she makes hand gestures like playing cards)) and they stay together and they discuss everything. OK he asked them and they say oh god don't Internet is like that like that like that ((appears agitated – big hand gestures)) there is a bad website they can talk with the boys ( ) ..he came and said ( ) sorry I discussed with my colleagues my friends they said it has many disadvantages.
>
> But believe me until now every time I go to him I tell him yes dad what do you say until now ."

These data support Valentine and Holloway premise that, "ICT emerges in different ways in different households depending on the parents' differential understanding of the technology ... and differential levels of social and technological competencies between household members" (2001: 65).

Through their education and knowledge about computers, the women are being allowed to widen their horizons through the Internet, with some parental controls but more controls are self-imposed through the women's internal moral codes.

As mentioned previously, their IT studies prepare the students for employment where they hope to apply their computing skills. Joining the workforce will allow women to contribute to national development, yet the statistics still indicate a low participation by national women. Some of the issues that could hinder, as well as promote the girls taking up the role of working women are explored next.

4.5 WORK ISSUES

4.5.1 Controls on working

In contrast to the low numbers of working national women given in Chapter 2.12, the vast majority of the IT students reviewed at the time of the study expected to go out to work after graduation as shown in Tables 4l and 4m below. And yet available ministry figures quoted on pages 24 and 25 and local sources clearly state that Emirati women are not yet entering the job market in significant numbers. If these expectations of the IT students were replicated across the other EWC disciplines as well as across the five HEC women's colleges, for the previous five year's graduates (which is not an improbability although unsubstantiated,) this would surely translate into a large number of young national women showing up in the employment figures, which does not appear to be happening. What are some of the issues that might restrict these young women's aspirations?

Table 4l   Likelihood of going out to work – year cohorts

Likelihood of going out to work	IA1 N=14		BIT1 N=20		IA2 N=13		BIT2 N=12		IA3 N=32		BIT N=15	
	N of cases	% of cohort	N of cases	% of cohort	N of cases	% of cohort	N of cases	% of cohort	N of cases	% of cohort	N of cases	% of cohort
Very likely	12	86%	9	45%	8	61%	10	83%	12	37%	15	100%
Likely	2	14%	7	35%	4	31%	2	17%	13	41%	-	-
Not likely	-	-	4	20%	-	-	-	-	7	22%	-	-
Not at all likely	-	-	-	-	1	8%	-	-	-	-	-	-

Table 4m   Likelihood of going out to work – program total cohorts

Likelihood of going out to work	IA total cohorts N=59		BIT total cohorts N=47		Total study population N=106	
	N of cases	% of total	N of cases	% of total	N of cases	% of total population
Very likely	32	54%	34	72%	66	62%
Likely	19	32%	9	19%	28	26%
Not likely	7	12%	4	9%	11	10%
Not at all likely	1	2%	-	-	1	1%

The figures show that only a few students believe they will *not* enter the job market whilst 72% (N=49) of the BIT students and 54% (N=59) of the IA students think if *very* likely that they will find employment. There are no significant differences between years or programs, except the third year IA group is less certain about getting a job, compared with their BIT colleagues who all expect to be employed. Unsubstantiated evidence suggests that students often get engaged or married during their final study year or on graduation, which may affect their employment prospects and cause more uncertainty for some.

However, although the young women's perception towards working is positive, they realise the final decision may be in the control of family members as shown in the Table 4n:

Table 4n   Family member influencing decision

Family member viewed as having the most influence on job decision	% of cases (N=106)
Parents	58%
Brother(s)	15%
Husband	14%
Other male relatives	3%
Sisters and female relatives	0%

Table 4n and the following interview dialogues indicate the control of males in the family. Whether or not the parents or husband has the final say is not known, but unsubstantiated evidence suggests that, under the patriarchal system, fathers still has considerable influence over their married daughters' actions. However, not one interviewee mentioned any female influence:

Interviewer   How likely is it that you'll go out to work after graduation?

Hala   Hundred percent I'll work insh'allah (God willing)

Interviewer   And who has the most influence on this decision whether you go out to work or not?

Hala   My father

Interviewer   Who has the most influence on this decision whether you go out to work or not?

Sara   My father

Interviewer   How likely is it that you'll work after graduation outside the home?

Tazha   Very likely

Interviewer   So who has the most influence on that decision?

Tazha   You mean that they are not disagreed like this?

Interviewer   Yes

Tazha   My brothers

Interviewer   How likely is it that you'll go to work out to work after gradation?

Samah   I intend to work insh'allah but (it) depends on my situation and my family what they are going to say.

Interviewer	Who would have the most influence on allowing you to work?
Alya	So far my father, after that my husband
Interviewer	And does your father have any preferences of where you work?
Alya	The place where I am going to work if it is very mixed he might mind about that but if it is like a school or .. a school it will be OK
Interviewer	And this is it because the schools are girls, just ladies and girls?
Alya	Just ladies Yes

Mona,shows a strong conviction that women should not waste their education by staying at home but even she recognises that cultural practices take precedent::

Interviewer	You said that when you graduate you possibly get a job in an oil company a petroleum company?
Mona	I expect yes
Interviewer	What is your opinion about national women working in the UAE?
Mona	I don't expect any girl any women to study and get her higher diploma ( ) and she staying at home ((strong conviction)) because the reason for me coming to HCT and study four years. ( ) I'm not here to study four years of my life study four years of my life and then stay at home. ( ) I was planning to work in a petroleum company before I come to the HCT
Interviewer	So can you think of anything that might stop young women working after they graduate?
Mona	Some families don't allow their daughters to work after graduation maybe because the work environment has some men there or maybe she should get married later or maybe they ask her to choose to be a teacher in a female school .. otherwise no stay at home .. not a good way.

These young women appear to have accepted the control of behaviour by family members which Joseph suggests is due to the historic centrality of the Arab family to social, political and economic security which has given family honour a controlling role. "The notion of family honour facilitates patriarchal power by circumscribing women's sexuality, movement in social arenas, and, to some degree, economic opportunities. It enhances the power of fathers, grandfathers, uncles, brothers, and male cousins over women" (1994:199).

Graham-Brown relates these control aspects to religious codes: "Most Islamic groups stress the importance of male authority and emphasize the primacy of women's roles as wife and mother. They stress sexual purity and control, and the danger of losing it, as a justification for increased male supervision of women ..." (1997).

Joseph argues that the family both supports and suppresses women and it is "this paradox of support and suppression, love and power, generosity and competition that compels both attachment to and struggle within families" (1994 201) Certainly the young woman in this case

spoke of close family involvements in important decisions about their lives and most who were interviewed appeared to accept male control, particularly when speaking about a future marriage partner, indicating a deference towards a husband's opinion.

Even Nour, who drives her own car and goes to the beach, says she would defer to her future husband's wishes:

Interviewer   What are the cultural or traditional customs that are likely to affect your working now or in the future?

Nour   My husband letting me work.

4.5.2   Mixed Working Environment

The "old" boundaries of women working in public space, the restriction of women to indirect access to power, a definition of gender roles that stress female domesticity are more fixed in some parts of the Arab world than others. They all reflect a past in which the gender system undergirded a family-based organisation of access to wealth and power. New boundaries are that women's lives are changing with more access to education, to satisfying work, and to a lesser extent, to political power. (Tucker, 1993:xiv)).

When questioned about situations that might hinder working opportunities or about their preferred working conditions, all twelve interviewees talked about working with national men, indicating that this is one of the most important issues for them. This is a sensitive issue because it can be seen as a clash between traditions and customs and women's new role in society. Local managers confirmed that they find resistance to the idea of women working in mixed company in some conservative sections of UAE society,31 although a student writing in a local newspaper thought women can make the mistake of thinking their families are more conservative than they really are.32

Most women in this case described conservative attitudes of their families and for themselves.

Interviewer   Are there any particular family issues that might hinder or stop your opportunities in the job market? Are there any customs or family ideas about you working?

Samah   Maybe because of the culture of being mixed that's only the thing that they will think about it and will stop me to carry on with my career and to work .that's the culture ..I'm not allowed to work with men ( ) but my family and my parents ..I mean they didn't stop me ( ) going to the work placement. They said OK carry on because this is part of my career in the college so I don't think in the future after my graduation they will disagree with my working apart (from) my future husband he might say

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[31] Al Marri, Haya & Mohammed Afaf, 1996;"Changing Times" in Gulf Weekly 18-24July 1996,11-15

[32] Fernando Ruwani, 1999; "More UAE women venturing out" in Gulf News 20/10/99

> no you don't have to work unless if the work that I'm going to be in is only female ..that will be OK acceptable.

Interviewer   And from your point of view - working in a female-only situation what do you think about that?

Samah   Yes it's better because I mean the person ( ) who inform me is female so I can communicate freely with her ...but ( ) I [am] used to communicat(ing) with male also because that's the culture in the college ..so I don't have much difference in the college or outside the college

Interviewer   In your family are there are cultural customs that affect your working?

Fawza   ( ) from my family no - my husband not (doesn't) like (me) to study [work] in a mixed environment place.

Interviewer   What are the work issues in your family?

Sara   ( ) they want me to work in an atmosphere like in the college or they don't want me to go to work in these places [with national men]

Interviewer   What do you think about that those opinions for yourself?

Sara   Anything they are saying will be in (my best interests?) I'm familiar with (and) I'm happy to use this atmosphere

It is Tazha's extended family who appear to be very conservative and traditional but Tazha obeys her father who is more liberal minded:

Interviewer   What are some of the issues in your family that might stop your opportunities in getting a job?

Tazha   For example if we [her family] will be agreeing that you're gonna to work in a company it has to be place especially for women ( ) a department which is separated for women ... in a company which is a special department for women to work in

Interviewer   Do your family have difficulty with you working with expatriate men?

Tazha   Not that much ( ) my parents but my uncles and I think that they doesn't like men .. that I work with men .. it's fine to work with woman .. but I'm not going to work on their advice .. whatever my father sees .. my father doesn't have any problem even if they're locals he doesn't have any problems.

Hala has considerable autonomy in making her own decisions and is happy to work in a mixed environment, and even though her father appears to want her to work with him, she is given the final say:

Interviewer   Are there any parts of your tradition that would affect you working?

Hala	Maybe you know working in a mixed environment. My family agreed and you know myself I don't like to work with girls only I prefer working with mixed environment and my parents trust me and they told me you can work wherever you like ( ). but when I spoke with my father yesterday he told me you'll have good you know opportunities with this place not because I'm going to work with him but the place itself and he told me it's up to you if you want to work in this place or if you join (our) company
Interviewer	You've got quite a lot of say yourself?
Hala	Yes he don't force me he gives me suggestions only and the final decision I can say yes or no.

Abeer's husband displays conservative attitudes about his wife's place of work, but changing situations (and maybe a persuasive wife), overcome his reservations:

Interviewer	Are there any restrictions on your working ..any cultural or traditions ?
Abeer	Before my husband says I don't want you to work in a place where there are so many guys ( ) You know jealousy and such things but later on he decides that there is no other places everywhere there is ladies and the men ( ) even in school we say it's the ladies place (but) there are the guards the people who come to work over there .. everywhere is mixed now. So he says OK anywhere you want to go you got - the restriction will be on the hours of working because I have my family my kids so I have to look at these timings only this will be the only restriction on my working anywhere
Interviewer	And you're quite happy working in mixed company?
Abeer	Yes it's OK because my first experience was the work placement ( ) I haven't done anything in my life by going to work and it was cool like everybody was helping us.

An internalised moral code and cultural assumption that appears to regulate the young women's behaviour and the acceptance of appropriate cultural behaviour assist the women to cope with new situations. In Abeer's case, she was able to deal with working with men for the first time by drawing on these personal boundaries and expecting her colleagues to recognise and respect her rules. In doing so she is accepting responsibility for other people's behaviour towards herself:

"See if you go over limits they will go over limits but if you have a limit between you and the person in front of you then he will have the limit he will not go above it only if you give him the chance so .. I learnt that in [the] job so .. I give an image for everybody so nobody can go over the limits of this and ..nobody go over it." (Abeer)

Apart from the family, Islamic institutions consider themselves the guardians of family integrity as well as religious mores but, although those questioned recognised that religion might hinder women working, they were not forthcoming in saying how and further probing was not appropriate.

Even when families agree to the young women working, traditionally "access to institutions, jobs and government services is often through family connections," comments Joseph, (1994 :195) and people are keenly aware of each other's family memberships, identities, and status. It is through this "wasta" system that many graduates find jobs such as Abeer describes:

> "Well I applied in two places right now ( ) I want to work and even my husband wants me to work ..and he encouraged me and he's the one who find the job for me in Etisalat ..for a quick interview and because he has some friends over there so they help."

Only two interviewees, Mona and Lina, expressed more liberal views about working. Mona had displayed considerable initiative by working at the Ministry of Health during summer vacations since leaving school, and was quite happy working with national men.

Mona	[I've worked] 3 times during summer vacation. ( ) I had actually in the same place in the Ministry of Health I had 3 opportunities to work 3 years during summer vacation for 3 months in different departments
Interviewer	And they were all in mixed environment?
Mona	Yes .. my boss last year was a doctor
Interviewer	And these were national men that you were working with?
Mona	Yes national men.

Lina, one of the older students, had no trouble working with males and identified the problem with women working as a family problem relating to men, rather than a cultural one, which, although an interesting point does not seem to be widely held. She also differentiates clearly between female behaviour, which she encounters every day in the segregated college, and male behaviour at work which she prefers as she can control it more easily by setting her own limits, similar to Abeer.

Interviewer	Do you think there's any tradition in your culture that's likely to affect you working after graduation?
Lina	No I don't think so it's more related with the family. Most of our family do not like to work in males environment while me no I like to work with males because . to avoid problems with females ..and maybe it's better because I can be better than them so it will be a good challenge with me.
Interviewer	You mentioned "avoid problems with females" can you just explain that a little bit?
Lina	Yes maybe because if you are in a girls' environment there will be everybody speaking about things and each one has a different idea and you try to bring them all in one group and you cannot because then the gaps between them . maybe the behaviour of each one is different .. while in the male it will be formal ..there it will be like ( ) barriers between you and them .. just work but between the girls no .. there is no .. no limit.

4.5.3 Veiling – a hurdle to employment?

Hijab's quote at the beginning of section 2.12 refers to the invisibility of Arab women. Physical invisibility in the form of women covering their face with a veil when in public places is a common practice in the UAE. Mehran (1999:208) believes that, for Iranian women, veiling is equated with covering and presented in texts as a sign of female 'worthiness and respect'. Discrimination against this cultural mode of dress is sometimes debated in the local press33 where it has been reported that some private companies refuse to allow women to wear their veils at work and that national women are turning down well-paid jobs because they wish to follow cultural practice. Only three of the later interviewees were asked specifically about veiling because other interviews did not develop towards this subject. Only one student expressed a preference to veil, whilst Hind seemed indignant and saw no reason to veil whilst working. This does not mean the young women do not cover their head with a black "sheyla" (scarf), the traditional head covering compulsory for all Muslim women.

Interviewer	And if you were working in a mixed environment would you veil?
Hala	What do you mean by (veil)? ((puzzled))
Interviewer	I'm sorry would you cover ?
Hala	No why? ( ) I just you know wear a scarf only a scarf
Interviewer	You cover your face?
Hala	No why ? I'm working.

Interviewer	May I ask you if you covered?
Abeer	No I did not.

