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E-government in Kuwait: Attitudes and Perceptions

By

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A Doctoral Thesis

**Submitted in partial fulfilment of the requirement for
the award of Doctor of Philosophy**

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Abstract

The aim of this study was to explore the attitudes and perceptions of citizens towards the adoption of e-government services in developing countries. This is deemed of value at a time when e-government initiatives are still emerging in many developing countries and many government departments and units have put a wide range of materials from publications and information about government services online for use by citizens.

The Unified Theory of Acceptance and Use of Technology (UTAUT) model was adopted in this study to identify factors that determine the adoption of e-government services. The use of a theoretical model allowed for formulating hypotheses governing the relationship between the different variables.

Mixed research methods were utilised to fulfil the aims and objectives of this study. The quantitative and qualitative methods used included a questionnaire survey, which incorporated the amended version of the UTAUT model and which was completed by more than 800 students at Kuwait University, as well as usability testing, focus groups, interviews and open-ended questions. The study found that performance expectancy, effort expectancy, peer influence and facilitating conditions were direct determinants of usage intention and behaviour while Internet experience and type of academic course moderated the impact of the determinants on usage intention and behaviour.

The results also showed that the general attitudes towards adopting e-government services were positive. The study identified a number of factors that positively influenced the attitude of respondents regarding the adoption of e-government services. These factors were related to reforming bureaucracy, usefulness, eliminating the importance of connections (*wasta*), facilitating government-public communication, reducing gender differences, and including all people in society. However, negative attitudes identified towards adopting e-government services related to fears and concerns about issues of technology, such as privacy and security. Other issues were related to lack of awareness, increasing unemployment rates, lack of faith in government, the belief that face-to-face interaction would add value to dealings with government, and most importantly, lack of capacity building. The evaluation of the Kuwait e-government website, as supplemental information, also identified a number of strengths and weaknesses that contributed to an increase or decrease in the potential adoption of e-government services. All adoption findings identified in this study were modelled through the use of a systemic approach which provided some insight into and understanding of the factors underlying the adoption of e-government services in developing countries.

Based on the results and conclusions of the research, recommendations were made to officials responsible for the e-government project and ideas for further research were identified.

Keywords: E-government, e-government services, Unified Theory of Acceptance and Use of Technology (UTAUT) model, adoption, usability testing, website evaluation, archetype, Kuwait.

Publications

This study has been undertaken as part of the New Route PhD programme. This involved competing twelve modules in three semesters related to the information science field, research methodology and teaching. Undeniably, undertaking these modules have helped me develop my critical thinking and research skills, which has positively impacted on the production of this thesis.

In the course of completing this thesis, its contents have been drawn on for publications and conference presentations by the author:

1. AlAwadhi, S., 2007. E-government in Kuwait: attitudes and perceptions. Paper presented at *PhD Colloquium, E-Gov 07*, Regensburg, Germany.
2. AlAwadhi, S. & Morris, A., 2008 (forthcoming). The use of the UTAUT model in the adoption of e-government services in Kuwait. Paper to be presented at *41st Hawaii International Conference on System Sciences*, IEEE, Hawaii.

Dedication

I dedicate this work to the loving memory of my father Abdul-Rahman AlAwadhi.

And to:

- My mother who devoted her life to the achievement of this dream
- My only brother and my sisters who shared with me my dream, and
- To my soul mate, loving and caring husband Mohammed and my lovely bright daughters, Rawan and Dalal.

Acknowledgement

This thesis would have never seen the light of day without the help and blessings of Allah.

First thanks must go to my supervisor Professor Anne Morris, who through her constant direction and guidance led me to the completion of this thesis. Her initial direction in setting up my research focus and her subsequent professional support throughout my research process were as valuable as her emotional support and friendship. From the formative stages of this thesis to the final draft, she was there to help.

My sincere gratitude is extended to Professor Leela Damodaran, my Research Director, for her constructive advice, support and encouragement.

I am grateful to the Government of the State of Kuwait, especially Kuwait University, for providing me with a generous scholarship that enabled me to pursue my higher education, as well as facilitating the collection of data for this study.

My appreciation also goes to Dr Richard Gadsden from the Mathematics Learning Support Centre at Loughborough University for his continuous support in analysing the data.

Thanks to all my research colleagues in the Research School of Informatics and to all the staff at the Department of Information Science at Loughborough University.

I wish also to thank my husband for his continuous encouragement and emotional support all the way through my studies, and to my shining daughters who with their patience have inspired me to achieve my goal.

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Chapter One

Introduction

1.1 Background

The rapid advances in technology, the significant improvements in communication and information technologies, the wide spread of the Internet and the successful practices of e-business have redefined the public's expectations of government and its services. Prompted by demands for a more responsive government, leaders in the public sector have been struggling with how to deliver outstanding services across multiple channels within budgetary constraints (Ke & Wei 2004, p.95). E-government has been seen as a key method for achieving these goals (Jaeger & Thompson 2003, p.389). The use of technology, particularly web-based Internet applications, has helped in enhancing citizens' access to government services, enabling them to make online transactions and facilitating their communication with government in the fastest and most convenient way (Ndou 2004, p.1). Migrating traditionally paper-based and face-to-face services to the Internet requires effective plans for changes that are expected to be made with a proper understanding of the infrastructure, IT systems and business processes required (Liikanen 2004). Many governments in developed countries have taken progressive steps towards the implementation of e-government projects where the web and information communication technologies are used to access local activities, open up interactive services and increase the participation of citizens in governance. However, e-government initiatives are still emerging in most developing countries due to technological, organisational, human, cultural and societal factors (Chen *et al.* 2006).

Kuwait, as a developing country, has recognised the potential of the Internet and has been quite conscious of the need to divert resources towards IT and to make efforts in order not to be left behind in the Internet age. Therefore, the Government of Kuwait has recently cut through bureaucracies and moved towards the implementation of an e-government project (Shuhaibar 2005). Many government departments and units in Kuwait have put a wide range of materials from publications and information about government services online for use by its citizens. Moreover, a Memorandum of Understanding (MoU) was signed with the Government of Singapore to cooperate in

the implementation of the e-government project and to benefit from Singapore's successful experience.

While the implementation of e-government services provides a number of benefits to users, little is known about citizens' perceptions and attitudes towards such services. Carter and Belanger (2004) emphasise that the success of e-government services is contingent on citizens' willingness to adopt them. Without an understanding of why citizens would use electronic service delivery channels over more traditional service delivery methods, government organisations cannot take the necessary strategic actions to meet their targets for adoption of these channels by the citizens. E-government initiatives are still in their infancy in many developing countries and only few studies exploring the adoption of e-government services have been reported generally in a number of developing countries, whereas no study has been reported in Kuwait particularly. It is, therefore, important to bridge this gap and explore the factors that encourage citizens in developing countries to adopt the services (or discourage them from doing so) and so enable government officials to take the necessary actions to enhance adoption behaviour which will result in the success of e-government services.

1.2 Research aims and objectives

The aim of this research was to explore the attitudes and perceptions of citizens towards the adoption of e-government services in a developing country, namely Kuwait.

The specific objectives of this research were to:

1. Examine the progress made in Kuwait in providing e-government services to the public;
2. Identify factors that are likely to determine students' adoption of e-government services using an amended version of the Unified Theory of Acceptance and Use of Technology (Venkatesh *et al.* 2003) model;
3. Identify the moderating influences of gender, type of academic course taken and Internet experience on students' adoption of e-government services;

4. Identify factors that influence students' positive and negative attitudes towards the adoption of e-government services;
5. Identify the strengths and weaknesses of the e-government website that contribute to encouraging or discouraging the adoption of e-government services;
6. Model the adoption of e-government services using a systemic approach; and
7. Recommend strategies and practical solutions for the improvement and success of the provision of e-government services and, thereby, increase their adoption.

1.3 Significance of the study

Gronlund (2005) found that the e-government literature is immature and that various issues still need to be investigated. In particular, Carter and Belanger (2004) claim that there has been relatively little published research on the adoption of e-government services, with Carter and Belanger (2003, 2004, 2005) and Phang *et al.* (2005) being examples of such research. AlShihi (2005) also found that to date little attention has been paid to the adoption of e-government services in the Arab world. Hung, Chang and Yu (2006, p.98) claim that despite the fact that several studies aimed at improving e-government services have been proposed, the deficiency in useful empirical research concerning the adoption of e-government services by stakeholders has resulted in insufficient understanding of user acceptance and adoption of such services. Therefore, more empirical studies on the adoption of e-government services are required in order to assist decision makers in governments to improve the effectiveness and quality of e-government services.

Since the initiation of e-government in 2000, the Government of Kuwait has made huge investments in efforts and money to execute all the plans for Kuwait's e-government. Despite the progress made in providing about 44% of government services online (New Sabah 2006), so far there has been no attempt to study the adoption of e-government services by people in Kuwait. This draws attention to the absence of research in this area and calls for the need to promote research into this issue and fill the gap in the current literature. Therefore, this first in-depth study has several important contributions

to make to the field of information science, particularly in the area of e-government, as well as in the improvement of e-government services:

- The in-depth exploration of the adoption of e-government services in a developing country, using a reliable and valid model, is a first attempt at identifying the determinants of the adoption of e-government services in a developing country.
- The findings of this study provide basic theoretical and empirical insights into the factors that encourage or discourage the adoption of online services in a developing country.
- The findings will be able to assist in the examination and validation of results of future studies in this area.
- The use of a systemic approach to the overall findings of this study contribute to modelling the adoption of e-government services.
- The findings will provide guidelines for officials working on e-government projects concerning possible courses of action that may be required to improve e-government services and thereby increase their likely adoption.
- The findings are seen as an appropriate starting point for further investigation of other factors that may determine and influence the adoption of e-government services.
- The findings also contribute to the current body of knowledge concerning the application of the particular techniques and methodologies used in this study to the field of e-government services.
- The study acts as a case study for the adoption of e-government services in other Gulf Co-operation Council (GCC) countries, which share a similar context with Kuwait.

1.4 Thesis outline

Chapters Two and Three examine the literature about e-government. They provide a comprehensive review of e-government and related studies in order to identify the

issues that are in need of further research and consideration. Chapter Two provides a general background on e-government literature. It discusses various concepts of e-government and their wider context in developed and developing countries which helps in setting Kuwait's situation in context. Chapter Three draws attention to theories that identify factors which determine the adoption of e-government services. Issues emerging from the review of the literature regarding the adoption behaviour, a theoretical model for this study have been identified. Moreover, this chapter discusses the concept of change management as an initiative to ensure a successful implementation of e-government. Chapter Four provides background information on the State of Kuwait, including a historical review and information on its geography, economy and population. An overview of e-government in Kuwait and its implementation is also presented and discussed.