Interviewer	I was quite surprised that you veiled when [at work placement] you remember when I came to see you? You were veiled. What was the reason for that?
Tazha	The reason was I feel more comfortable whenever I go even I wear it every time whenever I go out of college I wear it ..it's better you know .I don't like mens to just keep looking at me oh look at her face or I like to be covered ..I feel comfortable.

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33 Abdullah Eman, 1998; "Veil no hurdle for women to find jobs: private firms must understand country's culture – official; *Gulf News* 8/6/98

These responses are not enough to generalise about veiling as an aspect of workplace discrimination that may hinder national women from entering employment and needs more investigation.

4.6 EMPOWERMENT BY COMPUTER

With the expansion of educational opportunities for women come new opportunities and the possibility that Emirati women's status in society is changing. A comment by two HCT students writing in the local press recognized this change:

> "It is undeniable that the status of UAE women in the fields of education and work has undergone a sea change from what it was a few decades ago." [34]

These two young women wrote about times when fathers were fearful of educating their daughters as they felt they would not be able to protect their daughters' reputations sufficiently, but this attitude was changing, they reported, due to the realisation that educating girls results in raising a better family. Another article35 supported this idea by reporting that some families perceive women's education as an end in itself and part of the process of learning how to handle domestic life, now that modernisation has become a part of Emirati society.

This is consistent with a view that educating daughters is the key to educating the next generation, rather than for individual achievement. By helping other family members and their own children become productive members of society, educating women is seen as an extension to a woman's duties as a homemaker and a mother. From this perspective, the purpose of female education is not primarily economically enabling but is socially motivated. Hamoud (1998) states: "Women form the majority of the educated class among nationals in the UAE, but only a few are working due to social constraints".

Has the picture changed much recently since the case students have entered higher education? How do the women students view their education? Do they perceive the computer as a way of empowering their lives within the family, not just enabling them to get a job? If they do not find employment, for whatever reason, how can their IT learning help within the home?

The questionnaire elicited responses about the young women's preferences for studying at home rather than coming to college as well as their perceptions of their families' views on this issue to help discover views on the purpose of educating females. These data are dealt with later in this section. At interview, questions were asked about the enabling and empowering capabilities of students' IT learning and students responded with a variety of ideas including they were:

♦ more self-confidence,

♦ more knowledgeable,

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[34] Al Marri, Haya & Mohammed Afaf, 1996; "Changing Times" in *Gulf Weekly* 18-24 July 1996, 11-15

[35] Salhi Hamoud, 1998; "UAE women seeking niche in job market" in *Gulf News* 11/1/98

- able to contribute financially,

- asked to give advice to family members,

- able to give information and seen as an information source.

Several interviewees had difficulties understanding the concept of empowerment either due to linguistic difficulties or the notion itself, which had to be clarified by using the words "contribution", "have more influence or more power or say in the family". Thus the language used produced different responses.

However, of the eight respondees, only one, Samah, thought the computer had a negative effect on the family due to the social isolation that computer study could engender:

Interviewer	Is there any way that you think being able to use the computer at home helps a women to contribute more in the family or have more things to say in the family?
Samah	In the family? No I guess less maybe because most of the time will be spent in with the computer more than with the members in doing projects ..that's what I think.

Hala interpreted the question as literally being able to "say more" about events through having access to knowledge and she perceives this as a way to strengthen her personality, possibly being more assertive in the family:

Hala	Yea because you will increase your knowledge you will know what's going (on). In the Internet you can know the news ( ) you can go to site good site and this will enrich your information and you will have you know …I wanted strong personality or ( ) you will know what's going on in the world and this will affect and reflect on your personality.

Fawza seems to interpret the question as being able to contribute financially to the family:

Fawza	( ) the computer ( ) can help the women to contribute in her family only the computer .. it can be as a tool it will help her contribute but for me I don't think so.

Tazha is also confused about the notion of "having more say" but responds to the word 'power' and having generalized about women's low standing with her male relatives, she then clearly views her IT knowledge as increasing her status with her uncle:

Interviewer	Do you think that the computer helps women in a family have more say?
Tazha	To say something?
Interviewer	I was going to use the word have more power in the family?
Tazha	Oh yea for example for me I think that I have more power by using Internet .. for example whenever one of my uncles ask me questions I know more about this thing because I'm using the computer. I know when they come for me and ask me "well I'm buying for my son a computer what is your advice?" I'm a woman and they never ask a woman about something you know and

coming from me this makes me proud of myself that I have a knowledge about this thing. So I think yes it gives the woman a power in some certain things.

Alya also needs clarification and responds to the word 'power' and feels empowered by her mother's pride in her achievements which reflect into the family and increase her status:

Interviewer   Do you think that the computer helps women have more influence or more say in a family?

Alya   ( ) ((puzzled sound))

Interviewer   Or maybe more power? The idea it might give women more power in the family?

Alya   It does ..now I will give you one example ..when my cousin wants to fix something when my mother call me Alya you come and fix it and she feel proud of that I think and also ..me too I feel that because I have a good knowledge about that and even though all my family they say yea Alya come and fix this or do this you know much about this or sort for us this.

Abeer relates the question to having access to Internet information for her children:

Abeer   In the house because like sometimes when the kids need something especially when kids are at school .. they need pictures they need informations .. she cannot go to the library to get all these informations she'll take 4 or 5 hours .. but with the computers and Internet it helps a lot .. she needs only half an hour or one hour you'll get all the information you need.

Iman views herself as an information source for other women in her family who do not have the interest or ability to find new knowledge. She is taking on a missionary teaching role through her technological skills to try to educate her sisters:

Interviewer   Do you think the computer helps women to have any more power within the family any more say within the family?

Iman   I don't know but sometimes for example me I go to sites which teach me how to cook ..like this you mean? And how to choose my dress how like fashion but I prefer to go for cooking and some articles about ladies could be how they can take care of their children

Interviewer   Right and how does that help you?

Iman   When I read article about for example how to take care of your children I always tell .save the information for my sisters because they have children and they hate reading the newspaper and magazine ((laughter)) I always go around them and tell them you have to do like this with your children don't do like this.

Mona, is also unsure of the meaning of the word *empowerment* and the concept of the computer empowering her in any way. Having given the notion some thought, she relates it to improving her personality, not having more to say:

> Interviewer   The idea is with the computer knowledge that this may give women more *power* or *say* in the family what do you think about this?
>
> Mona   [thoughfult] I don't think so. The main benefit is for the person himself or herself if she were a lady .. but she may have more confidence in herself she may be more self confident but it depends on what do the people around her think about her personality around her ....

However, when then asked about how her life has changed at home since she has been studying IT, Mona contradicts her previous denial of having more say in the family by relating how her relatives now ask for her advice. She obviously does not acknowledge the link between the concept of being an advice giver and having a more powerful position in her family.

> Mona   Now I became more self confident .. I know I'm able to answer .. you can say all questions I'm asked about anything for example one of my family member comes to me and asks me about any problem he has or she has ..I'm capable of answering him or her
>
> Interviewer   And this is what they do? Do they bring their problems to you?
>
> Mona   Yes my sisters and even sometimes my father yea .. sometimes he uses my PC and he asks me some questions.

I suggest that the problem with the notion of empowerment is not just a difficulty with the English language but that it links to a deep belief system where Arabic women do not see themselves as "powerful" members of the family and having "power" through intellectual knowledge is not yet an acknowledged role nor, perhaps, a desired one. I agree with the writer of the editorial in "The Realm of the Possible: Middle Eastern Women in Political and Social Spaces" (2001:7) who states that *changes of this nature would threaten these young women's relationship to the family and to masculinity and they are not yet in a position to challenge these notions explicitly.*

Graham-Brown quotes Moroccan sociologist, Fatima Mernissi, as asserting that "Arab identity" has been conceived in a way which regards change as threatening to the moral order, and thus impedes the development both of democracy and the emancipation of women (Graham-Brown,1994:7). Thus any notion that these young women could develop new "powers" through their studies could be an alarming and unwelcome concept.

However, Amani clearly was able to relate the notion of empowerment to her own situation and was keen to respond at length about her changing status in her family which she sees as solely due to her computer knowledge. It is evident that her self-esteem is being improved by her IT learning, a consequence that several students describe, however indirectly. She vividly describes changing attitudes amongst her family that, as mentioned previously, is a very conservative family who do not allow her to work. But she expresses excitement at her new responsibilities as a teacher to her extended family as they become more aware of the need for computer literacy:

> Interviewer   Do you think that by learning the computer women have any more ( ) power or say in the family?

Amani   I will tell you my experience ..first thing when I was interested in computer and I was first one who bought a computer in my family .we are six families living in not the same home six homes but in the same place .so I'm in contacts with lots of people so I was first person who bought the computer ..even my cousin who was studying abroad they didn't used to mention that we know this just when they came to visit us they don't mention about the computer or the language like this. But for myself I used to talk about it the computer ..even the old woman she's not educated she didn't complete her education . she say "computer computer what's this? I want to know " So I used to tell her in a simple way what's this ..someone((thing)) a human invented and like this ..so they were looking what's this but some of them they used to take it as a silly thing ..so what we don't want to learn it we don't want to know about it.

But later on when people they ( ) get aware that the computer as an important thing they used to come asking what's computer? What we should do (on) the computer? So some of them even ..one of my cousins he doesn't have knowledge of the computer and he bought a new computer and he asked me to teach him so I start from the scratch teaching him ..so I feel now they respect me more than before ..they think I have abilities that they don't have and they want ( ) themselves to be like me ..so I think computer is a good thing because it also help me in lots of things like one of my cousins ask me I wanted a presentation for my project but I don't know .. so I help her I take out my disk and tell her this is how I do a PowerPoint ( ) so it help me a lot they become more interested in computer ( ). My cousins and my aunt she keep asking me "Teach me the computer teach me the computer" and I used to teach them some of them the basic things that they needed for their studies.

4.7   NEW RESPONSIBILITIES

Due to the social and cultural traditions mentioned previously that restrain the young women from working outside the home, how can their computer learning be put to other uses, rather than enabling job opportunities? Although a large majority of the study population thought it likely that they would enter the labour force, they recognised that the final decision would be made by the family. The twelve interview participants were all asked whether or not their roles and responsibilities at home had changed because of their computer knowledge. Their responses were closely linked to the views expressed about empowerment, in that the young women were now being seen as a computer experts and advisors to the family, as well as now having the abilities to teach IT to those that do not have access to IT learning, or need to use the computer for specific purposes. Clegg et al (2000) perceived a similar role when they reported that their case women students were being sought out by peers to give advice.

The responsibility mentioned most was a teaching role whereby students disseminate their newfound knowledge to family members. Abeer is identified by her family as the person who can teach the females about computing which she sees as setting them on the path to independent learning:

Interviewer	And do you think any of your family responsibilities have changed (by the computer)?
Abeer	Some of my family ask me to give them some courses with computers like doing classes for computers to teach them ..I did that to two of my sisters and it helped them ..now they are learning. I get them the basic things and now they are learning by themselves ..so it's nice and we said that in summer time we'll have like class for one hour each day so they can learn about it.

Tazha set her brother on a similar path by enabling him to develop keyboarding skills:

"For example ( ) I downloaded a typing tutor from the Internet which I think it was very useful for my brother. He ( ) spent half an hour every day using the typing and now he's perfect in typing he didn't know anything about typing and he didn't know the key where the place but this program showed everything and where he had to press and what he have to do ..it was very good."

Tazha is also used as an information source by her father and siblings as well as a hardware expert:

"I also search for my father he's looking for cars in Germany to buy and some is for my father and some is for me and sometimes for my brothers ..for my smaller (brother) if you want to like see a Disney site or something this."

Interviewer	What do you do when you have a problem with your computer at home or software?
Tazha	Yea from one time then if this problem appears again because I was watching the employer(ee) while he was fixing the computer I just have the knowledge of doing that and I just repeat the things by myself.
Interviewer	In your own family is there anybody you look for advice about computers on or your problems?
Tazha	They look to me for advice. ((laughter))

Even Mona, who is only in the first year of her studies, is seen as an advisor:

Interviewer	Since you've been studying information technology do you think your responsibilities within your family have changed at all or your responsibilities at home
Mona	Yea now I became more self-confident. I know I'm able to answer all questions I'm asked about anything for example one of my family member comes to me and asks me about any problem he has or she has I'm capable of answering him or her
Interviewer	And do they bring their problems to you?
Mona	Yes my sisters and even sometimes my father yea sometimes he uses my PC and he asks me some questions.

Iman, although refusing to take on parental responsibility for her sister's behaviour, tells an amusing story revealing that her sister, exceptionally, accepts Iman's computer advice:

"I have a small sister and she put makeup wherever she go out and I try to tell her and she doesn't listen to me ((laughter)) but in computer and the Internet because I have more knowledge than her...and also about the makeup when she don't listen to me I try to tell my mother ((laughter)) I think however the responsibilities my parents take it."

These conversations show some of the changing social interactions that information technology learning is bringing to Emirati families. They confirm the argument that girls' education is often seen as a way to educating the family, either this generation or future ones. When asked about family responsibilities linked to the computer, the majority of interviewees perceived for themselves a policing role or a teaching role with siblings and extended family members. The latter role relates to Facer et al's (2001) premise that although computers may be in the home, not everyone has access to the learning needed to operate the technology. For these young women, they have taken on the responsibilities of enabling the technology for family members, possibly due to the current lack of computer studies in the school curriculum and the fact that older family members, (particularly the women), may not have completed their education and thus do not have the skills to teach themselves.

Recognising a time when they may stay at home instead of going out to work, Sara, Tazha, (both in their final year) and Lina, in her 2nd year, all view the computer as a tool to enhance women's role of teacher.

Interviewer	If you don't get a job after graduation, in what ways do you think your computer learning can be applied at home?
Sara	(people in the family) asked me to help them I would give them each week on how to use these ..happy to (do) this.

Interviewer	From what you're saying there even when you get married you would are you assuming that you will stay at home ..and not work?
Tazha	Yes
Interviewer	Who will make that decision?
Tazha	My husband ((laughter))
Interviewer	If you didn't go out to work how do you think you might use your IT?
Tazha	I'd use it for my children for example if they're grown up and even if they're one or two years they can see pictures they can see (and) hear sounds from the computer. I might ( ) help if my husband's family needs any help I might help them teaching them about computer even teaching them English ( ).

Interviewer	If you didn't get a job outside the home for some reason how do you think your IT learning could help you?
Lina	You mean inside the home?

Interviewer	Yes if you stayed at home and you didn't get a job how do you think maybe your knowledge and your learning..?
Lina	I might teach my brother's daughters because they are young I can teach them the software and learn them basic things in computer .. and I may go to registration to do some other courses to build up my own knowledge ..I would be better
Interviewer	And have you been doing some teaching?
Lina	Before I was teaching my sister how to use the Windows and the Office and to use the Word ..I teach them several steps ( ).

Alya, who says she has decided to become a teacher, has already gained experience of teaching software:

Interviewer	You talked about wanting to be a teacher. Do you have any teaching experience in your family?
Alya	Yes my auntie she is a teacher in a school so she is teaching Islamic course .. she didn't know anything about using computer even the typing in Word she wants to type . she want to type some exams or something she told me Alya come and help me. I said OK . I taught her about daily maybe half an hour half and hour like that and also my sister she is in health science .. she did before she graduated they asked them to do an Access portfolio or something .. she didn't know anything about Access. I helped her step-by-step ( ).. then I asked her about her grade she got A in this subject. ( ) Who else? ((thinking)) .....my sister in foundation because she came to this school in our summer holidays I taught her typing tutor ( ) I started with her by typing tutor then by Word.