Based on Chapters Two, Three and Four, Chapter Five develops appropriate research strategies to be used in the investigation of the adoption of e-government services. It starts with a discussion of the research framework adopted in this study and is followed by a discussion of the theoretical background of the methodology. A detailed discussion is also provided concerning the choice of various methods used in the collection and analysis of data. Chapters Six, Seven and Eight detail the results of the study. Chapter Six reports the results and analysis of the questionnaire, whereas Chapter Seven reports the results of the usability testing of the e-government website. Chapter Eight presents the results of the qualitative data derived from focus group discussions and open-ended questions which explore issues in greater detail. The significance of the results in the light of the literature review and the aims and objectives of the study are discussed in Chapter Nine. The integration of information in this chapter permits analysis, interpretation and validation of the results produced by this study. Moreover, this integration permits the use of a systemic approach to modelling the adoption of e-government services. Finally, a summary of the main results of the study is given, recommendations are made and possible areas of future research are suggested in Chapter Ten. An outline of the thesis is presented in Figure 1.1.

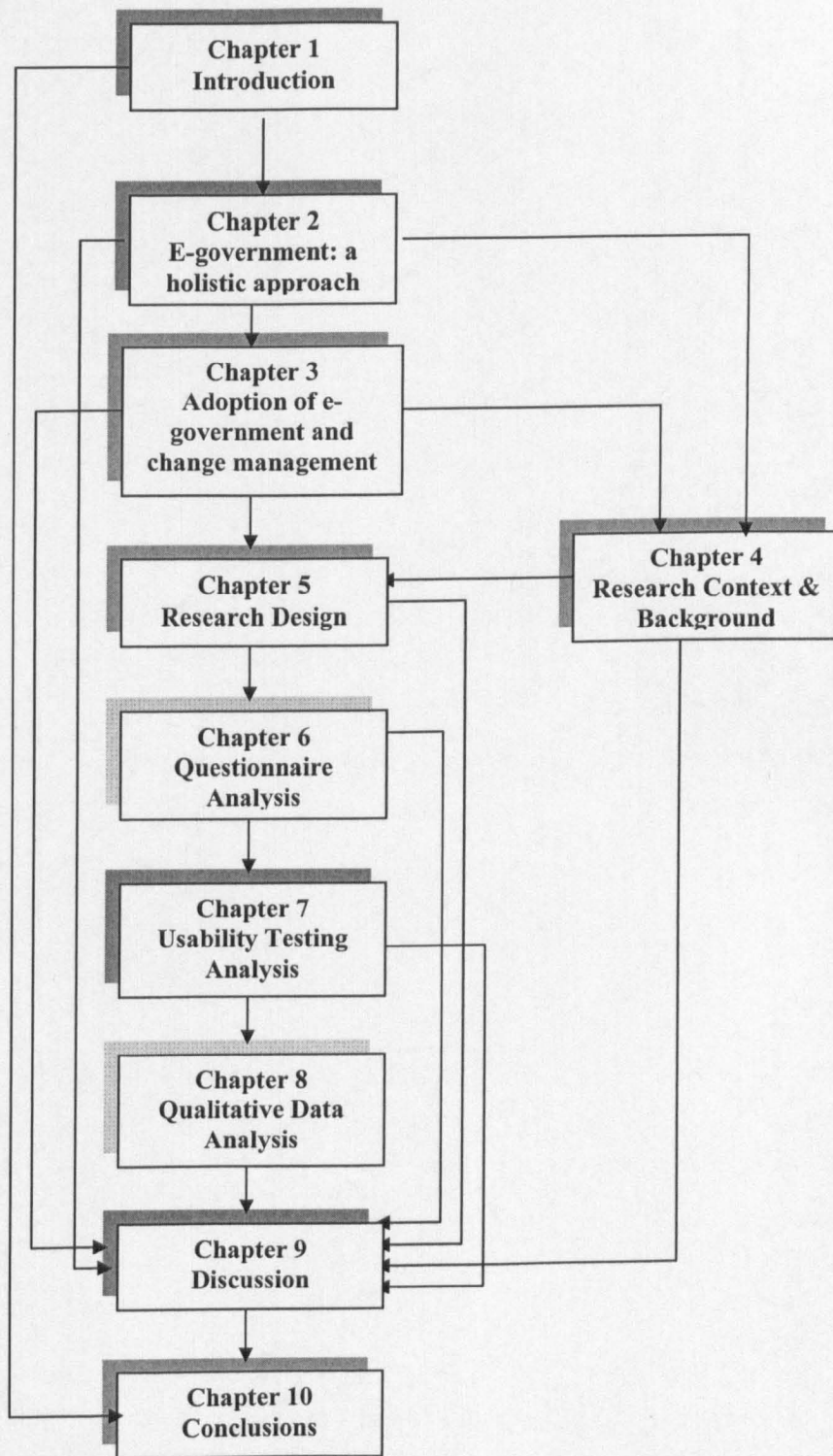


Figure 1.1 Research outline

Chapter Two

E-government – A holistic approach

2.1 Introduction

This chapter and the next review the theoretical background of this research and identify the issues that are in need of further research and consideration; see Figure 2.1. This chapter reviews the published literature on e-government to provide both a theoretical background to this fairly recent development in the use of Information Communication Technology (ICT) and a practical understanding of issues pertaining to its implementation in traditional government. The various concepts of e-government and their wider context in developed and developing countries are discussed in order to set Kuwait's situation in context, which are to be investigated in more detail. Currently used architecture frameworks are also discussed, together with issues pertaining to the development and implementation of e-government. The promised and actual benefits of e-government are also critically evaluated. E-government web portals are discussed as a major instrument in the realisation of e-government.

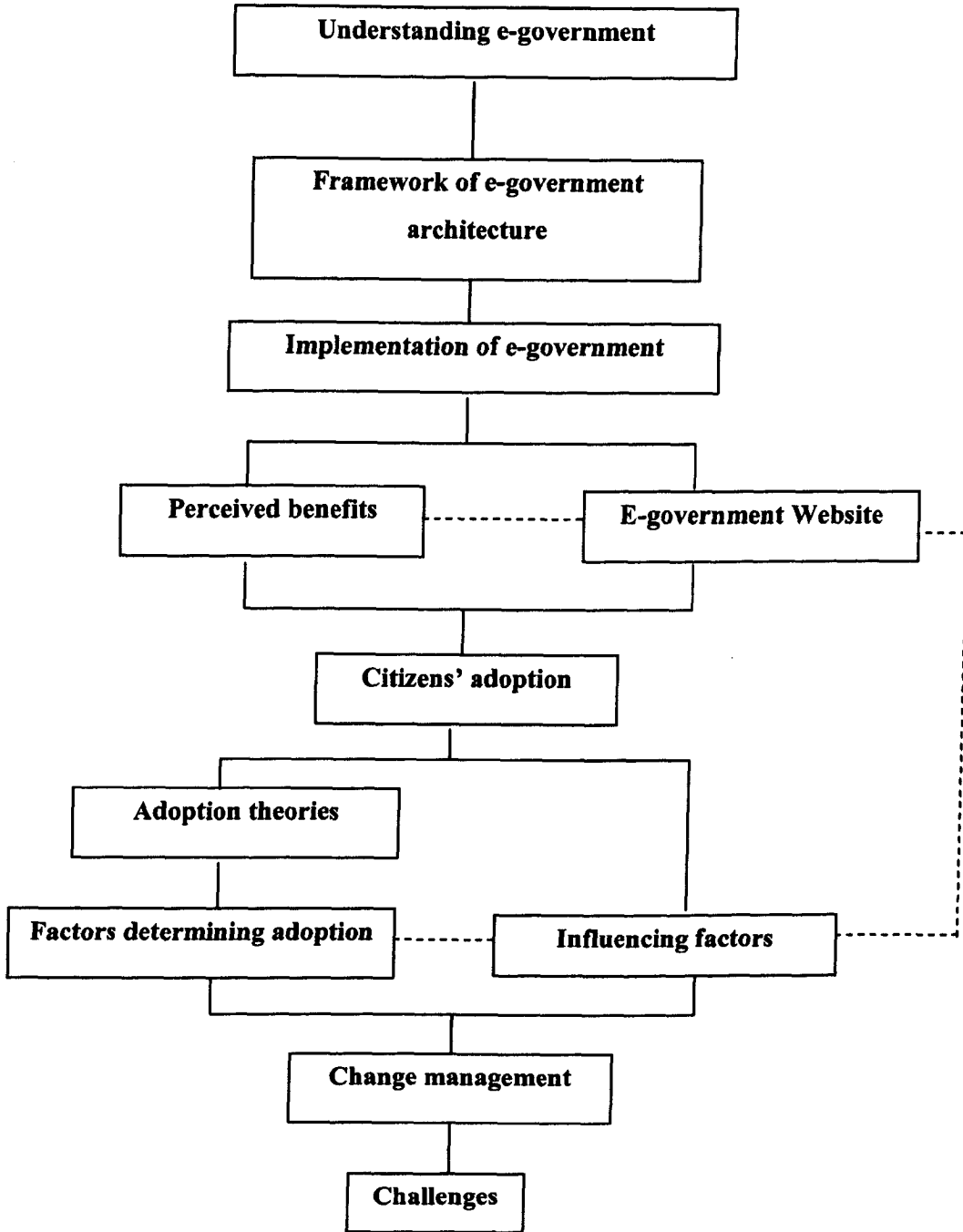


Figure 2.1 Areas covered by the literature reviews and their relationships to each other

2.1.1 Traditional government

Traditionally, governments have been bureaucratic in nature (Davison, Wagner & Ma 2005, p.281) Bureaucracy in government organisations, according to Max Weber's theory of bureaucracy, is based on the domination of the "validity of legal statute and functional competence based on rationally created rules" (Krislov & Rosenbloom 1981, p.2). Bureaucratic organisational structures are characterised by abstract rules and obedience to a rational system rather than to specific individuals. Such organisations emphasise official tasks, specialisation, hierarchy and standardisation in their production process (Ho 2002, p.435; Krislov & Rosenbloom 1981, p.2). As a result, the bureaucratic model ought to reduce the chances of unintentional errors, fraud and negligence, and to ensure the equal treatment of clients (Stauffacher 2002).

In recent times, however, the word bureaucracy has acquired a negative connotation and is often associated with inefficiency, laziness and waste (*Wikipedia* 2004). Ho (2002, p.435) asserts that bureaucracy is also criticised for being too rigid where strict procedures have to be followed which are often incapable of serving "human clients" who have preferences and feelings. As an example of these drawbacks, a newcomer to a city might fill out a number of forms for many utility departments, although those forms ask for similar information.

Burns and Stalker (1994, p.205) argue that highly bureaucratic organisations are also resistant to change. The atmosphere of control and hierarchy encourages the members of organisations to prefer self-continuity and thus feel threatened by change. Therefore, new ideas and innovations have very little chance in such organisations.

Such traditional bureaucratic governments have also been criticised by citizens over the past several decades. Many citizens think that traditional governments are inefficient, inflexible and non-responsive to their needs, and many have cynical attitudes towards their governments (Cohen 2006, p.51; Jain 2004, p.3). Several reform movements have developed as a result, for example, the New Public Management Movement (NPMM) in the 1980s and the development of e-government in the 1990s, both of which have played an essential role in easing public cynicism towards governments (Cohen 2006, p.51).

The NPMM redesigned government in order to make it more efficient and more responsive to citizens' needs, with government employees becoming more accountable for their performance in delivering government services. E-government, while quite different from the NPMM, has been defined as “the use of information and communication technologies (ICT), such as Wide Area Networks (WANs), the Internet, and mobile computing, by government agencies” (Atallah 2001, p.2). It offers a vision that fits well with the NPMM. Advocates of e-government argue that new communication technologies can make government more efficient and facilitate both more frequent and more efficient interaction between government and its citizens (Cohen 2006, p.52).

2.2 Information Communication Technology (ICT) and government shift

Information Communication Technology (ICT) has important implications for the reform of traditionally bureaucratic government. It changes the features of traditional bureaucracies in government organisations and has the potential to “redistribute power, functional responsibilities, and control within and across [government organisations] and between the public and private sectors” (West 2004, p.15).

The nature of ICT fosters improvements in collaboration among government employees to enable governments to become more flexible, responsive and efficient in serving their societies (Jain 2004, p.3). Further, ICT, especially the Internet, encourages a free flow of ideas around organisations, permitting collaboration and teamwork between individuals and various organisational units. The nature of the Internet as an “open” system facilitates greater co-operation and communication across organisational departments. For example, the use of electronic bulletin boards by a great number of government bodies facilitates problem solving and cross-fertilisation of ideas. This communication and co-operation is expanded to join different parts of government as well as public service users, businesses and suppliers (McIvor, McHugh & Cadden 2002, p.172). For example, as noted by the Prime Minister and the Minister for the Cabinet Office, the UK Government aimed to modify the way ICT is used in order to “achieve joined up work between different parts of government and providing new,

efficient and convenient ways for citizens and businesses to communicate with government and to receive services” (Blair & Cunningham 1999, no page number).

Advancements in the adoption of ICT, the widespread use of the Internet and of various practices in the commercial sector, such as e-commerce, raise the expectations of citizens that better services could be provided by public sector organisations and offer governments better opportunities to achieve transformations similar to e-commerce (Ebrahim & Irani 2005, p.590; Gunter 2006, p.363; Silcock 2001, p.89). Therefore, governments are able to build on initial confidence in the Internet as a central platform for e-government and turn the use of the Internet into a fundamental strategy in modernising and developing the public sector and so meet public expectations (Ebrahim & Irani 2005, p.590; Gunter 2006, p.363).

Ho (2002, p.436) explains the shift in public service delivery from a bureaucratic paradigm to an e-government paradigm in which ICT is the means of delivering services; see Table 2.1.

Table 2.1 Shifting Paradigms in Public Service Delivery (Ho 2002, p.437)

	Bureaucratic Paradigm	E-government Paradigm
Orientation	Production cost-efficiency	User satisfaction & control, flexibility
Process organisation	Functional rationality, departmentalisation, vertical hierarchical control	Horizontal hierarchy, network organisation, information sharing
Management principle	Management by rule and mandate	Flexible management, inter-departmental teamwork with central coordination
Leadership style	Command & control	Facilitation & coordination Innovative entrepreneurship
Internal communication	Top-down hierarchical	Multidirectional network with central coordination, direct communication
External communication	Centralised, formal limited channels	Formal & informal, direct and fast feedback, multiple channels
Mode of service delivery	Documentary mode, and interpersonal interaction	Electronic exchange, non face-to-face interaction
Principles of service delivery	Standardisation, impartiality, equity	User customisation, personalisation

In the bureaucratic paradigm, according to Ho, an “agency-centric” approach is focused on the cost-efficiency of internal productions, functional rationality, departmentalisation, vertical (hierarchical) control and rule-based management, whereas in the e-government paradigm, the “customer-centric” approach shifts from efficient production to user satisfaction and control, flexibility in service, and network management with internal and external parties. Furthermore, the new paradigm allows for the continuation of government reinvention through innovation, organisational learning and entrepreneurship. While services might be tailored according to personal needs and preferences in the new paradigm, services cannot be standardised.

Organisational principles are also transformed in the new paradigm. As top-down management and hierarchical communications are stressed in the bureaucratic paradigm, so teamwork, multidirectional networks and direct communication between parties and fast feedback loops are emphasised in the e-government paradigm. Moreover, leadership in the new paradigm encourages facilitation and collaboration among parties rather than hierarchical command and control.

Although Ho's paradigm shift of public services from bureaucracy to e-government would facilitate access to information and use of services, Silcock (2001, p.96) argues that such a vast array of facts and information about government structures, services, legal initiatives and links to other related sites is no better than print versions of such information. In many cases, bureaucracy will be moved to e-government, where forms still need to be printed, filled out and sent to related government departments.

2.3 Understanding e-government

E-government is a multi-dimensional and complex concept, which requires a broad definition and understanding in order to be able to design and implement a successful strategy (Ndou 2004, p.3). Clark (2003, p.382) and Ebrahim and Irani (2005, p.590) argue that the strategy of e-government is focused not only on tactical automation, but also on strategic innovation that will help to modernise the public sector through the development of organisational structures, government interaction with citizens and business, cost reduction and various layers of organisational business processes.

Atallah (2001) argues that the fundamental relationship between government and the public changes as e-government is adopted. Such change is obvious in two ways:

1. Re-inventing the business of government: services are delivered in new ways and information is integrated and made accessible over the Web.
2. Transforming the nature of governance: the relationship and distribution of responsibility between state and citizen is influenced by the use of the Web.

Further, Tambouris, Gorilas and Boukis (2001, p.1) see e-government as:

the application of information and communications technology (ICT) to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between governments and government agencies at federal, municipal and local levels, citizens and businesses; and to empower citizens through access and use of information.

In greater detail, Dawes (2002) ventures a working definition of e-government as “the use of information technology to support government operations, engage citizens, and provide government services”. Although this definition is broad, it incorporates four dimensions, according to Dawes (2002, no page number), reflecting the key functions of government:

- *E-services: the electronic delivery of government information, programmes and services.*
- *E-democracy: the use of electronic communications which leads to citizens' participation in the public decision-making process.*
- *E-commerce: the electronic exchange of money for goods and services such as citizens paying taxes and utility bills, renewing vehicle registrations, and paying for recreation programs, or government buying supplies.*
- *E-management: the use of information technology to improve the management of government, from reforming business processes to maintaining electronic records and to improving the flow and integration of information.*

Although these definitions of e-government vary in detail, they all embrace similar elements relating to the use of ICT tools to reinvent the public sector by transforming its internal and external ways of working as well as its relationship with various stakeholders. However, less optimistic analysts argue that e-government is only a set of

technological instruments which may be applied in a variety of institutional settings and will not necessarily end up promoting good governance (Haldenwang 2004, p.418). Haldenwang (2004, p.418) also argues that the poor reliability of new technologies, the possibility of misuse by the public and private sectors, resistance to change in public institutions and barriers to access for large sectors of the population might contribute to the failure of many e-government initiatives to meet their goal.

2.3.1 E-government interrelationship

By using different technologies, the improvement of government services and interactions with constituents can be placed into three groups depending on the parties involved: citizens, businesses and governments. In all cases, the relationship between any two parties is two-way: Government to Citizen (G2C) promotes interactions between government and the citizen, Government to Business (G2B) promotes interactions between businesses and government, and Government to Government (G2G) facilitates government interactions as well as those within and across agencies (Graafland-Essers & Etedgui 2002, p.5); see Figure 2.2.

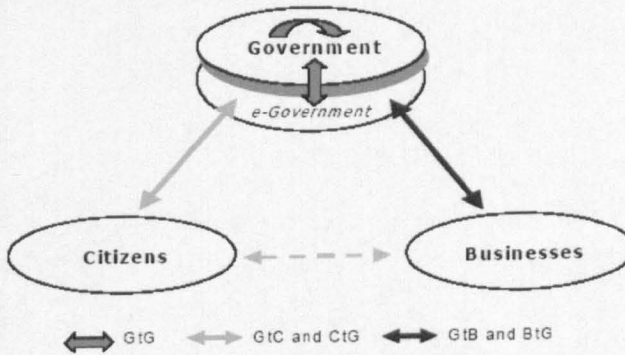


Figure 2.2 Interactions between stakeholders (Graafland-Essers & Etedgui 2002, p.5)

These relationships can be characterised as follows:

Government to Citizen (G2C): deals with the relationship between government and citizens. G2C is designed to facilitate citizen interaction with government, which is

considered to be the primary goal of e-government. It allows users to access government information and services conveniently and with less time consumption. The opportunities for interaction provided by overcoming geographical and time barriers are expected to increase the citizens' participation in government (Bonham, Seifert & Thorson 2003).

Government to Business (G2B): is related to electronic transactions between government departments and the private sector. It allows governments to consolidate information for business to achieve “business compliance” information centres where e-transactions are conducted. Thus, governments are able to reduce red tape and simplify regulatory processes which therefore help businesses to become more competitive (Evans & Yen 2005, p.358; Ndou 2004, p.5).

Government to Government (G2G): in many respects, G2G is considered the backbone of e-government. It involves sharing data and conducting electronic exchanges between governmental agencies, on local, national, regional and international levels. The integration, collaboration and cooperation among different government departments involves sharing databases, resources, skills and capabilities to enhance the efficiency and effectiveness of the processes (Riely 2001, p.4).

2.4 E-government in developed and developing countries

E-government development and implementation are high priority issues on various countries' agendas. Some developed countries have surpassed their counterparts in the online services that they offer to their citizens (Chen *et al.* 2006), whereas, by most measures, developing countries continue to struggle with the implementation of viable e-government strategies (Basu 2004). According to the Annual Global Accenture (2004) study, the developed countries, such as the US, Canada, Singapore and the UK, are so far leaders in e-government, reaping the vast majority of initial gains of e-government implementation. The study revealed that countries are advancing to achieve maturity. Maturity refers to the application of “strategies that drive high performance – better outcomes in a more cost-effective manner – and meeting the

ultimate goal of e-government: the whole of government service transformation” (Accenture 2004, p.2). In comparison to studies conducted by Accenture in 2003 and 2002, where many countries hit plateaus of e-government maturity and achieved rapid developments, the Accenture study in 2004 found that e-government advances have slowed to the point that a large number of countries have remained at the same level in the rankings. For example, for the fourth year in a row, the top three maturity spots were taken by Canada, coming first by scoring 80% in overall maturity, followed by Singapore and the United States in joint second place by scoring 67%. Following the three leaders, Australia, Finland, Denmark and Sweden shared a fourth-place ranking; the United Kingdom and the Netherlands shared ninth place; and Ireland, Japan and Belgium shared 11th place, all of them within the range of 50% to 60%.

Concerning the value of e-government services, many developed countries have begun to realise the importance of delivering enhanced services and providing more cost-effective government operations. Canada, for example, recently conducted a comparison of channel costs per transaction that showed that the cost savings from online services were significant. In other countries, individual agencies exhibit some of the clearest examples of the potential cost savings benefits from e-government, such as Norway, Ireland and the United States.

Promoting the take-up of e-government has also been prioritised by many developed countries. Most governments have put fundamental e-government enablers in place to remove barriers to access. The leaders are also making creative use of incentives and marketing techniques to increase usage of existing services, with some notable success. For example, the United Kingdom published a framework to encourage the use of private and voluntary-sector intermediaries in e-government service delivery in order to ensure that all UK departments involve intermediaries as part of their overall e-government strategy. Other countries, such as the US, France, Ireland and Singapore, provide incentives to encourage usage, e.g. offering free of charge or an extended filing period for users of online tax filing services.