It can be seen that the young women interviewed are making use of their home computer and having access to information technology learning by taking on a specific educational role within their families. Although not consciously using the technology as a means of empowerment, their status in their family groupings appears to be increasing as they are perceived to possess useful information that others members lack.

Amani, although she is not allowed to go out to work, shows pleasure at the idea that her computing abilities could earn her money:

Interviewer	Obviously your role in the family is very much seen as linked with the computer?
Amani	((eager to speak)) Yes even yesterday one of my aunts she told me that if you taught me at least 3 times a week one hour I will give you one thousand dirhams each month monthly .. so it's a good income
Interviewer	This is how you can use your IT learning?
Amani	Yea yea.

4.7.1 Working from Home

When queried about the concept of being able to work from home and earn income, reactions varied from relating stories about other women setting up a business to lack of interest or knowledge about the idea. Amani talks of a college initiative which may help her:

Interviewer	This idea of working from home using the computer and earning income is that normal - are a lot of people doing this?
Amani	I don't think so but now they are thinking of doing this kind of thing ..working through the internet to gain income and things
Interviewer	And you think it's possible?
	Yea I'm not sure here ..in the college I met some girls they wanted to make the {biyani} community or something they have the facility and Sheikh Nahayan give them I think a room with fax and computer and everything .. I just attend one of their meeting and I like their way one of them she her father he has a big business but she cannot work in her father's company but she can give them her idea .. what was her idea has to do a home page in a business in the Internet doing a home page and selling wedding invitations for people so she's going to work in her home but her father he's going to give her the money like this .she needs to do a business study so they are starting to do this
Interviewer	And you would like to be involved in that sort of thing?
Amani	Yea..it gives me lots of ideas and I think about it gives me lots of possibility

Lina reveals her business experience when also considering the opportunities provided by the Internet:

Interviewer	Do you know of any Emirati ladies who have started any businesses from home instead of going out to work?
Lina	((immediate reaction)) Yes I know one women who was selling abeya and sheyla ..she's very old she was maybe 35 when she start and she was bringing just sheyla and abeya from Dubai because it cost her not that much because if you make it here it cost you many money ((that's)) why she bring it there already made and she sell it for women and now she's very famous and she has her own business in her home
Interviewer	Do you think if people have computers at home it would help women set up businesses at home?
Lina	Maybe because they might order by the Internet or they send it by fax the order and it should be a good business for her ..I even start my own business with my sister but we close it ((laughter))
Interviewer	( ) Was that from home?
Lina	We started from home and then we buy one shop and we put it there .. I was the worker there ..I meet the customers most of them was locals ..it was a good experience for me.

Abeer from BIT acknowledges the feasibility of working from home and is planning to use her programming abilities to earn money.

Interviewer	If you didn't go out to work, do you have any ideas of using your computer at home?
Abeer	I was planning to do some programming things like there's some programs teaching programs and I like doing working but at home ..the new type of working ..you do a program and you offer it to a company and if they like it and they want it they will buy it ..if not then you offer it to other and other I was planning to do something for kids because it's now the market for kids everything going out for kids and I saw some of the programs they have the songs and characters and such things and there's like special characters like Barney and kids like it so I was planning to do this for them .. teaching them and having fun
Interviewer	And you think that your IT curriculum has prepared you to be able to do this?
Abeer	Yea I've done one program about UAE .it gives you a brief idea about UAE before and UAE now and how it's changed it's like a tourism guide and gives you places where tourists can go and such things but now I'd like to do something for kids I really enjoyed to do..I want to do that like
Interviewer	Have any women in your family have set up or are working from home?
Abeer	Actually in my family no but I have one ..she's now doing a work but not with computers ..she's cooking and selling the food that she's cooking at home
Interviewer	An Emirati lady?
Abeer	Emirati lady and I think she's gained a lot of money of that like she says like she did this food the Egyptian food we call it (mashi) and she said I gain about one thousand dirhams for one week which is good she took all the expense out and the profit it was one thousand which is good she said it's nice because she's perfect at these things she's working but she's doing other work at home too
Interviewer	In your opinion could you see this setting up business at home cooking or doing something?
Abeer	If she's at home she will be relieved and she will not think about her kids because they'll be around so she will give more than working in a company and I want try that and I hope I will [use
Interviewer	[using your computer?
Abeer	Yea using my computer doing programs and sell it out and see how that work.

Fawzh, who is also married, sees it as a new idea that may help women in the future.

Interviewer	Have any women in your family set up businesses or are working from home?

Fawza	No
Interviewer	You might say not yet?
Fawza	Yea maybe in the future
Interviewer	Can you see perhaps how the computer might help particularly women who can't go out to work?
Fawza	I believe this is a new idea that people or women can ( ) a business certain company or firm while she's sitting at home it's still a new idea in our society or in our culture and I don't think would accept it as because still nobody start with it or maybe less people do it and maybe still that no there's no firms or companies start to do this way of hiring people and .. I mean ( ) the process of work will be done in this way ...( ) maybe many people will try because many women are educated and they have the ability but because they are raising their children they prefer to sit at home raising their children than working ..if their husbands have enough earning and like that.

Neither Hala, Samah or Nour knew of anyone working from home nor expressed interest in the idea. Students' responses indicate that the notion of earning money from home is not an established tradition in Emirati society, but throught their IT studies and the technology now available at home, students are beginning to see some opportunities of a new way of working.

The data reveal the personal growth and the opportunities that the IT studies are creating for the women in the face of the complex issues surrounding their private and public lives. The enhanced self-confidence that results from their college progress and experiences at work is leading them towards new horizons and expectations from within their families, as their role as educated daughters and wives is affecting their own and others' development. The contradictions between their aspirations and the ability to achieve their goals remain largely unacknowledged, but the women's undoubted abilities to persuade and negotiate with their family gatekeepers indicate a way to continue to extend their boundaries, given time.

4.8   SUMMARY – CATEGORIES OF DESCRIPTION

As mention previously (p29), the aim of this phenomenographical research was to construct categories of description of the different kinds of conceptions held by the students themselves of their IT studies, through my interpretation, as the researcher, to produce a "clearer and more articulate account of student conceptions than students would themselves generate unaided" (Ashworth & Lucas, 1999:4). The following summary of the findings draws together these conceptions and understandings.

From both the quantitative and qualitative data, it is clear that the young women think positively about computer technology even before they enter their career studies, which helps them choose a program major that enables them to develop their computing knowledge and skills to an advanced level.

Their conception of the technology is linked to images of the modern world and they perceive their studies as dynamic and challenging and a way to bring about change in their own lives and in those people around them. It is a vehicle towards modernity, whether or not they see themselves as using their abilities for employment, for personal growth or for other purposes within the family. Their understanding of the computer is as an enabling technology that helps them move from a position of isolation within their society's and families' traditional constraints regarding women towards a broader view of themselves and the world around them. It is thus seen, however covertly, as a bridge between tradition and modernity. The extension of this notion to the computer as a liberating technology which could counteract the cultural restrictions that I, as a western researcher recognise when interpreting the women's conversations, is not openly acknowledged as the young women do not seem frustrated with their customary compliant role, yet they do express a desire to become modern, as depicted in their images of the use of computers in movies and in the business world.

Even before they joined a specific major, the students had come to understand that computing as a discipline consisted of two main areas, divided in their minds as the knowledge and skills which are (1), involved in the technology itself; the physical aspects of the hardware, the programming and the networking that enable computers to operate and (2), involved in the application of the technology to produce products related to business and/or personal use.

They clearly understood that the first knowledge base would equip them for a more technical role, whilst the second would enable them to become efficient end-users. Thus they already had an understanding of the general notion of a "hard" end of computing contrasted with a "soft" end and this understanding had a considerable influence on their choice of study major: Business Information Technology, which is aligned to the "hard" end of computing, and Information Administration, which is related to the "soft" end. Although the girls did not show much knowledge of the actual *content* of either program, they understood the different general *outcomes* of their programs from their previous studies, teachers, peers or IT graduates and how these could affect their progress. Thus they had already had a perception of a desired role *with* the computer technology that they hoped their studies would achieve.

As well as their understanding of outcomes and resulting roles, students perceived technical computing as more difficult and needing higher intellectual abilities, plus a different mode of delivery than the end-user applications. It needed more memorization, textbook learning and complex thinking, whereas they understood the practical tasks that they saw as the main learning mode for an end-user were easier, more relevant , enjoyable, less isolating and more capable of being achieved.

However, there was a sense that the IA students perceived their major as something less than BIT, as for several girls it was a second choice. This notion of deficiency increased following work experience in their final year, when several girls realized that the "hard" end computing abilities carried more status than the software application skills, resulting in less overall satisfaction with their EWC studies.

Although both IA and BIT cohorts had similar perceptions of the intellectual level required and the different delivery and learning modes of their programs, neither groups questioned or acknowledged the fact that, on completion of their studies, graduates from both programs received the same level of IT award: a Higher Diploma.

Students' conception of having an affinity for and with the computer was closely intertwined with their ideas of practical usefulness. All students liked the technology and what it could do for them, but the desired outcomes were not always study or work-related. Both students and their families valued this underlying theme of practical usefulness. Yet whether it was this usefulness and the enhanced sense of confidence that these tasks achieved caused the young women's liking for the technology, or vice versa, is difficult to say.

The technology certainly enabled them in several different ways and could be seen to empower them within their families and within society. Students conceived their studies as having a liberating effect by enabling them to come to college, instead of staying at home, yet they were ambivalent about whether or not they would prefer to study at home, if they had access to on-line learning programs.

Studies also allowed them to negotiate access to the Internet at home for their study needs, thus gaining access to more information and communications, so broadening their horizons, yet the young women did not clearly conceive a link between their developing computer knowledge and their changing relationships within their family. Even though they talked about new roles being taken on within the family resulting directly from their studies, there was still a strong idea of compliance with tradition within the family and in society, which would take precedence over any modernizing and liberating effects of the technology. Until the women acknowledge the problems that their compliance to male family authority creates, they will not take the necessary steps, nor use the technology available, to break out of their current restricting life style.

Chapter Five gives an overview of the findings and conclusions about the enabling abilities of the computer studies and technology in the specific contexts of the findings.

5	CHAPTER FIVE

5.1   OVERVIEW OF FINDINGS

The final chapter of this story about Emirati women students revolves around the effects of information technologies in overcoming women's isolation from public spaces brought about by the socio-cultural contexts surrounding their lives. The following diagram illustrates this concept and the interfaces show some of the ways in which computers are helping in their advancement.

Figure 5i : Developing broader visions of a future with technology
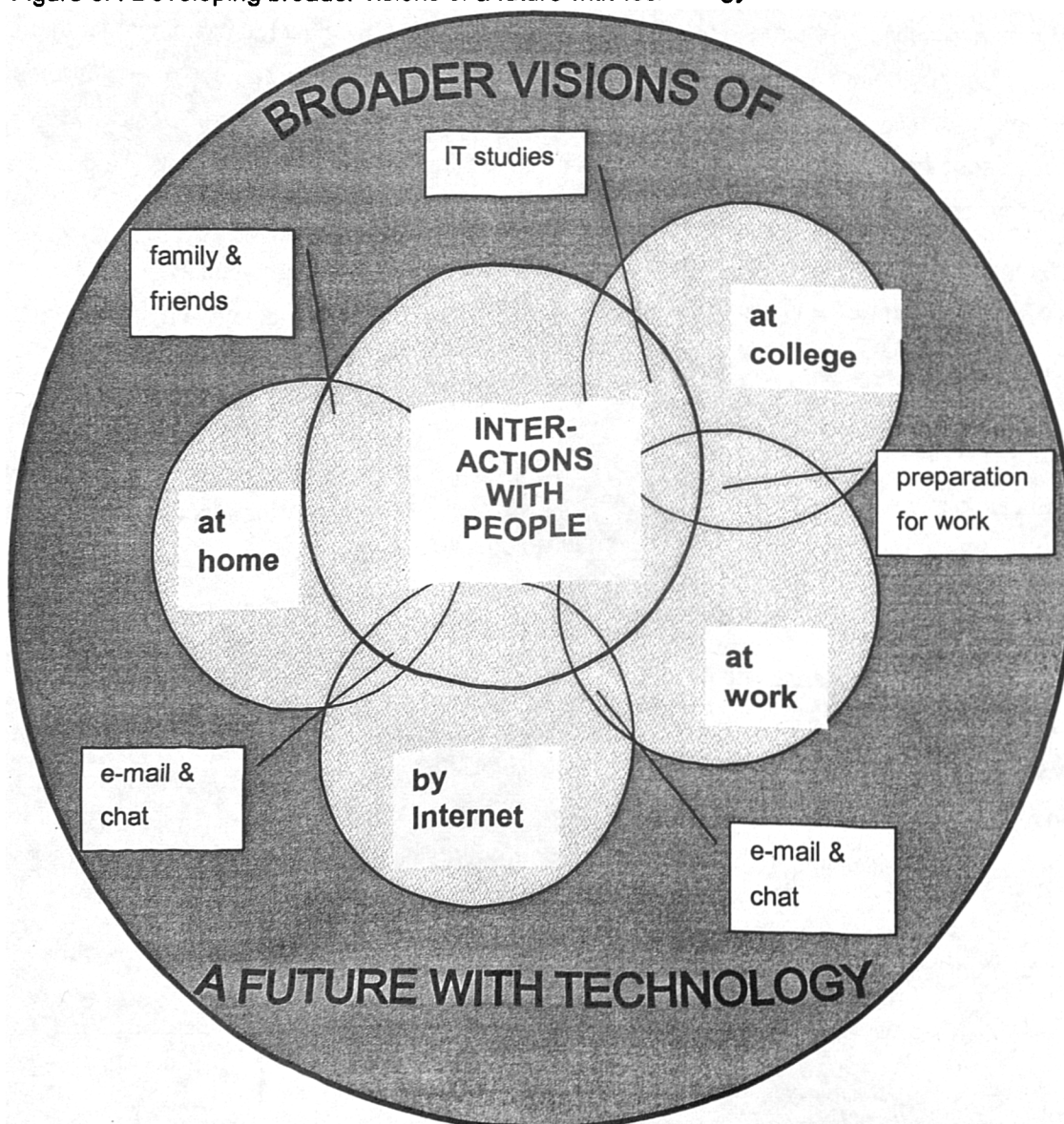
Through access to and application of computer and communication technologies in their studies, their homes and the workplace, the women are increasing their interactions with people that lead to broader understandings of different cultures, value systems and lifestyles. The linguistic and computing abilities that they are developing, which are currently in very high demand in the UAE marketplace, would enable them to contribute to and maintain their position as a pioneering group of women in Emirati society. By showing their capabilities to move into the public arenas and move beyond their current boundaries, the young women would play an important emancipatory role for themselves and for future generations. As they develop more confidence and learn to be heard in public debate, they can promote more inclusive societal and business practices.

As previously mentioned, I had formed the impression that this generation of Emirati women students were at the forefront of societal changes; firstly by being among the first generation of national women to have free access to public higher education and secondly, by choosing to take information technology studies to an advanced level. My research has added greatly to this impression because all students have expressed strong motivation to contribute to the development of their nation; whether by becoming economically active outside the home, by passing on their knowledge to family members who have not had access to learning, thus addressing some education inequities, or by being better-educated caretakers of the next generation. All this despite the tensions between their ambitions and current social, economic and political contexts which I conclude from investigating the whole picture, but which the women's responses do not always acknowledge.