Governments in many developed countries are also seeking ways to move beyond their current state of horizontal integration. Vertical integration is challenging as it does not

only involve cross-agency integration which creates seamless interactions for customers, but also integration across national, state/regional and local levels of government. Governments moving towards this type of integration normally face greater technical complexity as well as new challenges in organising the governance and funding of these new initiatives. For example, Canada is attempting to improve beyond its government's on-line program by moving from federal to inter-jurisdictional integration through developing appropriate governance mechanisms in vertically oriented and vertically organised organisations.

Moreover, many developed countries are looking for personalisation of government services. This allows for tailoring what government provides to the individual, who obtains more appropriate services and receives more relevant information. This also improves user experience and drives an increase in customer satisfaction. France, for example, in 2004 planned to establish a personalised portal, <myservice-public.fr>. In the same year, Singapore launched a more personalised portal in pilot form, <my.eCitizen>, where citizens can customize and personalise their view of the e-government portal, removing links and information about services that are not relevant to their particular life situation. Also, the Canadian government site <www.canada.gc.ca> offers an option for users to create their own customised page (Accenture 2004).

By contrast, most developing countries are far behind in terms of pursuing e-government. As most currently published e-government literature originates or is concerned with developed countries, few authors have addressed issues that hinder the progress of e-government in developing countries. Basu (2004), for example, argues that high system development costs, rural connectivity and other resource issues, such as the stable supply of electricity, continue to challenge developing countries. In many cases, these barriers prevent the establishment of even the most basic, timely and pertinent web presence. However, governments in countries such as India, Brazil, Chile and the Philippines and, to a lesser extent, South Africa, are developing and mastering certain aspects of e-government. Heeks (2002, 2003) states that the implementation of e-government in developing countries often results in failure. He attributes these failures to a mismatch between current reality and new future systems. This disjunction,

according to Heeks, is due to the large gap in physical, cultural, economic and various other contexts between the software designers and the locality where the system is to be implemented. On the other hand, Saidi and Yared (2001) investigated e-government in Middle Eastern and North African (MENA) countries. They found that most MENA countries witnessed a number of challenges that hindered a successful implementation of e-government. Strong, high-level leadership, which is necessary to supply the vision, establish the national strategy, prioritise and implement initiatives, was missing in most MENA countries, except for a few, such as Jordan, Egypt, Syria and the United Arab Emirates. Another challenge is related to the technological infrastructure. Saidi and Yared found that apart from the Gulf Cooperation Council (GCC) countries, most MENA countries' infrastructure availability indicators were close to those found in low income countries. This contributed to the challenges of pricing, affordability and reliability of network access, mostly controlled by government. Without human capital, e-government in developing countries becomes a challenge. Saidi and Yared also revealed that many people in MENA countries were not capable of using ICT, i.e. they neither understand nor are able of managing e-initiatives. This could be contributed to a lack of computer and ICT literacy in educational curricula. They also found that many primary and secondary schools in MENA countries were under-equipped, with on average only 6% running a website. Moreover, Saidi and Yared found that the implementation of e-government in MENA countries lacked the legal framework to provide trust and security for citizens and businesses. A comparison between existing legislative frameworks in MENA countries, where in nearly all cases there were either no laws or draft laws in place, with those in developed countries, showed that there was clearly a "legal divide".

In summary, this section has reviewed e-government, in general terms, in both developed and developing countries. This review has identified the situation of e-government globally, which shows that developed countries have obviously preceded developing countries in the development of e-government. As few studies have thoroughly investigated e-government in developing countries, this research is seen as an attempt to fill this gap and investigate e-government in the context of a developing country. In particular, this research explores e-government in Kuwait as an example of

e-government initiatives in one developing country against those being undertaken in other developing countries. Kuwait is one of the few Arab and GCC countries that have recently adopted e-government initiatives to improve the quality of government services provided to its stakeholders.

After placing e-government in context, it is compelling to investigate what underlies a successful transformation of government service delivery to e-government mode and what gains citizens might get from a real implementation of e-government, which is discussed in the subsequent sections.

2.5 The architecture framework of e-government

Transforming from a traditional government to an e-government requires building an architecture that includes standards, infrastructure components, applications, technologies and business management models. Ebrahim and Irani (2005) reviewed the few studies found in the literature discussing e-government architecture and studies in other related fields, such as e-business and e-services, and attempted to provide an integrated architecture framework for e-government that “represents the alignment of Information Technology (IT) infrastructure with business process management in the public sector” (Ebrahim & Irani 2005, p.591). The integration of framework layers, according to Ebrahim and Irani (2005), plays a significant role in the successful implementation and management of e-government activities. Moreover, such integration will guide IT managers to recognise the technological and organisational requirements for the adoption of e-government in the public sector. Figure 2.3 below depicts the framework of e-government architecture, comprising four layers connected hierarchically with each other.

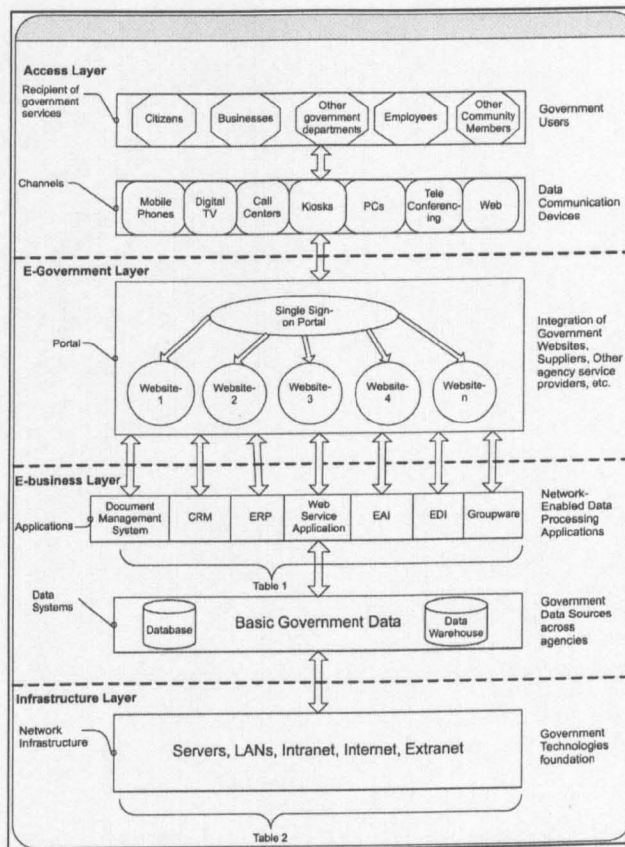


Figure 2.3 The architecture framework of e-government (Ebrahim & Irani 2005, p.593)

The framework of e-government architecture suggested by Ebrahim and Irani (2005) consists of four layers: *infrastructure layer*, *e-business layer*, *e-government layer* and *access layer*, and these are explained below.

- Infrastructure layer:** An optimal IT infrastructure layer supporting new information systems and applications is necessary for successful e-government (IBM 2001). Ebrahim and Irani (2005, p.599) indicate that an IT infrastructure layer comprises a number of effective technologies essential for implementing e-government, such as Intranet, Internet and LAN. These technologies offer the necessary standards and protocols for network and communication approaches that enable effective communication within and between government organisations. As for most IT projects, the issue of security is to the fore in this layer. The increasing use of public networks increases the security risk for citizens' profiles and the government's confidential information. This layer, therefore, includes advanced security solutions

and technologies such as firewalls and digital signatures, that protect e-government information interoperations and electronic transactions against fraud and hacking at all levels.

- ***E-business layer:*** The e-business layer uses ICT applications and tools to harness a network of trust, knowledge sharing and information processing, thereby building an information community between and within organisations. Traditional government lacks connections between and within organisations because each department has its own databases. This layer, conversely, allows server applications and tools to emerge with the aim of connecting departments through a strong foundation of computer systems and applications, thus achieving full communication between all information systems. This layer enables financial savings to be made because it eliminates the duplication of data collection. It also increases the speed of transactions and improves the consistency of outcomes. This layer also plays a critical role in the construction of the next layer, the e-government layer (Ebrahim & Irani 2005, p.595).
- ***E-government layer:*** The e-government layer enables the digital data of the various government organisations to be integrated into a web portal. This improves access to government resources, reduces service processing costs and enables government organisations to provide high quality services (Ebrahim & Irani 2005, p.592; Gant, Gant & Johnson 2002). A web portal is defined as “the integrated gateway into a government website that provides both external constituents and internal government personnel with a single point of contact for online access of government information and resources” (Gant, Gant & Johnson 2002, no page number). Web portals in this layer enable users to use the Internet and acquire all information and services needed through a single window. They facilitate electronic interaction between government and constituents. According to Ebrahim and Irani (2005, p.593), a high-functioning web portal is difficult to create because governments are very complex organisations with a variety and number of departments, and it is difficult to determine the most appropriate features and applications to be included in a web portal. The technical reason behind the difficulty is related to the integration of multiple organisations and the linking of existing websites for single

transactions. Security issues are also raised in this layer where government authentication and privacy standards should be deployed to secure transactions and protect portal content.

- **Access layer:** The access layer involves government service users who might be citizens, employees, businesses, other governments and community members. It illustrates the channels through which government users can access government information and services. Ebrahim and Irani (2005, p.592) stress that although this layer is the simplest level of e-government architecture, it is controlled by the needs of government users. They also point out that complying with the guidelines of technical standards, uniforming different channels and ways of finding government information and services are essential steps.

The layers comprise the framework of e-government architecture that are essential for the advancement of e-government. However, poor implementation of any layer could affect the performance of other layers, which might result in a degradation of e-government performance. Although the framework is well developed by Ebrahim and Irani (2005), security is not emphasised. While two layers of the framework, infrastructure and e-government layers, have addressed security, it is thought that security is an issue that requires addressing extensively and must be a major component of the framework. Moreover, laws and policies need to be developed in order to create a secure and trusted environment for all government transactions, since without this the implementation of e-government as well as the adoption of online services would be under threat.

The implementation of an e-government architecture framework often ends in effective development and real implementation of e-government. Development, staged implementation of e-government and other related issues are discussed in the following section.

2.6 Development and implementation of e-government

Layne and Lee (2001, p.123) claim that the evolutionary phenomena of e-government can only be implemented when organisational, managerial and technological changes have occurred. Scott, Golden and Hughes (2004) argue that political issues and technological challenges inherent in organisational change hinder the achievement of cross-functional integration and thus the implementation. Therefore, Scott and his colleagues call for an alignment of the capabilities of the system with the expectations of stakeholders. They assert that in order to ensure a successful implementation and development of e-government, a wide range of expectations must be identified and managed so that realistic expectations are communicated to all. A staged evolutionary framework was introduced at the Lisbon Summit of the European Council in 2000 to explain the development and implementation of e-government (Scott, Golden & Hughes 2004). According to Al-Kibsi *et al.* (2001), the staged implementation approach to e-government has been widely used. Table 2.2 provides a synthesis of models suggested in the literature that explain the development and implementation of e-government in staged frameworks.