In order to ascertain the enabling effects of computing technology in the women's lives, I ask whether or not computer technology is empowering these Emirati women? I quote from Golnar Mehran's useful study of new opportunities for Iranian women, another Muslim country undergoing radical change:

> "What is empowerment? To understand the role of education in empowering
> Iranian women, one must first understand the importance of empowerment as an
> element of development. Empowerment has been defined as 'the process by
> which people take control and action in order to overcome obstacles' (UNICEF,
> 1997) It refers to 'collective action by the oppressed and deprived to overcome the
> obstacles of structural inequality which have previously put them in a
> disadvantaged position' (UNICEF, 1997). Furthermore, the Women's
> Empowerment Framework, propounded by UNICEF, views empowerment as the
> goal and the essential process for women's advancement. It is the process by
> which women mobilize to understand, identify, and overcome gender
> discrimination and achieve equal access to resources (Mehran, 1999:203).

She explains that by passing through the five hierarchical levels of UNICEF's "Framework for the Equality and Empowerment", women should reach increasingly higher levels of equality and empowerment. She outlines these as: "(1) welfare (meeting basic needs); (2) access (to resources and means); (3) consciousness raising (gaining awareness of the problem); (4) participation (in decision making); and (5) control (high level participation and planning)" (Mehran, 1999:203).

The next section addresses some enabling (i.e. empowerment) issues that I return to in Chapter Six:

5.2   ENABLING POWER OF IT STUDIES

Overall, the findings from the questionnaire data, interview conversations and documentary evidence present a picture of a group of computer literate young women who are incorporating the technology into their daily lives in many different ways. The amount and quality of modern computing resources in their homes is high and data suggest that a large majority of homes are Internet-connected. The broad picture leads me to believe that the case study women have a considerable amount of autonomy in the decision-making about their studies, in their access to and usage of the home computers.

It is in the area of their future expectations about finding employment and being allowed to extend their roles to include outside work that students are less certain. The autonomy indicated over their studies is not extended to decisions about life after graduation and the data clearly shows that family attitudes often conflict with the young women's personal preferences, especially in the areas of finding employment and studying from home.

The gender inequities that are prominent in the western academic literature about computer studies are minimised in this segregated college, thus the women's progress is affected less compared to their counterparts in some western colleges. The only imbalance is in the provision of more "soft" computing courses in the women's colleges than the men's colleges. As the notion is still prevalent in Emirati society that women, if they want to work, should be employed in stereotyped female jobs and traditional female areas such as administration, teaching, and health, as illustrated by female participation in local government departments, the omission of computer studies including programming and computer science topics for women is not yet considered a problem. However, if such courses provide women with more advanced technological knowledge and abstract thinking, this might give them more opportunities for promotion and enable them to compete better in the male-dominated technological work place (Clegg & Trayhurn, 2000), although they might find resistance from their male colleagues.

Several gaps in the computing curriculum were illuminated during students' work experience. These resulted from some employers' understandings of computer studies as computer science, similar to the male-constructed meaning referred to in Clegg & Trayhurn's study (2000) that has evolved historically from initial military applications and the impressions that computer science involves high-level abstract thinking similar to mathematics, rather than seeing it more inclusively which represents the practical nature of the HEC IT curriculum.

Although the UAE is seen as a "developing" country both economically and socially, it is a rich nation and dedicated to providing the best educational facilities for its citizens. As the government's avowed intent is to become a modern technological state, it is prepared to fund colleges to resource the laboratories with modern facilities. Thus availability of computing resources to EWC students is not a problem, compared with many schools and colleges in other "developing" countries. The case students have plenty of opportunities to access state-of-the-art

computer equipment as required to fulfil their study commitments. This supply of quality resources is contributing to a high level of positive attitudes amongst the girls towards their computing studies because it provides, in reality, all IT students with their own college PC; this means there are few demotivating battles for access to hardware or software as reported by other research projects (Durndell et al, 1995; Facer et al, 1999; Harris, 1999; Clegg & Trayhurn, 2000). Thus the resourcing aspects are helping to motivate the women to become computer literate and prepare them for operating in today's technological world.

Overall, the study participants talk about IT in a very positive manner and appear satisfied with their choice of program which they see as more useful in developing their interpersonal abilities of communication and collaboration, plus work-related skills such as time management, planning and organisation of self and work tasks, rather than building specific IT knowledge. This supports Clegg & Trayhurn's (2000) premise that girls *are* willing to study IT but only when combined with more practical subjects as a way of developing these generic work-related and personal skills. The ability to be able to interact successfully in the workplace is of special significance for these young women, because many have little experience of public places and thus are less used to dealing with people outside their households, particularly men. In addition, the opportunity to increase their English Language skills through their IT studies is rated highly, not only for preparation for work, but enabling them to interact with different people via the Internet, either for study purposes or for entertainment.

The Emirati students appear similar to Stepulevage & Plumeridge's case women who came to studies with experiences of using computers as administrative tools and thus conceptualise computing "as a skill to be practised rather than simply the application of logical, rule bound procedures" (1998 cited in Clegg & Trayhurn, 2000:125). Because, as Clegg says, the skills needed to use computers in this way are "associated with end-use, they are rarely given credit as 'real' computing" (Clegg & Trayhurn, 2000:125), notions shown by some UAE employers, according to the girls' work placement accounts.

Thus, the attitude of the IT students is *"we can – we want to"* compared to the women in Sianne's study (1990) who took a *"we can – we don't want to"* stance. However, the latter's comments were spoken in relation to the perceived gender inequity of their IT studies whereas, in this research the college community is female-only and direct competition between male and female students for domination over resources is not an issue.

The majority of case students did not seem to have specific career plans or see themselves in a particular profession or job related to IT, probably due to the tensions between students' aspirations and family pressures. Thus most had not identified a specific career path that could lead them to fulfil the pioneering role on which they have embarked through their educational studies. There was some mention of further studies by a minority of participants, but this usually referred to filling in the gaps in their current studies, rather than moving forward into other areas, again adding to the picture of little forward life planning, which is likely to be related to the Islamic

belief that the future is in the hands of Allah (God), as instanced by adding the words "insh'allah" (Allah willing) whenever a future action is expressed.

The young women obviously valued their college studies for the opportunities it gave them to interact with expatriate teachers, both male and female, which in itself increases their awareness of other nationalities, but where is all this hard work and effort leading? Although 88% of students thought they would find employment after graduation, and HEC post-graduation surveys are positive, the longer-term labour statistics and local press reports do not indicate a large increase in the numbers of national working women, although recent increases might not have reached publication yet.

Does this mean that the liberating effects of the young women's college and IT studies are only short term or are the effects being transferred to the privacy of Emirati homes so that the girls can continue promoting change from within their families?

5.3   ENABLING POWER OF COMPUTERS IN THE HOME
5.3.1   To study
If further education were seen as the way forward, the majority of the IT students have the computing resources at home to be able to study on-line. The case population were divided in half on whether they preferred this method of delivery, yet more students think their families would prefer them to stay at home, showing that family thinking about women progressing into public spaces is lagging behind their daughters' aspirations, which is likely to produce family conflict. Thus the liberating effect of computer technology is unlikely to overcome the established behaviours already present in the family (Facer et al, 1999) and the study shows the socio-cultural practices of isolating women for their protection still dominates in many families. However, the Internet connection present in most Emirati homes does provide the women with another avenue to the outside world and is being used to help change the girls' roles in the home. They are increasingly being seen as teachers and advisors to family members and included in decision-making about the appropriateness of Internet use.

5.3.2   To widen communications
Despite having some benefits, Internet access is a contentious issue amongst families, with parental authority having to be negotiated to allow connection. Because of students' expertise with computers gained from their IT studies, most parents are willing to allow access, within limits linked to parental and society's notions of acceptable behaviour for females. The Internet is seen as an enabling tool for coping with advanced study and for communicating, but is also seen as a risky enterprise as parents are aware that daughters' reputations could be tarnished. For example, if it became known that a daughter were "chatting" or e-mailing a boy, her good standing, (and that of the family), in the community could be affected.

This group of young women are already showing themselves to be adept at pushing society's boundaries but within the family, this appears more difficult. However, to promote change, the girls have to push the barriers to accepted female behaviour and they are doing this in their usage of Internet   communications. They are aware that they are stretching the limits of acceptable cultural

and moral behaviour by using e-mail and chat lines but most feel they are acting within their personal moral codes. However, the strong ethic of care and responsibility for others that surrounds these young women's lives (Gilligan, 1982; Richardson, 2000b) surfaces in their concern for peers and siblings using these communication tools which they view as more uncontrollable. Thus they perceive weakness in others but not in themselves.

5.3.3   To bring learning to others

Within the family, the young women are bring learning to the "have-nots", both siblings who do not have computing access at school or access to the learning required to negotiate the technology, and others who do not have the education. They advise about and teach computing and Internet to family members, thereby enhancing their self-esteem and family status, but their expertise also brings added responsibilities of policing Internet use with siblings. These duties may not be welcomed but are accepted as part of the ethic of care mentioned above and which helps form their personal value systems and underpins their behaviour.

5.3.4   To be valued by family

Thus, as their families realise the girls' computing abilities, the young women's situation and status at home is changing. The technology is enabling them to have a voice, especially with men who previously did not listen to women, particularly young girls. This is increasing the parents' pride in their daughters and adding to their daughter's sense of achievement.

However, Emirati families do not always value the young women's educational achievements, as I have witnessed (but is speculative as I do not have data on this), because *any* cause for gossip about females, whether good or bad, is considered by a few families to be unacceptable. Thus being the first woman to be employed in a family or the first woman to drive a car can be cause for family arguments. Being in the vanguard of change in this society at the intersection of tradition and modernity is not a comfortable position.

5.4   ENABLING POWER TO ACCESS EMPLOYMENT

Joining the paid workforce is one way of broadening horizons and helping national development. Although these may be seen as pioneering young women, many are unfamiliar with different environments outside the home. The work experience part of the IT curriculum helps them to overcome their insecurities when dealing with people, especially national men, which have resulted from their segregated education and secluded home lives. It increases interactions between sexes and students realise that their studies are preparing them well to handle both work and personal situations. Thus the IT studies are viewed as a way of practising for employment and, for some of the young women in the case population, it may be the only time they will access an outside working environment. As yet the notion of working from home is not established but several women expressed possible ways of using the technology to earn an income.

Overall, this particular group of Emirati women are using their computing resources to widen their interactions with people and thus achieving broader visions about a future with technology which is lessening the gender divide in Emirati society.

These young women are pushing the boundaries of their society. The conundrum is that pioneers become famous; they make themselves known simply by breaking new ground. Emirati families still do not welcome change if it means their daughters or wives get talked about which could affect their reputations. Thus societal change is being resisted at family level because the need to adhere to traditional customs appears to be, at present, stronger than the need for females to become economically active and contribute to the family income.

The young women understand the need to negotiate, persuade and infiltrate rather than copy the more strident western ways of initiating change. At present, Emirati women do not appear to want to be heard, literally, but their education is already having an impact in their homes and, less obviously, in public.

5.5 CONCLUSION OF THE FINDINGS

The findings from the literature and the data lead me to conclude that the tensions at the macro societal level that conflict with the micro level of the family and domestic environment exert considerable pressures on the Emirati women students. The case students have aspirations to be part of national development in this rapidly changing country and to this end have chosen to become technologically literate. Yet the centrality of the family in this Arab nation and the cultural and religious norms that form the basis for women's roles and responsibilities appear to be hindering women's progress towards their goals.

At the macro level, Emirati society is in the midst of enormous changes as they move rapidly from a poor, isolated desert society to a rich, technological economy with international connections. The autocratic rulers who make up the government encourage their small Emirati population to contribute to development and exhort both national men and women to join the labour force in an attempt to nationalise the workforce. Therefore the government openly exhorts women nationals to find employment, especially in traditional female working areas such as education, health and social services and to this end have passed equal opportunity labour laws. Therefore there is political will for women to become economically active and contribute to national development and educating women is seen as playing a key role in this process. In contrast to western popular belief, the religious tenets of Islam do *not* prohibit women working, although it does give priority to women's role as wives and mothers. When added to the Arab cultural values regarding the centrality of the family and traditional customs that lay the responsibility of family honour on women, they can have conflicting influences on young Emirati women's life decisions. Although a large majority of the case students believe they will join the workforce on graduation, they concede that they do not have control over this decision and are less certain that their future husbands or families will allow them to find paid employment outside the home.

On the other hand, although the way is open for women to become employed, the male rulers also exhort women to prioritise their roles as wives and mothers and to produce more Emirati babies to increase the small indigenous population, whilst male religious leaders encourage women to preserve religious and cultural traditions and maintain the stability of the family. The patriarchal society and patrilineage means that men have responsibility for, and control of, female family

members. This requires women to behave in male-constructed, culturally appropriate ways at all times lest they become the subject of gossip in society, which would bring shame upon themselves and their families. The case females themselves appear to accept this position, even though they are aware that it may conflict with their personal aspirations.

At the micro level within the family and home, not so much rapid change is taking place. From the conversations with the young women, it became apparent that they believe that the family is central to their well-being and whilst they usually defer to male authority, they are also practised at using negotiation and persuasion as a means of reaching compromise, so they do have *some* input into decision-making, such as their choice of college studies, the need to have access to the Internet and, in some cases, their place of employment. Their descriptions of the controls exerted on them show that the majority of Emirati families in the study display conservative attitudes and are loyal to the patriarchal customs of Arab tribal life. Although families show obvious pride in their daughter's educational achievements and their evident personal growth, they are ambivalent towards their daughters finding employment, thus supporting the notion that the main purpose of educating girls is to educate the next generation.

For themselves, experiencing the effects of college life and interactions with expatriates, the young unmarried girls, whilst accepting the likelihood of marriage and children, see a wider vision of their lives with probabilities of finding employment, but they accept that they are not in control of these decisions. For the two married women with children, being employed is more likely and their concerns are mainly about balancing child care duties and work commitments, so it would appear employment after marriage may not present so many problems. For the two older unmarried women in the case, their vision still revolves round family duties but also includes becoming economically active, whether outside or from within the home.

The girls in the case are well aware of their need to preserve their reputations within their families and in wider society and, although they are positioned at the vanguard of change in their society, they still prefer not to take risks with their reputation and rely heavily on internalised moral and cultural codes to guide their behaviour. Their lives revolve around the college and the private spaces of the home and with the majority in the case, their experiences of public spaces are limited.

Overall, the findings lead me to conclude that these young Emirati women do not have much experience with interacting with many different people other than their own family members and it is through this avenue that information technology is enabling them to move forward their boundaries that are currently being curtailed by socio-cultural, economic and political influences. I expand my conclusions and reflections on the research in the final Chapter Six.

6 FINAL CONCLUSIONS

One of the major learning points for me as a researcher has been the ability to progressively focus on the issues and phenomena that were revealed as the work continued, that enabled me to develop my analysis out of an interaction between the data and my prior and post data collection reading. At each stage of the research, as ideas began to surface from the data, activities were re-formulated in order to strengthen or refute the analysis. I found this constant re-focussing a difficult cognitive process, which often lead to bouts of frustration and confusion as I realised changes were occurring. However, when a clear picture of the women's standing in Emirati society appeared that enabled an overarching "story" to be presented, I concluded the effort in using this flexible process was worthwhile.