Table 2.2 Models of e-government development and implementation

Model	Stages of e-government implementation
Layne and Lee (2001)	<p>Stage I: Cataloguing is the first step to establishing an online presence. It involves the creation of government websites which include information about government, its activities and the provision of downloadable forms (Gupta & Jana 2003, p.373; Reddick 2004, p.53). The functionality of this stage is limited to the least amount of government information that can be efficiently provided online (Layne & Lee 2001, p.126; Reffat 2003, p.6).</p> <p>Stage II: Transaction allows citizens to carry out transactions with government and conduct tasks directly through online interfaces which are linked to live databases (Reffat 2003, p.6; Stauffacher 2002). At this stage, citizens are empowered to interact with their governments online at any time, saving time and effort spent in handling paperwork, travelling to government offices and waiting in line (Gupta & Jana 2003, p.373; Layne & Lee 2001, p.128; Reddick 2004, p.53).</p> <p>Stage III: Vertical integration occurs when the different levels of a government are connected with each other to provide different services with similar functionality (Layne & Lee 2001, p.130; Reffat 2003, p.7).</p> <p>Stage IV: Horizontal integration occurs across different functions and services but at the same level of government (Reffat 2003, p.7). This type of integration provides a “one-stop service” where the most needed services are offered at the same system level (Layne & Lee 2001, p.132).</p>

Table 2.2 Models of e-government development and implementation (contd.)

<p>Gartner Group (2000) Stauffacher (2002)</p>	<p>Phase 1 – Presence: This is the first stage of e-government development where a website is established for delivering information on the Internet. The goal of this stage is to post information about government agencies to the public.</p> <p>Phase 2 – Interaction: This stage is still limited in its ability to automate government functions. However, it provides constituents with basic search capabilities, downloadable forms and links to relevant websites.</p> <p>Phase 3 – Transaction: This stage is the evolution of e-government. In this stage, constituents are able to conduct and complete an entire task online at any time of the day.</p> <p>Phase 4 – Transformation: This stage is the long-term goal of e-government. In this stage, government becomes transparent to constituents as new methods of service delivery are implemented. Constituents are now able to participate directly in transactions with government organisations, and the departments of such organisations are linked with each other.</p>
<p>United Nations Office of Public Administration (2001)</p>	<p>Emerging: In this stage a government's web presence is established through a single or a few independent official websites that provide users with static information such as addresses, phone numbers, calendars and office hours.</p> <p>Enhanced: In this stage, the web presence expands to include dynamic and specialised information that can be accessed by users. Government publications and useful documents can be downloaded. An official website or homepage could be used as an entry point that links users with government organisations.</p> <p>Interactive: This stage allows users to interact formally with government on a more sophisticated level. Users can search databases, contact officials, download forms and applications and submit them electronically.</p> <p>Transactional: In this stage, users can conduct and complete transactions securely online where a single government web portal allows users to access services customised to their needs.</p> <p>Seamless: In this final stage, all e-services are totally integrated across departments in government organisations.</p>

The crucial element in all of the above models is the integration of similar functions within various stages. Although stages differ from one model to another, their analysis allows the researcher to highlight the main stages in the development and implementation of e-government:

Online presence: In this stage efforts are made to establish an online presence for the government.

Interaction: In this stage the online presence becomes more dynamic and users become able to search the website, download forms and use links to other government websites.

Transaction: This stage allows users to have complete transactions of government services online.

Seamless integration: In this stage government services are fully integrated across different government departments and levels.

Li (2003, p.50) claims that adopting a staged approach is advantageous since it offers organisations the opportunity to build up trust and confidence among customers while they are dealing with organisational and cultural changes. Basu (2004, p.114), conversely, contends that it is difficult to advocate one particular model or universal standards for e-government readiness because of the differences in the needs and priorities in each society. He argues that e-government depends on the resources available at a given point in time, such as budgets, specific needs of a given society and its context, and the constitutional, legal and political frameworks of each country and region. Basu also claims that the assessment of e-government readiness is done through the examination of different aspects, such as human and budgetary resources and national infrastructure.

Scott, Golden and Hughes (2004) conducted a comprehensive study of the implementation of e-government in Ireland as seen through the eyes of multiple stakeholders. They argue that the implementation models suggested by Layne and Lee (2001) and the United Nations Office of Public Administration (2001) are not adequate to achieve a comprehensive citizen-centred service. In their case study, Scott and his colleagues found that e-government implementation models had encouraged governments to focus on technical issues relating to web-enabled service delivery and to ignore wider issues relating to citizens' involvement and the satisfaction of their needs. They argue that e-government did not achieve its expected capabilities, nor deliver the hoped-for panacea. Finally, they conclude that the involvement of

stakeholders in the implementation strategy is important and should be highlighted in order to develop realistic and achievable expectations of the capability and functions of e-government. This raises a question to be asked to the implementers of e-government: When and how will e-government go beyond providing electronic services?

Once e-government services are fully implemented, the potential benefits of a number of different areas are likely to be offered to the public, such as the improvement of government services, government-public communication and social inclusion, as discussed in the following sections.

2.7 E-governments improving government services

Edmiston (2003, p.22) states that the implementation of e-government has improved the delivery of traditional government services to a great extent, as users are able to access government services online efficiently, at their time and location convenience and with cost reductions. Heeks (1999a, p.13) refers to such services as an improvement of the input and output ratio in the public sector. Further, Gilbert, Balestrini and Littleboy (2004, p.290) claim that the electronic delivery of public services is efficient in terms of savings in money for both the individual and the organisation providing the service. As ICT streamlines government processes, the costs of administration and service provision are reduced (Pascual 2003, p.11). Foley (2005, p.5) argues that a cost-effective strategy is based on making great savings once services are introduced; however, if online services do not have an adequate number of users, then such savings cannot be made and it becomes better to offer these services in different modes.

The attributes of time and location convenience of online services are also significant to their adoption (Gilbert, Balestrini & Littleboy 2004, p.290; Liao & Chung 2002, p.286). Online government information and services can be accessed by users 24 hours a day, 7 days a week, and at a time that suits the users (Darby, Jones & Al Madani 2003, p.108; Zhu, Wymer, & Chen 2002, p.71). The saving in time experienced by users is considered an essential benefit that allows the promotion of online services on the grounds of their efficiency (Hansen 1995, p.219), with Gilbert, Balestrini & Littleboy

(2004, p.290) noting that time is usually saved that is otherwise spent queuing in government offices or on the phone. The fast response time of service delivery through e-government is another major factor in its favour.

Moreover, the efficient delivery of services via e-government, with redundancies in traditional procedures eliminated, has a sound impact on the economy (Pascual 2003, p.10). It attracts investors and helps businesses grow and markets expand worldwide, while having the advantage of also being “local”. This builds highly skilled workforces in different areas, increases employment prospects (Mansell 2002, p.319) and thus contributes to a country’s economic growth (Pascual 2003, p.10).

2.8 Government-public communication

Information is a crucial element for building good communication between government and citizens. Communication is defined as “the transmission of information to elicit a response” (Rose 2004, p.220). In the case of e-government, the response refers to public opinion. Berkley and Gupta (1994, p.115) claim that e-government uses different types of communication to keep the stakeholders informed. They characterise communication as a process of keeping stakeholders informed in any language they understand as well as listening to stakeholders, which usually requires an adjustment to the language used for different stakeholders, sophisticated language for well-educated customers and plain and simple language for novices. In fact, e-government uses a one-way communication approach via its online representation of government and services. This facilitates the understanding of complex issues, reduces the uncertainty of users and ensures that their expectations are reasonable (Carvin, Hill & Smothers 2004, p.10; Panayiotou 2003, p.349). Heeks (1999b, p.90) claims that this type of communication provides users with a sense of involvement and the feeling that their interests are not completely divorced from the system’s objectives. Moreover, Fors and Moreno (2002, p.202) observe that citizens’ access to relevant and accurate government information is used as a means to audit the performance of governments, which is expected to increase transparency and reduce corruption in the public sector. This view is supported by Rose (2004, p.220), who claims that for governments to maintain good communication, citizens must be

supported with transparent information and should be afforded the opportunity to voice their opinions and suggestions, including criticism regarding the performance of the government elite. Bhatnagar (2003, p.3), for example, views that when ICT is used in collecting a variety of payments to government agencies, accuracy in billing is improved, waiting times are shortened and immediate proof is provided to citizens of payments having been made successfully.

In addition, two-way communication, provided through e-government, involves interaction and participation in different ways and at different levels (Darby, Jones & Al Madani 2003, p.108; James 2004, p.8). It empowers users to receive and send information, to learn more about government services (and by implication, more about their government), and to have more control over their transactions (Darby, Jones & Al Madani 2003, p.108) through simple groupware functionalities, such as web forms, email and bulletin boards (Davison, Wagner & Ma 2005, p.284).

Government-public communications also contribute to the enhancement of democracy, where citizens become actively engaged in and contribute to the process of governance (Carvin, Hill & Smothers 2004, p.10; McIvor, McHugh & Cadden 2002, p.181; Pascual 2003, p.14; Reynolds & Regio 2001, p.2) through informing, representing, encouraging, consulting and involving them (Okot-Uma 2000, p.7). Rose (2004, p.220) asserts that involving citizens in the country's development by letting them participate in the policy process or decision-making related to community-interest, as well as finding out and actualising their needs, is considered good political communication. Moreover, Clark (2003, p.386) claims that the relationship between politicians and citizens is also an example of democracy being enhanced by e-government. This is done by broadening opportunities for citizens to access government representatives via better and/or new channels that offer people the chance to speak and to make their voice heard more easily (Cohen & Eimicke 2003, p.4; McIvor, McHugh & Cadden 2002, p.181; Pascual 2003, p.14; Stahl & Butler 2003, p.399). Thus, e-government is likely to increase the participation rates of citizens in the affairs of society and make governments more responsive to the needs and desires of communities (Cohen & Eimicke 2003, p.4; Edmiston 2003, p.25-26; Pascual 2003, p.14). However, Pascual (2003, p.14), Carvin, Hill & Smothers (2004, p.12) and Kakabadse, Kakabadse and Kouzmin (2003, p.52)

claim that e-government is a double-edged sword. They argue that, while e-government has the potential to enhance citizen participation in democratic decision making, it could also isolate others from any involvement in government and further marginalise under-served groups, thereby deepening their current disenfranchisement.

2.9 Social exclusion/inclusion

Social inclusion is considered a fundamental principle in the development of e-government (Kim & Kim 2003, p.362; Warschauer 2003, p.211). Warschauer (2003, p.6) defines social inclusion as “the extent that individuals, families, and communities are able to fully participate in society and control their own destinies, taking into account a variety of factors related to economic resources, employment, health, education, housing, recreation, culture, and civic engagement”. Social exclusion, conversely, is “a multi-dimensional, dynamic process which refers to the breakdown or malfunctioning of the major system in society that should guarantee the social integration of the individual or household” (Shucksmith 2003, p.1). Both definitions indicate that there is no doubt that social exclusion/inclusion are connected with the principles of equality and equity and with the structural causes of their existence. Such structural causes could be explained by reference to various dimensions of social quality. Beck, der Maesen & Walker (1997, p.3) define social quality as “the extent to which citizens are able to participate in the social and economic life of their communities under conditions which enhance their well-being and individual potential” through the dimensions of *social cohesion* and *empowerment*.