In such a phenomenographical study, researchers are advised to bracket out their pre-conceptions of the subject under investigation, even to the extent of doing no literature review that could influence their listening to personal accounts. Yet entering the field totally unprepared could lead to an undirected research design resulting in an unfocused study. When using just a few hunches to give the work some starting point, I experienced difficulties controlling the sheer amount of rich data produced, so that without any parameters provided by pre-conceptions, the task would have been even more problematic.

Although the research focus changed, the research questions remained to answer. The research activities of data collection, analysis and interpretation have resulted in the following conclusions being drawn in answer to these questions.

6.1 RESEARCH QUESTIONS REVISITED

Q1 Why do Emirati women students at EWC chose to study information technology as their career major?

Students exhibited a high level of autonomy when deciding which program to study with two-thirds of the population relying on their own judgement with few outside influences. Although in some areas of decision-making it became obvious that these young women were strongly influenced by other people, especially from within the family, their status as some of the first young women to take tertiary studies locally possibly precluded them from referring to family for advice. An insignificant number of case students reported being influenced by female relatives, but as there

are still only a limited number of HEC women graduates, their choice would require a level of self-reliance on information gained whilst at college. However, I surmise that those family members not having the educational opportunities themselves would wish to encourage younger women to do so.

The main conclusion about choice of study was that the majority of the case students did *not* relate their selection of career major with a future career, which contradicts the nomenclature of *"career"* major for all study programs constituting the final two years of HEC Higher Diploma awards. Although a majority were aware of the general nature of the courses, when selecting a Business Information or Information Administration program students showed little awareness of the job opportunities that could result from their choice. I conclude two reasons for this: (1) the lack of financial need to find paid employment and, (2) the cultural seclusion of most young women preventing them from accessing work environments, although even those few girls who had been employed previously displayed little knowledge of career prospects or job tasks related to IT. Another apparent reason was the paucity of career information available within the college and local community.

Although a large majority of students thought they would find a job, this certainty reduced as they neared graduation. Although there is some confusion about exact figures, the available labour market statistics, local newspaper reports and this study data suggest that, although graduates may find jobs initially, women often leave the job market on marriage, maybe to re-appear later, as indicated by the small sample of married, working women in the study. Certainly the case students believed that they did not control this decision, thus planning a career is problematic.

From a personal, unsubstantiated viewpoint, I believe such lack of forward planning may result from the Islamic religious tenet that discourages human intervention in the "will of Allah" plus the lack of a future tense in the Arabic language, limiting the expression of, and possibly thinking about, the future. Therefore both cultural and religious notions may affect the young women's desire, and ability, to plan for a career. This, in turn, may limit the benefit of providing resources on career information.

Program selection was done on a less cognitive basis, with affection *for* the technology and *using* it being the main influences. I conclude that (a) the high quality and quantity of available technological resources, (b) the long hours spent interacting with the technology both in college and at home, and (c) its accessibility to cater for their immediate practical needs, have helped develop this positive response. However, there were murmurings of discontent from a minority of women, (and their families), about the time taken up with study demands, especially when they conflicted with other domestic duties.

The reasons for choice of study were closely linked to students' expectations of their IT learning and it was difficult to separate much of the data, as the only responses directly related to expectations came from questioning about work experience with the third year cohort. However, students expressed their views more indirectly when talking about such issues as computer availability, usage, improving abilities and changing roles.

Q2 What are the expectations of students at EWC about the IT curriculum and do they feel it is meeting their expectations?

The young women chose to study IT for both affective and pragmatic reasons from the limited educational alternatives available and the practical uses of the technology, rather than because of interest in computing subjects per se. The themes of liking for the computers and the practical usefulness of computing were intertwined and were clearly very closely associated in the students' minds.

The lack of knowledge about specific computing subjects opens the question as to how well informed were they about information technology as a subject when they made their program choices. How aware were they of the different focuses of the two IT majors and the consequences of this for future employment or study?

The data indicate that most students were aware of some differences, especially the Information Administration (IA) students who were more aware that IA did *not* include technical computing aspects. It was clear that these students had eliminated Business Information Technology (BIT) because they knew the technical aspects were included and so they chose the software applications and practical tasks of IA. A few students also viewed BIT as the more difficult option which they did not have the abilities to enter or to achieve. Never-the-less, the applied nature of both IT programs, relevance to business applications and the potential to develop interpersonal and work-related skills, influenced students' selection.

As mentioned in the last section, few students expected their studies to lead to a specific career or particular work tasks. Thus they were not expecting to accumulate a specific set of job skills that could help them find employment in a particular area. There was also little mention of further study leading to higher qualifications, although this was not a specific line of enquiry, therefore I conclude that these programs are not seen as a pathway to higher study, (although there are currently few Bachelor or Masters courses available to them locally). However, this may also link to the unwillingness to plan for the future as mentioned above.

Students from each year spoke of their growing self-confidence to communicate and collaborate that they saw as a direct effect of their studies. It was these aspects of personal development that they perceived as important rather than building up particular IT knowledge. Although a few individuals mentioned some aspects of the courses that they thought they might apply outside college for other purposes, such as writing programs for educational use and designing websites, there was little awareness of different IT content and skills being developed as they progressed through the years.

All except one student expressed satisfaction with their IT studies and most said their program was meeting their expectations to a large extent. However, their responses may have been influenced by my position as their teacher and because they were used to being compliant. The final year students were the only cohort to test their learning during work experience and most seemed

satisfied with their preparation for work, although several gaps in the curriculum were identified when they applied their IT abilities in the work place. However, as local statistics indicate that many will *not* enter the workplace, the strong curriculum emphasis on *work-related* IT abilities may be misplaced.

On the whole, these gaps could be identified as IT knowledge and skills that were included in the alternative IT course i.e. the program to which the student did *not* join. This indicated that some employers were not aware of the different focus of the two programs and thought all IT students were trained in both hardware and software aspects. Thus, as students had deliberately selected either IA or BIT because of these different focuses, they were right to complain that employers now wanted skills that they would have possessed had they chosen the alternative program. This was more apparent for students from the IA program who had advanced software skills and who were expected to also have networking or programming abilities. I suspect that the BIT students had the latter abilities plus a basic knowledge of software applications. This would indicate that employers were satisfied with basic software competencies for work experience job tasks and did not need the advanced skills that IA students possessed, but expected more hardware competencies from anyone who professed to be IT students. This suggests a lack of employer knowledge about the different aspects of the information technology field i.e. between computing studies and ITC, and the HEC program content. Their view of IT may be explained in gender terms because in the literature, academic enrolments indicate that men are more likely to study the "harder" end of computing studies and women the "softer" applications end, and, in the UAE, work experience employers are more likely to be men than women.

The main reason given for selecting to study IT by the majority of case students was because they liked *using* computers. Thus their expectations were being met by ensuring access and availability to the latest hardware and software. The segregated nature of this women's college prevents the battles for domination of computing resources that is reported in mixed schools. The generous allocation of computing technologies in the college enables access as required, within the constraints of the timetable. This availability and accessibility was mirrored within students' homes, according to their accounts, therefore they are able to satisfy their liking for *using* the technology in both environments.

The only restrictions on use reported was with Internet communications but the students appear to be practised at persuading the family gatekeepers that such Internet applications are needed for study purposes and that their own moral codes protect them from risks they perceived as inherent in Internet communications.

The availability of computing technology at home is one reason why the case students acknowledged the feasibility of on-line study. The issue of preference for this mode of study is obviously contentious as seen from the almost 50/50 split amongst all cohorts responses to this question. It becomes even more contentious when nearly two-thirds of the 106 population think their families would prefer them to study at home, rather than come to college, giving some indication of the tensions that surround the women's college studies. I surmise that these arise

from the families' perceived decrease in control on their females' activities, given the socio-cultural practices of "protecting" women outlined in previous chapters. This is despite all the college security arrangements for women students, single or married, who are usually escorted to college and not allowed to leave the campus without written permission from a parent or guardian.

This research question therefore, has major implications not only for future modes of curriculum delivery but points to the key intersection between traditional and modernity for these women: to stay at home or not. Are they to come out of their homes to study and work and push the boundaries of society or are they to return to the homes to study and hold true to their traditional customs? It is an area for further investigation as a cultural study, not simply an educational one, but a researcher would need access to Emirati homes to hear all sides of the debate.

Q3 **Do students at EWC think that the computer has any consequences for their role in the family and if so what are these?**

The reason for researching home computing resources was to investigate not just how computers were being used but what, if any, effects the technology was having on family interactions, relationships and controls that might be impacting the young women's lives. Was the technology having a liberating effect and extending the prospects for the girls or were any controlling effects already in place within the home limiting its use to a basic learning or entertainment tool?

As well as having access to computing resources at college, the data show that students' homes contain a variety of expensive computer equipment. All students saw a need for having at least one computer at home and their descriptions of equipment available gave a clear picture of technology-enabled homes. Although their stories told of long hours spent at the computer, both for study purposes and for entertainment, it became obvious that students' expertise was increasingly being sought by other family members. Thus their IT studies were being valued by the family as a way of gaining access to IT learning that they did not possess and which, in this modern technologically-oriented world, they felt they needed. The young women were being seen as teachers to their children, siblings and extended family members and accepted this expanding role as part of their duty of care to the family. As well as increasing their status within the family, it appears to be enhancing their self-esteem and confidence in their own abilities. It is also being viewed as a possible way of using their IT learning after graduation in the event of not joining the work force and even, by a few individuals, as a way of earning income.

Although the students showed a high level of autonomy over decisions about college, they acknowledge they have less control over decisions relating to becoming economically active as these are decided from within the family and refer to more complex issues that the need to earn an income.

However, this teaching role appears to relate solely to the home as only one informant wished to become an IT teacher, therefore the role is linked with family responsibilities and not seen as a career option. Although I, as researcher, forecast the likely tensions between the young women's roles and responsibilities within the family and the aspirations to find outside employment, the

women themselves seem to accept their dual roles with little awareness of the conflicts that may occur. However, the married women and the older single women informants display a greater awareness of these conflicts, suggesting that this comes from experience and maturity. It may also be an area where my cultural background and insufficient knowledge about the support systems surrounding the women at home, influence my interpretation of consequences.

A further role that is being deemed to them is that of becoming a monitor of siblings' moral character and protector from the risks that parents and families perceive in Internet communications. The latter is exacerbated by the cultural traditions that regulate females' contacts with males outside the family. A large majority of homes in the case were Internet-connected increasing opportunities for contact with such males through e-mail and chat line technologies, especially as the data indicated that the majority of computers were located in personal, private spaces. Thus a role is created for a person to control young people's access to the Internet. This role is being fulfilled by the women IT students because others perceive them as being informed about the correct Internet use, showing the value put on IT education. It also suggests a degree of trust in the young women's characters to not go beyond the boundaries of acceptable behaviour. Certainly the women reported confidence in their own abilities to behave according to their personal moral code. However, a few parents were not persuaded of the controllability of the Internet and their socio-cultural practices overrode their belief in their daughter's expertise and they refused Internet connection in their home.

By comparing these study findings against UNICEF's five levels of empowerment from "Framework for the Equality and Empowerment" stated in Chapter 5 (p94), (cited by Mehran, 1999:203), an indication of Emirati women's progress towards empowerment can be ascertained.

Local and international statistics and this enquiry confirm that this generation of young Emirati women have achieved levels1 and 2 that refer, in this instance, to literacy levels and access to educational opportunities. On these two fronts, spectacular progress has been achieved over the past forty years. They have also achieved level 2 in relation to access to the IT learning and technology needed to compete in today's modern business world. It is at this level that information technology has enabled the case students to maintain and progress their status as a special group at the forefront of societal development, but it is by achieving the next two levels that greater strides in women's development and, consequently, national development can be made.

The "more abstract and qualitative level of empowerment" at Level 3 refers to women's need to raise their consciousness about the problems facing them that require a level of active and critical thinking (Mehan, 1999). It is at this level that the Emirati women need to become more aware of their own barriers to further advancement. If they are committed to contributing fully to national development through economic, social and political means, they must acknowledge and construct ways of overcoming socio-cultural practices that are currently restraining them from achieving this goal. The case students are beginning to show more autonomy over some decisions relating to their lives, as discussed earlier, but full Level 4 empowerment requires control over major life decisions such as marriage and joining the workforce, which they currently do not display.

At the time of writing, empowerment Level 5 is not within their grasp. Currently there are no women members of the Emirati government, although some Women's Associations sponsored by the ruler's wives are reported to have influence in political circles. There are unconfirmed reports of a few national women in high level positions in the Ministries, especially the traditional female departments of education and social welfare, but at the executive levels in business, there are still few Emirati women visible. Therefore, until this generation of young women access this level of participation and control, full empowerment for women, according to UNICEF framework, will not be achieved.

6.2   INFORMING PROFESSIONAL PRACTICE

The study findings have confirmed my positive impressions of Emirati women's educational achievements and have added considerably to my understanding of their place in Emirati society.

The work has informed me about many issues relating to the student's IT learning, which, in turn, can inform my professional practice. The main insight is into the computer resources that all case students have access to and use of at home. This knowledge will enable me to schedule work that does not rely only on college resources, which in turn may assist me in covering the course content in a shorter time. This is an important aspect as it if often difficult to complete all IT course goals within a limited time, especially because students' language limitations are not factored in when course outlines are written by people not familiar with the local contexts. However, any additional work should be balanced by my new insights about student's home responsibilities that often take priority over study demands.

Course writers' lack of familiarity with local contexts is increasingly becoming as issue as people outside the UAE and HEC are writing more courses to comply with accreditation requirements by international academic institutions. Thus a further recommendation would be that either (a) writers are carefully briefed about the local context, or (b) negotiations take place between accreditation bodies and HEC management to consider taking into account the local actors and contexts in such processes.

Listening to the young women's accounts has increased my awareness of the cultural pressures that surround their lives that are creating tensions between their family existences and the expectations and demands that EWC teachers put on them, especially those teachers from "western" cultural and educational backgrounds. The tensions are exacerbated because the HEC was set up with the express governmental remit to produce graduates that can compete in the local economic market, which uses "western" business practices. Consequently, the use of English language for instruction and the promotion of instructional paradigms such as student-centred learning that require a particular style of participation and active thinking, is problematic as both are alien to students' previous school learning experiences. An awareness of these issues should help me to be more sensitive to students' problems and to align my practice accordingly.

The issues revealed about on-line learning could have ramifications for future course developments within the EWC and the HEC system. As stated initially, the HEC are currently considering delivering a part of each course on-line and this now appears more feasible given the

information about home computing resources. It also seems that about one half of the case students would prefer such delivery if it resulted in non-attendance at college. Although it would be necessary to explore the reasons for student's preference further, home study may also align with families' wishes, thus home study might cater for local needs. The negative side of this would be the return to the home for the women just as they are beginning to achieve a broadening of their horizons by interacting with different people and cultures through college and work experience.

As a teacher, I am encouraged by the acceptance of on-line delivery of sections of the IT courses and shall continue to expand my knowledge about on-line learning, thereby developing my own professional knowledge, but I am personally aware that this initiative may place further restrictions on these young women.

Knowledge of the teaching, advising and monitoring roles that these young women are taken on could lead to a re-alignment of some of the IT course content to strengthen the abilities needed to carry out these responsibilities effectively. Building in training techniques to both IT programs and strengthening the expert knowledge elements of the curriculum could enhance these roles. As a means of addressing fears about the Internet, inclusion of content on the critical evaluation of Internet resources and sites, plus knowledge about effective use of Internet communication tools, could help students change their parents' attitudes and reduce their own fears of transgressing cultural and religious boundaries.

The final development of professional practice relates to the inclusion of more information about the content of information technology courses, the differences between the "hard" and "soft" computing fields and the type of careers and jobs opportunities resulting from such courses being given to EWC students *before* they embark on their selection. This would enable students to make a more informed decision about their choice and possibly direct their attention to specific curriculum areas of interest. To instigate these changes requires contact with instructional supervisors who arrange the selection process for the career majors as well as contact with personnel in the recently-created EWC Careers Centre[36]. This new development supports this study's findings about the current lack of career information that EWC is now addressing.

The conclusion that Emirati women are using their studies and the technology to broaden their horizons, opens the question as to whether or not a non-segregated college environment would assist them even further in progressing their goals. The segregated nature of the government schools and colleges has played a valuable role in persuading families to accept education for females, for whatever reason, but does it not now play a part in limiting the opportunities for self-development and personal growth that the women need if they are truly to take their place in the economic, political and societal change? Several private mixed gender higher education colleges have opened recently in the UAE with the government's blessing, enrolling both nationals and non-nationals, which may be a vision of the future, but I believe it will be a long time before mixed education will become acceptable, due to religious and cultural constraints.

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6.3 REFLECTIONS ON THE RESEARCH PROCESS

The integrated research approach worked well for a study of this nature. Although the main focus was on qualitative techniques, the quantitative exploratory survey allowed a larger sample of students to be involved and I would recommend this approach for similar work. However, major improvement to the methodology would be to use a team approach to data collection, analysis and interpretation with the addition of a female, Arabic speaker, (preferably an Emirati), who could assist the data interpretation and be more aware of the cultural context. She could also facilitate a focus group to elaborate and verify the findings, adding credibility to the results of the qualitative methods. In addition, I would include an outside researcher who could balance the picture by being less personally involved with the subject and the participants who could identify those parts of the college and cultural contexts which an insider takes for granted which may influence behaviour, for example, any idiosyncrasies in the IT programs or the assumptions made about cultural practices.

6.3.1 Appropriateness of feminist stance

I take a position similar to Treacher and Shukrallah that suggests we are surrounded by power relations that influence our personal sense of identity and our view of others' identity, which embodies our "discourses, representations and dominant ways of thinking" (2001:5). Thus "our existence as subjects in subordinate and dominant groups is shaped by the ways in which we identify with one, reject, challenge and resist another ". Thus, through my identity with feminism, I identify with any shared histories we have inherited as females and/or differences in social and political circumstances (Treacher & Shukrallah, 2001:6).

Feminism is the political theory and practice that struggles to free all women. As a feminist I uphold the value of self-determination for women – not just as mothers of children. I hear the students' stories about their lives and believe that they are being systematically subordinated in important ways, and that this subordination is wrong. As yet, the young women believe that protection from males is still in their best interests and remain compliant to dominating family influences, but it must be remembered that it was only comparatively recently that Emirati society emerged from an isolated, desert way-of-life when female survival depended on such protection.

Also, as a feminist, I recognize education both as a site for struggle and as a tool for change-making and it is through this vehicle that I envisage females taking a more critical look at their subordination. In the classroom, through feminist pedagogical values, I strive to develop tolerance and intellectual openness for these women. By promoting egalitarian relationships where the girls feel valued as individuals, I aim to make the students themselves as theorists of their own lives by interrogating and analysing their own experiences which should enable them to make reflective decisions about how to live their personal lives. Through such self-development, at some point in time, I envisage a generation of Emirati women who could determine their own economic, social and political status and structure their own futures to greater effect.

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[36] Staff Reporter, 2001; "Opening of New Careers Center"; Al Rawi, Issue 2, May 2001

If I had not upheld such feminist values, I would not have been so ready to query the androcentric, male-centred view of education that is prevalent in the UAE and my own institution in particular. As Mehran (1999) argues, the feminist discourse introduces a new frame of mind in which this view of education is questioned. I would have been less interested in the *family and cultural* contexts which continue to marginalize women. Thus my interests in uncovering how these women can progress to self-determination would not have directed the study.

Whilst researching for an EdD paper, Mary Belenky et al's (1986) work had a strong impact on me and my study aims of listening to unheard women's voices were influenced by their writings. As the research activities progressed, the gender aspects evolved significantly. Sociological perspectives on 'lives' often reflect commitments to a feminist standpoint, say Hammersley and Atkinson and documentary sources may be selected to "recuperate the otherwise muted voices of women and other dominated groups" (1995:161).

Although the college environment is mixed gender, the student community is all female; and whilst the curriculum is not segregated, (except in provision of some programs), it is delivered to a female audience, therefore progress is seen in terms of female achievements, without the inequities that mixed schools can create. The knowledge that I was attempting to reveal was about female achievements and how technology may be used to keep the women students in the vanguard of societal change. Thus the *value* of the research would also be feminist, if any recommendations were used for emancipatory purposes to redress the balance of the current view of education.

The research activities were thus designed within a female environment and all participants were female. As I have argued, my gender enabled me to create the supportive relationship necessary for sensitive disclosures to take place. Thus gender was a causal factor in the relative success of the data collection activities. However, concentration on only female perceptions gave an unbalanced view of the overall situation and a more complete investigation would have researched the effects of IT studies on both male and female lives.

6.3.2 Researcher's role

I included my own role in the production of the accounts, but I examined them within the context of the specific research parameters. Although I maintained a limited degree of objectivity by bracketing out some of my pre-conceptions, familiarity with most of the case students was problematic and must have influenced interactions between the participants and myself. However, as stated, the results should be viewed in this context of familiarity and taken for granted nature of the setting. Yet it must also be acknowledged that in the context of an unknown researcher, the findings would probably be somewhat different, if such a researcher could gain access.

The response I received throughout the data collection activities with all participants, whether it was distributing questionnaires to whole classes, inviting individuals to interview, or talking about life at home, would not have been possible for a male researcher, because of the specific cultural context.

At interview, the students spoke to me as a teacher, rather than a researcher, thus their responses reflected their awareness of this relationship and our shared knowledge. For example, they knew I understood their study demands so were more likely to tell me about using the computer for studying rather than for playing games! And I probably responded to them in a manner that reflected my attitude to them as students. And yet, despite the existing power relationships, the girls were open with me and appeared willing to participate. I conclude that their pre-existing trust towards me, as a teacher, reflected positively on the research outcomes.

I experienced difficulty bracketing out my positive feelings of respect and admiration for the young women. However, this lead me to be rigorous in reading and re-reading the data, to re-visiting the literature, continuously reflecting on the outcomes, plus asking colleagues for their opinions about my interpretations in an attempt to increase the validity of my findings.

At the data analysis stage, a major concern was an inability to interpret the findings accurately because of the cultural divide between researched and researcher. However, by comparing various data sources, the validity or the trustworthiness of the findings was increased. Even at this final stage of reporting my conclusions, I acknowledge that my conclusions may not reflect the students' views accurately, especially those relating to the women's apparent satisfaction with their "protected" lives. I interpret this as a barrier to their progress into the public arena, but my ideas of freedom, equity and justice are based on my "western" values that most likely conflict with the students' Arab, Muslim belief systems (Richardson, 2000a, Hofstede, 1997). However, Hammersley and Atkinson suggest that, even though the researcher constructs an interpretation of the data giving certain findings, this does not imply these do *not* represent the social phenomenon (1995:18), lending authority to my conclusions.

6.3.3   Changing Directions

The focus for the study that developed from the research processes was to see how computer technology is being incorporated into young Emirati women's lives to enable them to (a) help them take up and maintain their place in a modern, technological society and (b) to help close the gender divide which is still very apparent in modern-day Arab, Muslim societies.

The initial research aims were to find out how information technology learning was impacting the women's lives particularly in the home, in an attempt to align the college curriculum more closely to women student's needs. The survey was prepared to explore these issues, but on first analysis of the responses, the data revealed more potential to inform about wider aspects of the women student's lives. Thus, the research focus began to change and the next interview activities were designed around this change.

Indeed, the second interviews were adapted after consideration of the first informants' responses and in light of some emerging concepts that required elaboration, such as work issues. This resulted in some aspects being given added depth, and I would have liked to review some emerging information with the first informants, such as views on mixed environments and veiling. However, this proved impossible because the first interviewees had graduated and were no longer accessible.

During the analysis stage, a picture of these young women began to emerge as pioneers in their society suggesting a change in presentation towards a "story" of how this group of young women were making their way at the vanguard of Emirati society. This reshaping supported Hammersley and Atkinson's (1995:21) premise that "reflexivity provides a basis for a reconstructed logic of enquiry."

6.3.4   Data Collection

Both quantitative and qualitative methods of data collection achieved my research aims of hearing the students' experiences about their IT studies. The personal relationships already forged between the case students and myself contributed favourably to the collection activities, as students volunteered to participate and I was able to create a supportive, empathetic environment quickly in which informants felt comfortable about disclosing personal information. The students were willing and able to communicate rich information to me via the questionnaire and at interview with relative ease, despite my previous concerns about cultural and language barriers. My experiences of teaching in English with Arabic-speaking students helped my understanding of the communicative English language used by interviewees and enabled me to respond appropriately as well as assisting at the important tape transcription stage. On the other hand, I retreated from probing for certain information because I knew that they preferred not to discuss some topics, especially about their religious beliefs and personal family relationships. To investigate these issues, a Muslim researcher might be more successful.

The inclusion of diaries and work placement reports as data sources was not as successful for two reasons: (1) only 7 completed forms were returned rather than the 12 distributed and, (2) only 3 of the work placement reports I was able to access were from interviewees, thus only a limited amount of triangulation between reports and interview data was possible.

6.4   THE GAP IN THE LITERATURE

The lack of studies from the Gulf States is highlighted by Treacher and Shukrallah (2001) in their review of Middle Eastern feminist literature. My study is unique because it is one of the first academic studies carried out with Emirati women, in English. The results shed light on Emirati women's development and is of interest because it is based on previously unheard voices of Arab, Muslim, young Emirati women students, so it is the first time they have appeared in the academic literature, as far as I can ascertain. It is also of interest because it is written from within their own learning community, by their teacher who, even though she is an "outsider" culturally, has been allowed a glimpse into their private worlds and be party to their stories.

Similar to Mehran's study of Iranian women's development, this case study of the Emirati students may also be of interest due to the country's status as a Muslim society, marked by a rapid drive towards economic globalisation that conflicts with the tradition-modernity debate existing in much of the Islamic world (Mehran, 1999:201).

6.5   FURTHER IMPLICATIONS

From the study results, I would make three major recommendations to HEC management:

1. To provide careers information and counselling to enable students to make informed decisions about their studies;

2. To strengthen the existing Student Council's role to include input from students about course content which will meet their specific needs, taking into account the cultural contexts;

3. To inform local employers more fully about the nature and content of IT courses and the job skills that HEC IT students bring to the workplace.

6.6   NEW AREAS OF RESEARCH

This study only touches the surface of the complex issues that surround these young Emirati women's lives. Until recently, the UAE has not been the focus of much academic research, although the Middle East is increasingly attracting attention as a Muslim region, especially since the events following September 11th, 2001. Several local academic conferences, such as "Educational Reform in the UAE: The Role of Technology in Reform" which I attended in May 2001, involved both international speakers and audience. Also because the UAE is rapidly attracting interest due to its strategic political position, its social customs are increasingly being scrutinised.

The study resulted in a general view of many aspects of Emirati women's lives that I have been unable to explore in detail because of time constraints. These could form the basis of new research, e.g. the role of Internet communication tools in Emirati women's development; the possibilities of working from home with technology; the conflicts surrounding women students when studying at home; the role of on-line learning in a Muslim community, to name but a few areas.

It is obvious that the study only addresses one perspective about the issues covered: the female one. I have argued that this research is deliberately gender-biased in all major aspects, so it remains unbalanced on two counts: the viewpoint of other actors in the story, (a) family members and (b) Emirati males. Feasibly, a similar study could be undertaken at the local HEC men's college and the results compared. It could provide more balanced insights into educational provision, the gender divide and how education and technology impacts both genders, as well contribute important knowledge sociologically about this Muslim country.

As the editorial in "The Realm of the Possible: Middle Eastern Women in Political and Social Spaces" (2001:7) proclaims, "two important areas of women's lives – their relationship to the family and to masculinity – cannot be challenged explicitly." This study only touches on these complex issues but I believe the overall results support the editor's argument that, as long as social concepts of masculinity and femininity are not challenged, then Arab women are allowed to inhabit the public arena, but "to challenge such notions is to disturb public order" and threaten the identity of these fragile new Arab nations because of their constant fear of being taken over economically

or culturally by western nations. Research on these notions of femininity and masculinity and how they impact on the development of a Muslim nation would be a major contribution to knowledge.

6.7   FINAL THOUGHTS

The study has given me valuable insights into the research processes required to undertake both quantitative and qualitative research and it has illuminated the differences between various academic schools of thought. It has been a difficult process but, like the Emirati women's use of technology to broaden their horizons, listening to the young women's stories has increased my tolerance of the diversity and difference that surrounds my professional practice at the HEC in the United Arab Emirates.

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APPENDICES

APPENDIX A - DATA ABOUT THE CASE POPULATION

The case population consisted on 106 Emirati women students who were studying information technology (IT) at ADWC during the academic year 2000/1. The population was divided into three yearly cohorts who were enrolled in two career programs in the IT department : Information Administration (IA) and Business Information Technology (BIT).

Table A Students numbers in each year and major

	1st year		2nd year		3rd year	
IT Program	IA	BIT	IA	BIT	IA	BIT
Student Numbers	14	20	13	12	32	15

Table B Ages of the population

Age	1st year	2nd year	3rd year
Minimum	17	18	20
Maximum	24	27	28
Mode	19	20	21

Table C Marital and family status

Status	1st year		2nd year		3rd year	
	IA n=14	BIT n=20	IA n=13	BIT n=12	IA n=32	BIT n=15
Single	100%	95%	85%	100%	68%	80%
Married	0	5%	15%	0	31%	20%
with children	0	0	0	0	9%	20%

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APPENDIX A
Table D **DESCRIPTION OF CASE INTERVIEWEES** (data taken from questionnaire responses)

Interviewee Pseudonym	Program	Study Year	Age	Status	Work Experience	# Computers at home	Internet at home	Likely to work
Mona	IA	1	19	Single	Yes	One Minimum	Yes	Yes
Alya	IA	1	20	Single	No	One minimum	No	Yes
Iman	IA	2	23	Single	Yes on study leave	One minimum	Yes	Yes return to current job
Lina	IA/IT	2	27	Single	Yes	One minimum	No	Yes
Amani	BIT/IA	2	27	Single	No	One minimum	Yes	No
Nour	BIT	3	21	Single	Yes	One	Yes	Yes
Sara	IA	3	20	Single	Yes	Two	Yes	No*
Samah	IA	3		Single	Yes	One	Yes	Yes
Hala	IA	3	22	Single	Yes	Two	Yes	Yes
Tazha	IA	3	23	Single	Yes	Three+	Yes	Yes
Fawza	IA	3	28	Married with children	Yes on study leave	One	Yes	Yes return to current job
Abeer	BIT	3	25	Married with children	Yes	Two	Yes	Yes

* conflicts with interview data – possibility of father allowing her to work in women-only place

APPENDIX A

Interviewee Pseudonym	Added detail at interview
Mona	Strong conviction that she will work. Prefers an oil company. Prefers mixed environment
Alya	Now wants to be a computer teacher – changed mind due to college studies. She preferred female only but now changed her mind.
Iman	Return to work in ADNOC. Think it unlikely she'll work after she is married. Works in mixed environment.
Lina	Complete her studies at Ajman University. Do an IA bachelor. Maybe open her own business – she already has experience of this. Maybe work in private company - she doesn't like petroleum company – too crowded. Prefers mixed environment.
Amani	Not allowed to work. Wants to do more study – possibly via Internet. Gain income by doing individual's or business home pages.
Nour	No problems with going out to work. Maybe stay at home for a year or two – sees herself working at some time. May be go to America to work. Has support in the States. Not asked about mixed environment.
Sara	Said not likely to go out to work in questionnaire. At interview said her father might allow her to work in all female environment.
Samah	Intends to work. Future husband decides. Only allowed to work in female-only environment.
Hala	Intends to work. Family agree to her working in mixed environment. She prefers mixed environment.
Tazha	Intends to work. Extended family do not like her working with men but her father allows it. She prefers working in female only environment.
Fawza	Return to work at ADNOC. Family allows working in mixed environment. Husband does not like it.
Abeer	Intends to work. Husband encouraging her. He does not like her working in mixed environment but allows it. Restrictions are on working hours because of children.