Social cohesion is found in creating social networks and the social infrastructure underpinning such networks. It enables citizens “to exist as real human subjects, as social beings” (Berman & Philips 2000, p.332). However, regional differences, suppression of minorities and unequal access to public services foster social exclusion (Berman & Philips 2000, p.332).

Empowerment enables citizens to participate in social, economic, political and cultural processes. Empowerment, generally, refers to “enabling weaker, excluded and

powerless citizens to gain or regain power over their lives” (Fors & Moreno 2002, p.201). Mansell (2002, p.317) argues that individual empowerment is translated into the availability of new opportunities for people to do things they choose to do through, for example, the Internet and other means of communication. However, Bhatnagar (2000, p.1) and Fors and Moreno (2002, p.201) find empowerment in the participation of people in decision-making and developmental processes through having access to accurate and relevant information and knowledge, such as employment opportunities, market prices and government programs. Gunter (2006, p.364) argues that e-government is not only about public services, but also an environment in which people can be more civically engaged.

Berman and Philips (2000, p.333) claim that these dimensions often interact with – and complement – each other as components of the social quality of citizens’ well-being. This promotes social inclusion, where disadvantaged people, such as (some) disabled, (some) elderly and (some) women in some countries, are enabled to access government information and services, interact with government and thereby become socially included.

Mutula (2005a, p.124) notes that social inclusion contributes to social development by directing the focus from providing access to technology to an effective integration of ICT into communities and institutions. Stewart (2000, p.9) argues that social inclusion does not only involve adequate resource sharing but also equal participation in the determination of both individual and collective life. He further argues that the promotion of the benefits of using e-government services leads to important changes in social relations that may come from human interaction with technological processes as well as community involvement which leads to community improvement.

Additionally, e-government facilitates the satisfaction of basic needs for many people within the community as part of the practice of social inclusion. Such basic needs, as identified by the International Labour Office, include health, education and nowadays information (Fors & Moreno 2002, p.200). In the health field, lack of expertise in diagnosing critical diseases is common in rural communities. Access to specialised expertise and up-to-date information in larger, urbanised areas becomes possible with

the use of different forms of ICT (Edmiston 2003, p.21). In education, ICT becomes a promising tool used to reach un-served and under-served populations and offers them education at primary, secondary and tertiary levels through distance education. Distance education has been defined as “instruction that does not require a teacher to be present at the same location at the same time” (Edmiston 2003, p. 22). Edmiston (2003, p.22) acknowledges that while this type of education has long since existed in different forms, such as through correspondence courses, new technologies allow its extensive use. ICT has also enabled the circulation of a large amount of information and knowledge at high speed and at lower costs, providing access to information and making the acquisition of knowledge easier than ever. Such information and knowledge have become increasingly important in different aspects of social development, especially in today’s global economy (Fors & Moreno 2002, p.201).

2.9.1 Digital divide as a barrier to e-government and social inclusion

The “digital divide” phenomenon refers to the gap between those who can effectively access and use new information via communication tools such as the Internet and those who cannot (Mutula 2005a, p.123). Further, Chen and Wellman (2003, p.2) define the digital divide as “multi-dimensional inequalities in Internet access and use, ranging from the global level, to nation states, to communities, and to individuals”. Warschauer (2003, p.5) argues that a digital divide is not limited to the lack of hardware or Internet connection, but is instead “embedded in a complex array of factors encompassing physical, digital, human and social relationships”. On the other hand, Norris (2001, p.4) considers the digital divide to be a multi-dimensional phenomenon that encompasses three distinct aspects:

1. The global divide, which refers to the divergences between industrialised and developing societies in terms of Internet access.
2. The social divide, which refers to the gap within each nation regarding information richness.
3. The democratic divide, which refers to the difference in using digital resources to participate in public life.

Although Norris's definition is more comprehensive and complements other definitions regarding the digital divide, seeing it from different perspectives all definitions embrace a similar idea, namely that the digital divide is the gap between those who "have" and others who "have-not" regarding different aspects of life.

Both Fors and Moreno (2002, p.203) and Saidi and Yared (2002, p.12) claim that a digital divide is evident between rich and poor people, old and young people, and the well-educated and the poorly educated. Further, although two economists at the World Bank found that the digital divide is narrowing rather than widening, based on the fact that Internet usage has grown very fast in low and middle income countries since the 1990s (Finance and Economics 2004, p.76), Margetts and Dunleavy (2002, p.9) claim that with the diffusion of the Internet, the ICT gap between "haves" and "have-nots" is widening rather than shrinking. Evans and Yen (2005, p.367) argue that the divide between the computer-literate and non-literate results from divides in the income and education of citizens. Mutula (2005b, p.592) and Evans and Yen (2005, p.367) also contend that the ramifications of the divide between countries is related to the current states of literacy, politics, technical infrastructure and the economy. Third World countries are a good example of the digital divide as they generally do not have a well-developed telecommunication infrastructure, which is key to the development of e-government (Fors & Moreno 2002, p.203; Saidi & Yared 2002, p.12). For example, according to the International Communication Union, in the year 2000 the number of Internet Service Providers (ISPs) in Manhattan exceeded that in the whole of Africa. Likewise, in the UK in 2002 there were about 30 PCs per 100 people, while there was only one computer for every 10,000 people in countries like Malawi (Fors & Moreno 2002, p.203). Therefore, the digital divide is considered a serious issue in the growth of e-government and the practice of social inclusion. It reinforces inequality in accessing and using ICT, as citizens with computers and Internet access are better served by governments. This might exclude disadvantaged groups, and hence explain the low take-up of e-government.

2.9.2 Bridging the digital divide

Efforts have been focused on bridging the digital divide worldwide. E-government can be used as a means of bridging the digital divide as its introduction requires certain approaches to be undertaken, especially in places where resources are scarce and geography is an obstacle for communication, in order to achieve the aim of e-government that all people should make use of government services and information (Mutula 2005a, p.123; Pascual 2003, p.33). Such approaches are as follows:

- Enhancement of digital literacy through learning environments, such as public schools, libraries and community centres (Evans 2003, p.20; Mutula 2005a, p.132-133).
- Providing low-cost public access to computers and the Internet at the community level in public places, such as libraries and meeting places (Deakins and Dillon 2002, p.381), especially in rural areas and others where less advantaged populations of low socioeconomic status are found (Teicher, Hughes & Dow 2002, p.387).
- Coordination and cooperation between government agencies as well as stakeholders in order to ensure the operability of government. This coordination is expected to avoid duplication of information and procedures. It also helps in taking proper actions in a range of crucial areas such as security and privacy protection in addition to providing the framework and capacity for seamless services. This would help citizens to take advantage of “digital opportunities” and contribute to reducing the digital divide at the levels of government, private sector and citizens.
- Coordination within and across areas to ensure effective maximisation and deployment of available resources, such as the development of ICT infrastructure, strategy formulation for human resources development and improvements in governance. Mansell (2002, p.325) claims that such coordination promotes education policies that increase literacy and ICT skills in addition to encouraging effective institutions to develop, implement and coordinate policies and strategies as well as ensuring accessibility and relevance.

Despite the fact that the strategy of e-government is intended to include participation in different aspects of life (Carvin, Hill & Smothers 2004, p.1), James (2000, p.65) argues that e-government has the potential to deepen the digital divide instead of bridging it. He gives the example of online voting, where the opportunity to vote electronically is beneficial only to computer users.

2.10 E-government web portals

The use of web portals by government is a prime step to make e-government work. A government web portal has been defined by the *Government of Mauritius* (2005, no page number) as “a one-stop-shop providing comprehensive information and delivering integrated services round-the-clock which could be made up of other sub-portals to serve different categories of the society like citizen, government, non-citizen and business”. Web portals are regarded as a specific tool for public governance, management and improving communication with citizens (Criado & Ramilo 2003, p.195). Choudrie, Ghinea & Weerakkody (2004) and Gant (2004, p.2) state that government web portals are considered the benchmark measures of good e-government practices where government processes become more transparent and efficient, government services and information are easily accessed, and the opportunities for citizens’ involvement increase. Gant, Gant and Johnson (2002) add that web technologies of e-governments employ customer-centric services and transform operational and bureaucratic procedures. E-government web portals, which can be accessed either via computers or web-enabled mobile phones (Van Riel, Liljander & Jurriens 2001, p.359), serve as an integrated gateway to government websites, thus improving communication and interactivity internally and externally (Gant, Gant & Johnson 2002; Sun Microsystems 2002). The potential integration of a number of web portals is a key feature distinguishing web portals from large-scale websites. This provides significant cost and time savings by providing immediate contact with different parties and access to appropriate information usually housed on different platforms (Gant, Gant & Johnson 2002). Symantec (2005) strongly recommends that a single portal be used by governments rather than several, as the single portal becomes

more comprehensive with multi-use and thus results in better availability of information and services.

2.10.1 User interface design of e-government web portals

User interface design is the fundamental element in building e-government web portals that meet users' needs and are easy to use. Although many developers do not follow user interface design standards in making their applications usable, efforts have been made to make such applications useful to users (Ambler 2005). Various criteria of excellence are applied to e-government web portals, such as usability, functionality, accessibility and a number of other features.

2.10.1.1 Usability features

Pearrow (2000, p.12) defines usability as the broad discipline of applying sound scientific observation, measurement and design principles to the creation and maintenance of websites in order to facilitate ease of use and learnability, usefulness and avoidance of discomfort for users. Brinck, Gergle and Wood (2002, pp. 2-3) add that usability is the product of several, sometimes conflicting, design goals which include the following:

- *Efficiency*: The speed of tasks that can be completed.
- *Learnability*: The ease of learning to accurately perform tasks in fewer steps.
- *Memorability*: The degree to which a system taxes human memory.
- *Error tolerance*: How well errors are prevented and how easily they are detected and identified when they occur, and how easily they are corrected once they are identified.
- *Subjective aesthetics*: How users like using a given web portal.

Usability in e-government websites is significant as it determines the quality of a user's experience while navigating and interacting with the website. A usable site supports users and allows them to accomplish their goals quickly, efficiently and easily. This, consequently, brings user loyalty and trust as well as higher credibility in government. However, poor usability wastes users' time, reduces their productivity, increases the number of errors and leads to frustration that results in users simply deserting the system (AME Info 2002; Brinck, Gergle & Wood 2002, p.2; Elliot & Fowell 2000, p.335; U.S. Department of Health & Human Services 2005). Cunliffe (2000, p.297) argues that user dissatisfaction with a website leads to a failure in meeting the objectives of the website. Forrester Research (Nielsen 1998) found that about 51% of users might desert a website simply because of its poor design and not being able to find what they are looking for, whereas Ancarani (2005, p.8) believes that an attractive and complete website might help establish a link with a potential user, and that it is therefore imperative for organisations to provide web-enabled services to assess their performance from users' perspectives in order to meet users' expectations. Understanding the needs of both user and information provider are the key elements that make a website usable. Users' needs are about making a website "user centred, catering for actual user needs, tasks and expectations and recognising actual user constraints", while information providers' needs, which include meeting user needs, are that "a site should also meet the objectives of the organisation in producing the site" (Cunliffe 2000, p.299). Nonetheless, as mentioned above, a site failing to meet the needs of its users is unlikely to meet its objectives.