TRANSCRIPT OF INTERVIEW 9   (LAYLA –2nd year IA)   SEPT 2001

	I	Thank you for coming in to be interviewed. Now you remember you filled in a questionnaire for me and there were just one or two questions on there that I'd like you to say a bit more now you actually said you liked computers .. can you tell me a little bit more .. why do you like computers?
	R	Because it make my work easy because I'm writing poems and writing stories er so it's better for me to write it in computer writing in hand .. er write it again in computer so direct I write it
	I	Ok so do you write it in English or do you write it in arabic ?
	R	The stories in arabic a;; but the poems some of them in arabic and some of them in English
	I	And you also said you like computer subjects so can you tell me a little bit more about that? What computer subjects do you like?
	R	Because I have my own computer in home and I do a lot of things with it I maybe .. I put all the poems I write I put it as an image so it helps me doing my FrontPage
	I	Right and your frontpage for what?
	R	For all my writing .. personal personal homepage
	I	Personal homepage so you have created a personal homepage
	R	Yes I start
	I	And who is that for? Is that on the web?
	R	No not yet because I have to publish all the things and update it and everything I do so
	I	Ok and why are you actually doing this webpage?
	R	Because I er .. I asked my friend to read my poems and they like it very much and they told me why you don't publish? I told them I will try to publish on the net because it will be available for everyone and they will not pay anything for it
	I	So it's not for part of your studies
	R	No it's out of my study
	I	Ok can you tell me what do you think information technology means to you .. the words information technology
	R	It means the future I think .. because er nowadays you cannot .. everything is doing by the computers but before they were doing manual so I think in the near future maybe we will not need the teachers because they will doing a video [foundatons] or through net so it will help us in everything
	I	Ok in fact that's a nice point because one of the questions I was going to ask you was in fact about studying online so what do you think on line learning means?
2.8	R	Er.... er it's good for the people who do not like to go outside for er.. but we cannot survive without the teacher because if we need explanations we can go to speak with them while in the net there's no any communications just the computer and you and the person who is on the other line. So it will be better it's better it has advantages and disadvantages
	I	Ok I think in the questionnaire I think you said you would prefer you to come to college but your family would prefer you to study at

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		home. Now can you tell me a little bit more about that why do you think they might prefer you to study at home?
	R	Maybe because er .. I am [laughter] I am having a high responsibility at home .. so anything that happens in the home is my responsible .. so they will think it's better .. they will provide everything for me in home computer the net everything .. just to not let me come here but if I interest it's my own decision
	I	That's good that's fine. So what you're saying a little bit is that some of your responsibilities at home er conflict maybe against you ?
	R	Yes .. my responsibilities in college
	I	So can you see that maybe the computer um might encourage er families to keep there ladies at home?
4.6	R	I think er yes because it will help them to control them more .. and they will not buy everything because is you are a student in the college you have to buy many things like it will cost you money while in the home you can even .. you wake up and you can just click one click and the computer's open and will guide you .. nobody's watching you no .. no need and the computer you can do it anytime ...... while here no you have to be tidy organised
	I	Ok so do you think that any of your responsibilities or roles in your family have changed now that you have computer at home?
	R	No .. not not that much [thoughtful] because I use the computer a lot but ..most of my time I have to sit with my family and the responsibility is still the same ..
	I	Yes right?
	R	maybe it's become more
	I	Right yes when you say more why?
	R	Because in the weekend we usually don't stay in Abu Dhabi ..so my family they always go to Al Ain we go to Sharjah and Dubai and my mother always punish me [laughter] ... she told me you are the only one who want to sit in Abu Dhabi
	I	And why do you want to sit in Abu Dhabi?
	R	Because I finish at 4 o'clock and they want to go early maybe 1.30 to arrive there early and clean up and
6.3	I	Because of your study?
	R	It's sort of like this yes
	I	I notice you said on your questionnaire that you don't have Internet access at home. Can you just tell me a little bit about that?
6.8	R	Before in the beginning when I enter the college I have an Internet in home I was just checking the e-mail I didn't know anything about them because I was new in the Internet I play with it .. it cost me a lot of money [laughter] really and then my mother get angry and then I told her I don't want it because it's already in the college and if I want to do anything I will come here
	I	So why did your mother get angry?
	R	Because the bill is very high [laughter] the bill was very high and she get angry
	I	Yes ok so can we just talk a little bit about why you .. I think you've told us why you chose the major information administration major um .. do you think that your studies have been as you thought they were going to be .. your expectations .. have they met your expectations?
	R	No [laughter] a little

USE OF COMPUTERS QUESTIONNAIRE

PART 1   PERSONAL DETAILS

Please understand that all the information you give is CONFIDENTIAL and will only be used for Pat's research for Bristol University

STUDENT ID NUMBER: _____

1   HD PROGRAM AND YEAR: (please tick box)

IA ☐	BITE ☐	
1st year ☐	2nd year ☐	3rd year ☐

2   How old are you? (in years e.g. 21) _____

3   Status:

SINGLE ☐	MARRIED ☐

4   If Married, do you have children?

YES ☐	NO ☐

PART 2	CHOICE OF IT (INFORMATION TECHNOLOGY) CAREER PROGRAM

5   **What are the 2 MAIN reasons you chose an IT program? (Choose your 1ˢᵗ and 2ⁿᵈ reason by putting 1 and 2 in the boxes)**

a)	I like using computers	☐
b)	I like computing subjects	☐
c)	The career or job I want needs computer knowledge and skills	☐
d)	I'd get a better job than if I chose a non-IT program	☐
e)	I don't like the other programs e.g. Business Administration, Health Science, Comm Tech	☐
f)	My sister or friends chose an IT program and I want to be with her	☐
g)	My sister or family relative has taken an IT program before and recommended it	☐
h)	I like the teachers on the IT program best	☐
i)	I don't like the teachers on the other programs	☐

Other reason(s) (please specify) _____

6   **Who helped you MOST to choose which program to take?**
     (Tick ONE box only)

Both your parents together ☐	Your father ☐	Your mother ☐	Your husband ☐
Your brother (s) ☐	Your sister(s) ☐	Other male relatives ☐	Other female relatives ☐
Your teacher(s) ☐	Yourself ☐		

PART 3	USE OF COMPUTERS AT HOME

7   Do you have a computer at home?

Yes ☐   No ☐

8   If Yes, are you the only person who uses the computer ?

Yes ☐   No ☐

9   If you share the computer at home, which other person uses it
     the MOST? (please chose only ONE)

your mother ☐	your father ☐	your sister(s) ☐
your brother(s) ☐	your husband ☐	Others (please specify below) ☐

10   Who controls the use of your computer?
     (what it is used for, when you can use it, for how long etc)

You ☐	Your mother ☐	Your father ☐
Your sister(s) ☐	Your brother(s) ☐	other(s) (please specify below) ☐

11   **Where in your house is the computer?** Please name a room.

_____

12   **Do you have access to the Internet at home?**

Yes ☐   No ☐

If NO, why not?

_____

_____

_____

_____

13   **On average, how frequently do you use your computer *at home*?**

Daily ☐	Every two days ☐	Twice a week ☐
Once a Week ☐	Less than once a week ☐	

14   **For which purpose do you use it MOST *at home*?**

Study ☐   Entertainment ☐

15 **What are the 3 main ways you use your computer at home?**
Select 1st, 2nd and 3rd main use by putting 1, 2 and 3 in the box

a)	Learning new software	☐
b)	Using software programs	☐
c)	Using programming languages	☐
d)	Surfing (searching) the Internet for interesting sites	☐
e)	Chatting in chat rooms	☐
f)	Using e-mail to contact people	☐
g)	Playing computer games	☐
h)	Downloading music	☐
i)	Downloading pictures	☐
j)	Downloading software to use	☐
k)	Listening to music	☐
l)	Teaching family how to use software	☐
m)	Other uses (please specify below)	☐

n)_____

o)_____

p)_____

PART 4   DELIVERY OF ON-LINE COURSES

16   If the college provided courses on-line so that you could complete them at home, which meant you would not come to college:

Would YOU prefer it?	Yes ☐ No ☐
Would YOUR FAMILY prefer it?	Yes ☐ No ☐

PART 5   JOBS ON GRADUATION

17   How likely is it that you will go out to work when you leave college?

Very likely ☐	Likely ☐	Not Likely ☐	Not at all likely ☐

18   Who has the most influence on your decision whether or not you go out to work?

Your parents ☐	Your brother(s) ☐	Your husband ☐
Your sister(s) ☐	Other female relatives ☐	Other male relatives ☐

Thank you very much for your contribution to my research. Pat

Dear

Thank you very much for completing my questionnaire about home computer use.

I would now like to ask you some more detailed questions for my research study. I want to ask you some questions about each of the areas below. Please think about your answers before you come to interview so we can have a good conversation.

1. In what ways do you use computers at home?
2. What are the social interactions that surround your use of computers in the home?
3. To what extent do your cultural values and beliefs and traditions affect your use of computers at home?
4. How do you intend to use your computer learning after graduation?
5. Why did you choose IT as program of study?
6. How relevant is the IT curriculum and its delivery to your lifestyle out of college?

All information that you give me is confidential and will be used only for my dissertation and your name will not be mentioned in the final report.

As part of the research method, I need to tape record our interview so that I can go through your responses and those of other students to find any common ideas and issues. It is these conversations that form the basis of my writings.

If you agree to be interviewed, I'd like to meet you on

Wednesday, 30th May at 11.30

in the Meeting Room by my Faculty Room.

Please let me know if you agree to be interviewed. If the time is not convenient, we can make another time suitable to you.

Thank you in advance for your valuable contribution to my research.

Pat

QUESTION SCHEDULE FOR RESEARCH QUESTIONS 1-6

1. In what ways do Emirati women students engage with computers at home.

QUESTION	REASON FOR QUESTION
What computer equipment do you have at home? How many computers are there in the house? When did you first get your computer? Why did you get it in the first place?	Setting the scene for acquisition of computer in the home. History and perceived needs.
Who decided what computer equipment to get? When did you last up-grade it or buy additions for it? Why did you get these additions? What additional things would you like to have for your computer?	Available advice at home Perceived needs for specific purposes perception of future use
What do you do when you have a problem with your computer or when you're using some software? Who do you rely on to give you advice?	Available advice at home
When do you usually use your computer? Do you have a set time or pattern of use? What does it depend on?	Setting scene and patterns of home use

Tell me about some of the things you have done on your computer over the past few days.	Details of specific use
For what do you use the Internet mostly? Tell me about the last time you used the Internet at home. What do you think of the Internet?	Common Internet use Personal perceptions (possible cultural bias?)
How do you use the e-mail? Who do you contact? Have you ever used the chat at home? What do you think of this method of communicating?	Specifics of e-mail contacts Personal perception
What sort of things do you do on your computer that benefit the family or help life in the home in any way?	
In what ways has your life at home changed since you got a computer at home? Since you started using the computer at home, in what ways have your family responsibilities changed, if at all	Possibility of computer acting as change agent for family responsibilities

2. **What social interactions surround Emirati women student's use of computers in the home.**

Do you share your computer? With whom and how do you organize working on the computer with your family? How do you prefer to work? Do you work in a similar way at college?	Working arrangements Alignment with working methods in college learning environment
Who is the person with the most knowledge about the computer in your family? How did	Family knowledge hierarchy

	(possible power issues)
he/she get this knowledge / position?	
What problems do you have about using the computer within the family? How do you solve them	Possible conflict areas about computer use
Tell me about a time when you had an argument with somebody in your family which had something to do with the computer	(possible power issues) & resolution ways (cultural links?)
In what ways do you think the computer helps the family come together? Perhaps it has the opposite effect – how do you think it affects your family?	Socializing effects
Does anyone in your family have negative attitudes about using the computer? Why do you think this is? Is there anything you can do about it?	Family attitudes about computers in the home. Possible perceived role as agents of change
What are the restrictions that anyone in your family puts on the computer? What do you think about these restrictions?	Control aspects + power issues
Who are the youngest / oldest members of the family that use the computer?	Perceptions of purpose of computer in home to different ages

How do people in your family learn to use the computer? How do members help each other?	Transfer of learning from outside learning environment and / or self/peer tuition. Links to perception of importance of computer use

3. To what extent do Emirati cultural influences and tradition affect the engagement with computers at home?

What do you think are the advantages / disadvantages of having the Internet at home?	
In your family, who says what you can or cannot do on the computer? What is your opinion about this?	Control / power issues linked to traditional Arab family structure
What are some of the challenges your society faces when using technology to widen contact internationally?	Perception of computer as change agent
Do you think the computer enables women to have more power (more say) in the family? In what ways.	Changing power structures in family relationships through knowledge acquisition using computer
Who do you think are most at risk with unrestricted access to the Internet?	Negative perceptions of home computer use

4. How relevant is the HCT IT curriculum and its delivery to the Arab women students' lifestyle?

How likely is it that you'll go out to work after graduation? Who has the most influence on this decision? What are the family issues that help or hinder your opportunities in the job market?	Gaining information about personal family circumstances
Tell me what you think on-line learning is about?	Perception of methods of delivering learning to the home
Would you welcome being able to spend more time in the home, rather than coming to college? Why? Why not?	Perception of college learning environment versus home
What effects would this have on your family lifestyle?	
Tell me about some typical things you do when not at college	Details about women's private lifestyles
If you don't go out to work, how will you use your computer learning	

5. Why do Emirati women choose IT as a program of study?

What were the main reasons you selected IT as your major?	Personal meaning
In what ways have your expectations been met / or not met by your IT study?	Personal meaning

(For 3rd years only)	
Having done your work placement in an organization, in what ways do you think the IT curriculum prepares you for the workplace?	Evidence of satisfaction or not in areas of curriculum
What things were you not prepared for in the workplace?	
What are the cultural or traditional customs that are likely to affect your working?	Information about personal & family beliefs and values
Which of these are religions customs?	