Pearrow (2000, p.7) reports that people go to a website for three reasons: surfing, known-item searching and task-oriented interaction. Baker (2004, p.50) points out that usability analysis of e-government web portal design generally concentrates on the two latter reasons, known-item searching and task-oriented interaction. Accordingly, Pearrow believes that usability is geared towards improving how easily users can use a website to accomplish specific tasks. However, this contrasts with the notion of website "likability", the degree to which a user favours a website (Baker 2004, p.51; Pearrow 2000, p.9).

2.10.1.2 Functionality features

The functionality of an e-government web portal is defined as “the integration of underlying processes across different functions of government” (Layne & Lee 2001, p.125). The functionality of a web portal includes the ability to search, classify, present and integrate relevant information, with the high vs. low functionality of a web portal determined by the integration of data at three levels of complexity: (1) linking information published to an existing website, (2) single organisation transactions, and (3) multiple organisation transactions (Layne & Lee 2001, p.125). Gant and Gant (2002) describe the functionality of a web portal through its dimensions of *openness* and *customisation*.

Openness refers to the “extent to which a government website provides comprehensive information and services, and maintains timely communication to all key public audiences” (Gant & Gant 2002, no page number). Openness is considered a key component of e-government web portals since it underlies the “one-stop shop” where diverse services are obtained in a timely, convenient and user-friendly manner from a single source (Ho 2002 p.436). It is also interrelated with the amount of useful facts, figures, services and other pieces of information that could be accessed and viewed either through the portal or through following a link (Gant, Gant & Johnson 2002). *Transparency* and *interactivity* are seen as the two key elements of openness in a government website. *Transparency* pertains to the degree of information a government organisation is willing to provide about itself to users, whereas *interactivity* pertains to how convenient the user’s interaction is with this information, and how accessible the information is on the website (Cyberspace Policy Research Group 2001). Respondents in a study by West (2004, p.23) about citizens’ attitudes to e-government ranked interaction with government by telephone the highest (42%), the use of a government website second (29%), followed by in-person visits and email correspondence (20% and 18%, respectively). West’s results are not surprising as Hart-Teeter’s (2003) study had already shown that government websites have limited interactive services, thus discouraging citizens from using government websites.

Customisation, on the other hand, addresses the ability of portals to provide targeted information to individuals and groups (Gant & Gant 2002). Web portals are characterised by their ability to provide contents tailored to users' needs. Portals aim to make a user's experience more effective, thereby making organisations more responsive and productive. E-government web portals are able to meet the direct needs of each user by providing him or her with the ability to create customised views that provide personalised content which can be different for every single user (Brakel 2003, p.595; Gant & Gant 2002; Gant, Gant & Johnson 2002).

2.10.1.3 Accessibility features

Accessibility features are crucial in the user interface design, as these enable equal access for all users, including the disabled. E-government web portals are expected to include those features that ensure equal access to government information and services for all citizens (Jakob 2003, p.7; Pearrow 2000, p.253; Stowers 2002, p.13). Physical skills and ease of obtaining information and services are the main issues in web portal access (Criado & Ramilo 2003, p.208). For example, colours and fonts should be chosen in a way that considers the needs of people with impaired vision (Criado & Ramilo 2003, p.208; Jakob 2003, p.7). Becker (2005) identifies usability barriers on e-government websites that could prevent older adults, 60 and above, from using online services. Such barriers are attributed to aging, which might cause vision, cognition and other physical impairments. For example, visited links should be visually cued so that they are differentiated from unvisited links. The use of small font size also affects the readability of web content. A lengthy homepage makes it difficult to recall the contents at the top of the page. Criado & Ramilo (2003, p.209) argue that government organisations should also consider inequality in education, economy and culture in the user interface design of e-government web portals so as to allow universal access to users with different needs.

2.10.1.4 Other features

User help

Visitors to e-government web portals should be assisted in finding information and their way around websites. This can be done through visible help features including FAQs, site maps, help pages and feedback, as it is assumed that quite a large number of potential users have limited experience (Stowers 2002, p.13).

Information architecture

Information architecture refers to the structure or organisation of a web portal and how different web pages within the portal are interlinked, facilitating easy retrieval of information (Brakel 2003, p.592; Brinck, Gergle & Wood 2002, p.120). This feature is essential to making e-government web portals more logical and well-structured.

Legitimacy features

In order for government organisations to win the trust of citizens when accessing government information and services online, several features need to be included to legitimise government websites and ensure accuracy and reliability of the portal content. These features include clear security and privacy policies, contact information and the date of the last update (Gant, Gant & Johnson 2002; Stowers 2002, p.15). According to Gunter (2006, p.366), such features found on e-government websites ensure the security of handling financial and other transactions.

Cunliffe (2000, p.297) states that there are various methods that can be used to evaluate features of a website interface design, including competitive analysis, inspection methods, log analysis, focus groups and online questionnaires. Assessments of some existing e-government web portals have been based on the heuristic evaluation techniques (Baker 2004, p.51) pioneered by Nielsen in 1990 (Nielsen 2006). The heuristic technique is defined as “a usability engineering method for finding the usability problems in a user interface design so that they can be attended to as part of an iterative design process” (Nielsen 1994, p.25). Pearrow (2000, p.165) and Baker (2004, p.51) explain that a heuristic evaluation estimates the relative usability of a website by applying rules of thumb to particular websites and deriving a score for the website

based on how closely the requirements of these rules are met. Cunliffe (2000, p.303), however, contends that a heuristic evaluation can be time consuming and does not consider actual user behaviour or user tasks.

Users' perceptions of a website are also essential to consider in the design of an e-government website. Chin, Diehl and Norman (1988) state that the evaluation of the human-computer interface of a site may have gone through many stages of development, in which several questionnaire tools have been developed to assess users' perceptions of systems. These tools attempt to evaluate different criteria, such as a person's attitude towards the system and a user's acceptance of a system. Performance measures are related to the speed and accuracy of performing a task and the time consumed in learning the system, while user acceptance of a system is closely related to users' subjective satisfaction. Unfortunately, after an extensive literature review undertaken by Chin and his colleagues, several weaknesses were found in many of these tools, such as low reliability and lack of validation. To address these concerns, Chin, Diehl and Norman (1988) developed a measurement tool based on Shneiderman's questionnaire version 2.0, which consisted of 90 questions in 1987. This questionnaire, the Questionnaire User Interface Satisfaction (QUIS), was further developed until it reached version 5.0, consisting of 27 items only. The QUIS 5.0, which focuses on a users' subjective evaluation of the interface of a computer system was found to be reliable in the study by Chin, Diehl and Norman (1988). Recently, QUIS has been further developed and used successfully in many studies, for example, Ballenger (2002), Hahn and Kauffman (2005) and Yang *et al.* (2003). It is necessary to apply both heuristic evaluation and user testing throughout the development cycle of a website design in order to identify usability problems as well as whether a user interface follows established usability guidelines.

As explained, the above features are essential for the success of an e-government website. These features are directly interrelated with the staged implementation of e-government, discussed in Section 2.6. Their existence ensures the accomplishment of the whole project.

2.10.2 Empirical research on the evaluation of e-government web portals

There is little published research on the evaluation of government web portals (Choudrie & Ghinea 2005, p.321). The majority of studies concern developed countries whereas only one study was found to evaluate e-government websites in developing countries. This can be explained by the fact that e-government is well established in developed countries whereas it is still emerging in developing countries. West (2006) is one of few studies to do so, having assessed global e-government web portals annually since 2000. The assessment is based on different features relating to service delivery, information availability and public access. The study revealed some problems found in evaluating websites, including the slow downloading of pages, lack of privacy and security policies, websites being designed for tourists and investors rather than citizens, and some websites not considering users at different levels in terms of education and disability. According to West, the best practices of top government sites are found in South Korea, Taiwan, Singapore, the United States and Canada. Unfortunately, West did not include usability and functionality criteria in the evaluation of websites; the criteria were limited to the contents of websites. The absence of these criteria has implications for the accuracy of the evaluation.

Another worldwide study, conducted by Choudrie and Ghinea (2005), evaluated accessibility, quality and privacy issues for a small sample of e-government web portals in Canada, Australia, Hong Kong, Finland and Singapore, using a series of standard web diagnostic tools, such as WebXact. The results show that in the first phase of e-government implementation (web presence), accessibility, quality and privacy are neglected by some governments. Similarly, the results of applying web diagnostic tools demonstrated the significance of the tools to be included in the design and delivery of web portals. Therefore, the researchers recommend that web designers and policy makers responsible for e-government should follow recognised guidelines in the design of web portals. Again, this study did not consider all evaluation criteria of a website, and might thus rank e-government websites of different countries incorrectly.

Gant and Gant (2002) investigated the role of government electronic service delivery through the functionality of the web portals of the fifty states of the United States. The functionality of web portals is described by Gant and Gant in terms of usability,

customisation, openness and transparency. A 131-item portal evaluation questionnaire was used in the study, which then underwent a content analysis. Preliminary results showed that most web portals of the US states were in their early stages of development, providing information and limited access to some services. Gant and Gant's findings also showed that web portal usability and transparency were determined by constituents' understanding of the web, while transparency and openness were determined by the state legislatures having enacted an act relating to the legal recognition of electronic records and signatures. The evaluation of web portals using a 131-item questionnaire is extensive but produced mixed results. Therefore, Gant and Gant (2002) recommend the use of a more focused evaluation scale with fewer items in order to produce clear and interpretable results.

In New Zealand, Cullen, O'Connor and Verrirr (2003) conducted another study of local government websites to assess the effectiveness of the government information provided and the appropriateness of accessing such information. The researchers surveyed about half of the website visitors, in the year 2001 using 37 criteria relating to information content (including orientation to website, currency, bibliographic control, services and privacy) and ease of use (including quality of links, feedback mechanisms, accessibility, design and navigability). The study found that although there was a good range of information provided on the majority of the sites, some smaller regional council sites provided little information to their residents. The results also showed that the availability of transactional services on the websites was limited, provisions relating to users' privacy and security were poor, and no provision was made to help the disabled access the sites. For the improvement of the websites, users required more focus on information, more up-to-date information, better search facilities, and more consideration for indigenous and ethnic minority groups. Relying on current users of websites to evaluate them might not identify all the problems potentially to be found on a website, and surveying potential users could be more useful in identifying problems that, once solved, would make a website more usable.