6. How do Emirati women students intend to use their computer learning after graduation?

If you don't get a job after graduation, in what ways do you think your computer learning can be applied in the home?	Views of transfer of college learning to home
Which part of the curriculum is particularly relevant to working from home?	+usefulness of current learning
Have any women in your family set up businesses from home or are working from home? Tell me about them	Possible patterns of working from home

TOTAL SURVEY POPULATION
Researcher:
Pat Richardson

ANALYSIS OF USE OF COMPUTER QUESTIONNAIRE

NAC = not answered correctly
NA ⁄ = not answered

ANALYSIS OF TEST COMPUTER QUESTIONNAIRE

Number of respondees	IA 59	BIT 47	106

q3 Marital Status

	Single		Married		Totals
IA	47	80%	12	20%	59
BITE	43	91%	4	9%	47
Totals	90		16		106
% totals	85%		15%		100%

	Married with children	
	Yes	No
IA	2	5
BITE	3	0
Totals	5	5
% totals	5%	5%

q5 What are the 2 main reasons you chose an IT program?

	a	b	c	d	e	f	g	h	i	NAC	Totals
1st reason IA	26	5	8	6	6	0	0	0	1	7	59
BITE	29	6	5	2	1	0	0	0	2	2	47
total	55	11	13	8	7	0	0	0	3	9	106
%students	52%	10%	12%	8%	7%	0%	0%	0%	3%	8%	100%
2nd reason IA	12	9	10	11	6	0	1	0	0	7	56
BITE	7	16	7	5	8	0	2	0	0	2	47
total	19	25	17	16	14	0	3	0	0	9	103
%students	18%	24%	16%	15%	13%	0%	3%	0%	0%	8%	97%

q6 Who helped you MOST to choose which program to take?

	Both parents	Your father	Your mother	Your husband	Your brother(s)	Your sister(s)	Other male relatives	Other female relatives	Your teacher	Yourself	NAC	Totals
IA	2				0	1	0	5	0	46	5	59
BITE	7				2	3	1	0	1	30	2	47
total	9				2	4	1	5	1	76	7	106
%students	8%	0%	0%	0%	2%	4%	1%	5%	1%	72%	7%	100%

Q7 Have you a computer at home?

	Yes	No	Totals		
IA	59	0	59		56%
BITE	47	0	47		44%
	106	0	106		
%students	100%	0%	100%		

TOTAL SURVEY POPULATION
Researcher:
Pat Richardson

ANALYSIS OF USE OF COMPUTER QUESTIONNAIRE

q8 Are you the only person who uses the computer?

	Yes		No		Totals
IA	13	22%	45	76%	58
BITE	19	40%	29	27%	48
totals	32		74		106
% total	30%		70%		

q9 Which other person uses it the MOST?

	Your father	Your mother	Your brother(s)	Your sister(s)	Your husband	Others	NCA	NA	Totals
IA	1	0	8	27	5	3	4	10	58
BITE	1	1	9	14	1	1	2	18	47
totals	2	1	17	41	6	4	6	28	105
% total	2%	1%	16%	39%	6%	4%	6%	26%	99%

q10 Who controls the use of your computer?

	You	Your father	Your mother	Your brother(s)	Your sister(s)	Others	Not ans	Totals
IA	49	1	0	2	2	3	2	59
BITE	40	1	0	2	1	3	0	47
totals	89	2	0	4	3	6	2	106
% total	84%	2%	0%	4%	3%	6%	2%	100%

q12 Do you have access to the Internet at home?

	Yes		No		Totals
IA	48	81%	11	19%	59
BITE	44	94%	3	6%	47
totals	92		14		106
% total	87%		13%		100%

q13 On average, how frequently do you use your computer at home?

	Daily	Every 2 days	Twice a week	Once a week	Less that once a week	NAC	Totals
IA	34	15	6	1	1	2	59
BITE	34	8	3	1	1	0	47
totals	68	23	9	2	2	2	106
% total	64%	22%	8%	2%	2%	2%	100%

q14 For which purpose do you use it most at home?

	Study		Entertainment		NAC	Totals
IA	37	63%	21	36%	0	58
BITE	25	53%	19	40%	3	47
totals	62		40		3	105
% total	58%		38%		3%	99%

APPENDIX F

TOTAL SURVEY POPULATION
Researcher:
Pat Richardson

ANALYSIS OF USE OF COMPUTER QUESTIONNAIRE

q15

What are the 3 main ways you use your computer at home?

1st reason		a	b	c	d	e	f	g	h	i	j	k	l	m	NAC	Totals
1st reason	IA	9	25	4	3	2	6	0	1	0	1	0	0	0	8	59
	BITE	3	13	5	12	0	6	0	1	0	3	0	2	0	2	47
total		12	38	9	15	2	12	0	2	0	4	0	2	0	10	106
%students		11%	36%	8%	14%	2%	11%	0%	2%	0%	4%	0%	2%	0%	9%	100%
2nd reason	IA	5	15	0	9	1	12	1	3	0	2	1	1	0	7	57
	BITE	4	11	5	7	1	7	3	3	0	2	0	0	2	2	47
%students		9	26	5	16	2	19	4	6	0	4	1	1	2	9	104
%students		8%	25%	5%	15%	2%	18%	4%	6%	0%	4%	1%	1%	2%	8%	98%
3rd reason	IA	4	0	1	8	0	9	1	8	2	1	8	3	4	8	59
	BITE	5	5	2	7	1	10	3	3	0	3	1	1	4	2	47
total		9	5	3	15	1	19	4	11	2	4	9	4	8	10	106
%students		8%	5%	3%	14%	1%	18%	4%	10%	2%	4%	8%	4%	8%	9%	100%

q16

If the college provided courses on-line so that you could complete them at home, which meant you would not need to come to college,

		Yes	No	NAC	Totals
IA	Would you prefer it:	30	29	1	60
BITE		24	23	0	47
total		54	52	1	107
%students		51%	49%	1%	
IA		51%	49%		
BITE		51%	49%		
IA	Would your family prefer it?	41	17	0	58
BITE		24	18	5	47
total		65	35	5	105
%students		61%	33%	5%	
IA		69%	29%		
BITE		51%	38%	1	

q17

How likely is it that you will go out to work when you graduate?

	BITE		IA	
Very likely	34	72%	32	54%
Likely	9	19%	19	32%
Not likely	4	9%	7	12%
Not at all likely	0	0%	1	2%
Not answered	47	100%	59	100%

q18

Who has the most influence on your decision whether or not to go to work?

	Your parents	Your brother(s)	Your sister(s)	Your husband	Other male relatives	Other female relatives	NAC	Totals
IA	31	11		11	1		4	59
BITE	30	5		4	2		6	47
total	61	16		15	3		10	106
% students	58%	15%	0%	14%	3%	0%	9%	100%

Main category	Sub-category of concept – unit of meaning	Identifying code to enable "units of meaning" to be assembled
COMPUTER EQUIPMENT	Type of computer	ce t
	Type of peripherals	ce p
	Additions wanted	ce aw
	Location	ce lo
	Sharing pattern	ce sh
	Number in home	ce #
	Computer ownership	ce ow
	Reason bought	ce rb
	Reason upgraded	ce ru
	Expertise available	ce ex
COMPUTER USE	Computer use at home	cu ho
	Computer use at college	cu co
	Trouble shooting at home	cu ts
	Computer use study	cu st
	Computer use entertainment	cu en
	Computer use Internet access	cu int a
	Computer use Internet use	cu int u
	Computer use Internet contacts	cu int con
	Computer use restrictions	cu re
	Computer use family	cu f
	Computer use conflict	cu conf
	Computer learning	cu ln
	Computer use after graduation	cu ag
	Computer use at work	cu w
WORKING	Preferred working conditions	w pr
	Work and culture	w cul
	Work responsibilities	w re
	Problems at work	w pr
	Working from home	w ho
ATTITUDES	To online learning	a oll
	To working	a w
	To working women	a ww
	To internet	a int
	To controls on use	a int c
	To contacting on internet	a int con
	Affects of computers on people	a cp
	Of computer on family members	a cfm
	To computer	a c
	Computers as empowering women	a c emp
	To study	a st
	To coming to college	a col
	To family decisions	a dfm
	Of family to working	a f w
	To working from home	a w ho
	Negative attitude to computer / internet use	a ne
	To mixed working environment	a mix
	To finance	a fi

PREFERENCES (VALUES)	Likes	p l
	Dislikes	p dl
FAMILY	Centrality	f ce
	Control	f co
	Role	f ro
	Responsibility	f re
	Structure	f st
	Family member involved in event	f m
	Family socialising round computer	f so
	Preference for staying at home	f p ho
	Family attitude to mixed working environment	f a mix
DECISION MAKING	Person making decision	d pm
	Decision subject	d sub
	Decision effects	d ef
UNDERSTANDING	Idea unknown	i un
	Idea not understood	i nun
	Idea about women working from home	i ww ho
IT LEARNING	Expectations	it exp
	Reasons for choice	it r
	Preparation for wp	it wp
	It learning achieved	it ach
	Family it learning	it f
	Subject preference	It sb
	It learning in the future	It f
IT AND CULTURE	Cultural beliefs affected by IT	cul
REASONS FOR CONCERNS	Concerns about internet use	Con int
	Concerns about coming to college	Con co
	Concerns about working	Con w

APPENDIX J - WORD DOCUMENTS PRODUCED FROM ANALYSIS OF MEANING UNITS

Attitude to Chat Lines doc

Att tude to Internet Contact.doc

Att tude to On ne Leam ng doc

Attitude to Work.doc

Attitude to Work ng from Home doc

Autonomy in Decis on Making doc

Computer Use Restnctions.doc

Cu ture Affected by IT doc

Dec s on Makers doc

Empowerment by Computer.doc

Expectations Met.ooc

Expertise.doc

Fam ly Responsib t es doc

Fam ly Role.doc

Marned Life.doc

Reasons for Choice of IT doc

Shanng Computers doc

Soca Isol ation doc

Work and Culture doc

Work Preferences doc

APPENDIX K

Curriculum
Management
System

Approved Course Outline 2001-2002

Course name: PC Systems Architecture and Administration

Course code: BITE 223

Course length:	Semester	Classroom periods per week	5
Credits:	5	Laboratory periods per week	0
Periods per week:	5	Other periods per week	0

Course notes:

No specific course notes

Course description:

This course presents the features and capabilities of a typical "Wintel" personal computer - in other works, any PC having a contemporary version of an Intel processor and Microsoft desktop operating system. Particularly emphasized are skills such as how to assemble a PC using component parts, and how to install, administer, optimize, and troubleshoot Windows 95 / 98. This course provides the knowledge and technical skills needed to support users of Windows 95 / 98.

Prerequisite course(s): BITE 150 - Computer Fundamentals

Corequisite course(s): No corequisite courses specified

Course goals and performance objectives:

Goal 01 Demonstrate an understanding of the physical operation of the major hardware components of a personal computer.
30 % of Scheduled Learning Activities

Obj 01 Describe the characteristics of the latest Intel Pentium processor, including generation and clock speed.

Obj 02 Identify the different types of memory, and explain their role in the overall operation of a PC.

Obj 03 Describe the characteristics of a PC's motherboard, including the form factor, chipset and expansion slots.

Obj 04 Identify the different types of peripheral input and output devices, and explain how they are connected to the PC.

Obj   05   Identify the different types of peripheral storage devices, and explain how they are connected to the PC.

Obj   06   Build a bootable PC given working component parts, including the case (chassis), motherboard, CPU, RAM, and peripheral storage and I/O devices.

Goal   02   Demonstrate an understanding of the logical operation of the major hardware components of a PC.
35 % of Scheduled Learning Activities

Obj   01   Describe the functional components of the CPU, and explain how they are used to process binary data.

Obj   02   Explain what is meant by the term "virtual memory", and explain how virtual memory is implemented in a PC.

Obj   03   Identify the types of bus structures in a PC, and describe their general features and capabilities.

Obj   04   Explain the logical organization of a hard disk using a VFAT file system, and use the FDISK and FORMAT utilities to create a bootable, VFAT hard disk.

Obj   05   Explain how peripheral devices communicate with the CPU using hardware interrupts.

Obj   06   Describe the low-level operations performed by a PC's BIOS, and explain why a PC's BIOS must be supplemented by BIOS extensions and device drivers.

Obj   07   Explain the role of each component involved in the bootstrap process of a PC, and how they work together to accomplish "Plug and Play".

Goal   03   Optimize a personal computer by installing software, using disk utilities and troubleshooting techniques.
35 % of Scheduled Learning Activities

Obj   01   Install and remove system software on a PC, including the operating system and device drivers.

Obj   02   Use the operating system to add and configure a printer, and to manage print jobs.

Obj   03   Describe the organization and function of the Windows Registry.

Obj   04   Use the appropriate utilities to optimize and troubleshoot the hard disk, including ScanDisk, Disk Defragmenter, DriveSpace and Microsoft Backup.

Obj   05   Identify the guidelines that should be followed when purchasing a personal computer.

Curriculum
Management   # Approved Course Outline 2001-2002
System

Course name:	Integrated Business Applications		
Course code:	IADM 250		
Course length:	Semester	Classroom periods per week	1
Credits:	5	Laboratory periods per week	4
Periods per week:	5	Other periods per week	0

Course notes:

No specific course notes

Course description:

This course is designed with a practical goal in mind: to develop both technical and non-technical skills necessary to develop information-type web sites and e-commerce-type web sites in this ever changing world of the Internet.

Prerequisite course(s):   IADM 210 - Word Processing Applications

Corequisite course(s):   IADM 215 - Spreadsheet Applications

IADM 270 - Database Applications

Course goals and performance objectives:

Goal   01 Explain the Internet and how to access it
           8 % of Scheduled Learning Activities

       Obj   01 Describe the evolution of the Internet and how the Internet works

       Obj   02 Distinguish the difference between clients and servers on the Internet

       Obj   03 Examine how to connect to the Internet and Internet protocols

       Obj   04 Examine domain name system (DNS), the business of domain names and the
                 uniform resource locator (URL)

       Obj   05 Understand what are Intranets and Extranets

       Obj   06 Use a web browser to access the world wide web

       Obj   07 Identify the technical issues of using a web browser

Obj 08 Customize the browser using fonts, home page, history folder, bookmarks and favorites options

Goal 02 Demonstrate how to use the tools associated with the Internet
7 % of Scheduled Learning Activities

Obj 01 Use electronic mail to send and receive business communications

Obj 02 Use file transfer procotol (FTP) and popular FTP servers to transfer files

Obj 03 Configure newsgroup clients to communicate over the Internet

Obj 04 Use advanced search techniques using search indexes, boolean operators to search the Internet

Obj 05 Identify advanced search engines and graphic search engines

Obj 06 Identify, examine and describe objects, plug-ins and viewers and how they are used in web pages

Goal 03 Identify security on the Internet
5 % of Scheduled Learning Activities

Obj 01 Explain what are cookies and how they work

Obj 02 Explain how to send secure data over the Internet

Obj 03 Explain authentication and digital certificates

Obj 04 Explain how to configure browser security

Obj 05 Describe encryption, viruses, proxy servers and firewalls

Goal 04 Describe electronic commerce
10 % of Scheduled Learning Activities

Obj 01 Describe the different types of electronic commerce (B2C,B2B)

Obj 02 Examine existing e-commerce solutions

Obj 03 Examine the ingredients of a web storefront

Obj 04 Examine and understand the law and the Internet and e-commerce

Obj 05 Examine web marketing goals and online product promotion