Abanumy, Al-Badi and Mayhew (2005) evaluated the accessibility of the Saudi Arabia's and Oman's e-government websites, using the "W3C Web Content Accessibility Guidelines". Their findings showed that considerable efforts need to be

made for the websites to be accessible to all people. The researchers maintain that the developers of the e-government websites are not aware of accessibility guidelines, and therefore they are not used to making their websites usable and coherent. Moreover, governments in this part of the world do not recognise the importance of providing services to the segments of their population with special needs. Therefore, in order to accelerate the use of e-government websites, the researchers recommend that governments in Gulf Cooperation Council (GCC) countries need to review their accessibility policies and create an awareness that all citizens are entitled to equal opportunities. Using the “W3C Web Content Accessibility Guidelines” in a new context is appropriate for a preliminary study evaluating website accessibility; nevertheless, using other methods might be more useful in providing richer data that identify the ways in which such websites could be made more accessible.

In sum, what can be deduced from the research reviewed above is that the evaluation of e-government websites should not be limited to certain aspects. Instead, it should be comprehensive, considering content analysis in addition to various criteria of excellence recommended to be applied to the user interface design of e-government web portals, such as usability, functionality, accessibility and a number of other features. Such a thorough evaluation, which is recommended to be conducted on current and potential users, contributes to the improvement of e-government websites, and thereby to the implementation and development of e-government. Consequently, this contributes to the adoption of e-government services by the public, which is explained in the next chapter.

2.11 Conclusion

This chapter has provided a review of the e-government literature and a theoretical foundation for the major themes of this study. The review of the literature on e-government in developed and developing countries, which set the situation of Kuwait into context, has emphasised that few studies have been conducted in developing countries. Therefore, in order to fill this gap in the literature, regarding e-government in general and in Kuwait in particular, the Kuwait e-government initiative will be investigated in more detail in this study.

The next chapter discusses more specific concerns for this research through the exploration of the adoption of e-government services and change management.

Chapter Three

Adoption of e-government and change management

3.1 Introduction

This chapter discusses the adoption of e-government and the concept of change management as an initiative to ensure a successful implementation of e-government. Adoption theories and models are reviewed and critically evaluated to identify the dominant themes in the available literature, and what needs to be done to fill any gaps identified concerning the adoption of e-government. The discussion presented in this chapter identifies the overall aim and focus of this research.

3.2 Citizens' adoption of e-government

User acceptance and adoption of information technology (IT) is deemed a necessary condition for the success of any IT project (Pinto & Mantel 1990, p.269). User acceptance is defined as “a potential user’s predisposition toward personally using a specific system” (Al-Gahtani 1995, p.21) or as an “initial decision made by the individual to interact with the technology” (Venkatesh *et al.* 2004, p.446). Adoption comes after “direct experience with the technology and after an individual has decided to accept the technology” (Venkatesh *et al.* 2004, p.446). Therefore, citizens' adoption of e-government services is essential to making e-government work. A number of studies have provided some theoretical frameworks for research regarding the acceptance of IT and IS, for example, Ajzen (1991), Davis (1989), Davis, Bagozzi and Warshaw (1989), Mathieson (1991), Al-Gahtani and King (1999), and Taylor and Todd (1995), as explained in the following subsections.

3.2.1 Adoption theories

The literature has identified a number of theories that explain the adoption of IT and IS. Although many modifications and extensions have been suggested in the literature, the basis for most of these studies can be found in the Theory of Reasoned Action (TRA),

the Theory of Planned Behaviour (TPB) and the Technology Acceptance Model (TAM).

3.2.1.1 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) is a widely used model in social psychology which is concerned with the determinants of consciously intended behaviour (Fishbein & Ajzen 1975). The conceptual framework of TRA, as proposed by social psychologists Ajzen and Fishbein (1980), is founded on the distinction between beliefs, attitudes, intentions and behaviours; see Figure 3.1.

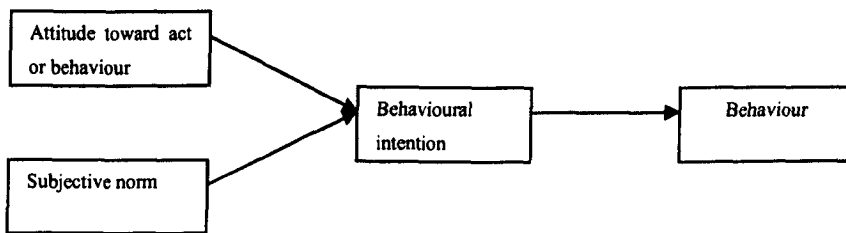


Figure 3.1 The Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975)

According to TRA, a person's performance of a specified behaviour is determined by his/her behavioural intention (BI) to perform that behaviour. Fishbein and Ajzen (1975, p.12) define BI as "the person's subjective probability that he or she will perform the behaviour in question". This intention is determined by the person's attitude, which is "an individual's positive or negative feelings about performing the target behaviour" (Venkatesh *et al.* 2003, p.456). Subjective norms refer to "the perceived social pressure to perform or not to perform the behaviour" (Ajzen 1991, p.188) and includes referent groups, such as peers, superiors and parents (Taylor & Todd 1995, p.150). Subjective norms are the measure used of how people are influenced by their peers' opinions. According to this theory, attitude arises as a result of beliefs about the consequences of that behaviour and one's evaluation of the consequences, whilst the subjective norm is determined by an individual's normative beliefs and motivation to comply with perceived norms (Dillion & Morris 1996, p.9).

3.2.1.2 Theory of Planned Behaviour (TPB)

TRA was developed further by Ajzen (1991), resulting in the Theory of Planned Behaviour (TPB), which provides a useful conceptual framework for dealing with the complexities of human social behaviour. The theory argues that attitudes, subjective norm and perceived behavioural control are direct determinants of intentions, which in turn influence behaviour; see Figure 3.2.

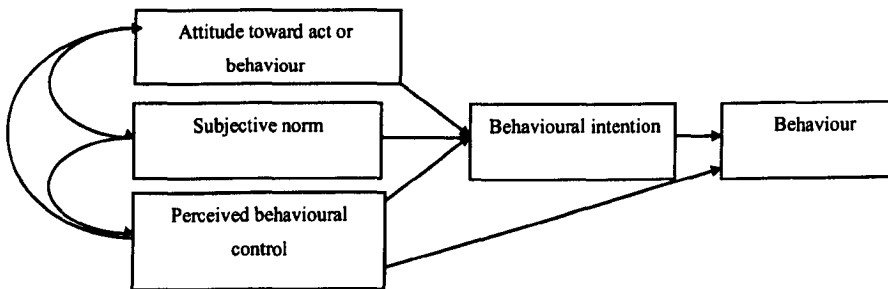


Figure 3.2 Theory of Planned Behaviour (TPB) (Ajzen, 1991)

Perceived behavioural control, which refers to “the resources and opportunities available to a person [which] must to some extent dictate the likelihood of behavioural achievement” (Ajzen 1991, p.183), is determined by the availability of skills, resources and opportunities as well as their perceived importance to achieve outcomes (Ajzen 1991, p.183; Dillon & Morris 1996, p.9).

3.2.1.3 Technology Acceptance Model (TAM)

The Technology Acceptance Model, first introduced by Davis in his doctoral dissertation in 1986, is an adaptation of TRA specifically tailored to modelling user acceptance of information technology. TAM identified a number of fundamental variables that determine computer acceptance. TAM assumes that beliefs about usefulness and attitude are always the primary determinants of IT acceptance behaviours (Davis, Bagozzi & Warshaw 1989), as shown in Figure 3.3. Perceived usefulness is “the degree to which a person believes that using a particular system

would enhance his or her job performance”, whereas perceived ease of use is “the degree to which a system would be free of effort” (Davis, Bagozzi & Warshaw 1989, p.985). Similar to TRA, TAM postulates that computer usage is determined by behavioural intention (BI), but differs in that BI is viewed as being jointly determined by the person’s attitude towards using the technology and the perceived usefulness. According to TAM, attitude toward using the technology is jointly determined by usefulness and ease of use. However, TAM does not include TRA’s subjective norms construct, as it was found to be non-significant (Davis, Bagozzi & Warshaw 1989).

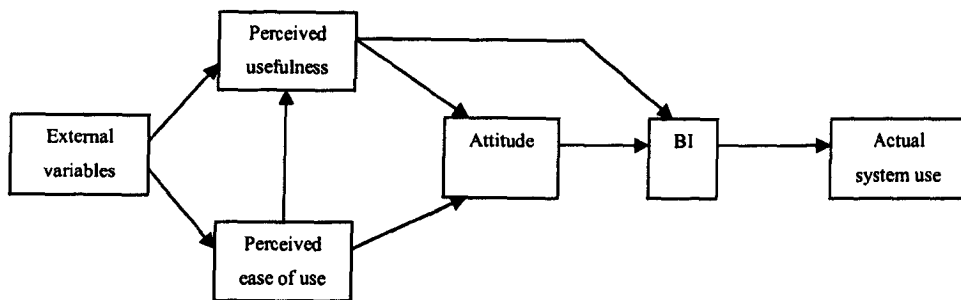


Figure 3.3 Technology acceptance model (TAM) (Davis, Bagozzi & Warshaw, 1989)

According to Dillon and Morris (1996, p.12) and their review of the available models for user acceptance of information technologies and related research, TRA and TPB are better models for investigating the determinants of intentions, while TAM better predicts IT usage.

Many additions and modifications have been made to TAM over the years, which has received extensive empirical support through validations and replications of studies for its power to predict the use of an information system, for example, Gefen and Straub (1997), Igarria *et al.* (1995), Davis (1989), Davis, Bagozzi and Warshaw (1989), Davis (1993), Davis & Venkatesh (1996), Mathieson (1991), Taylor and Todd (1995), Venkatesh and Davis (1996), Venkatesh, Morris and Ackerman (2000) and Al-Gahtani and King (1999). However, Lu *et al.* (2003, p.207) claim that other researchers have also recognised that the generality of TAM has failed to supply more meaningful information on users’ opinions about specific systems. They, therefore, argue that there is a need for TAM to incorporate additional factors or integrate with the other IT

acceptance models to improve its specificity and explanatory utility; see, for example, Agarwal and Prasad (1997), Hu *et al.* (1999), Mathieson (1991) and Fenech (1998).

3.2.1.4 Diffusion of Innovation (DOI)

Recently researchers in IS have begun to rely on theories of innovation diffusion to study implementation problems. The major focus of these studies is about the way potential users perceive innovations in information technology that influence their adoption (Al-Gahtani 1995, p.24). Rogers (1995, p.10) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system”. He also defines innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”. According to Rogers (1995, pp.15-16), the following factors influence the differences in the adoption of any idea:

- *Relative advantage*: “the degree to which an innovation is perceived as better than the idea it supersedes”.
- *Compatibility*: “the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters”.
- *Complexity*: “the degree to which an innovation is perceived as difficult to understand and use”.
- *Trialability*: “the degree to which an innovation may be experimented with on a limited basis”.
- *Observability*: “the degree to which the results of an innovation are visible to others”.

Carter and Belanger (2003, p.59) view “image” as an additional factor that influences the acceptance and use of innovation. Van Slyke, Belanger & Comunale (2004, p.35)

refer to image as the degree to which the use of innovation is seen as enhancing an individual's image or social status.

The above models share some similarities in their constructs. For example, constructs of perceived usefulness and perceived ease of use in TAM are similar to relative advantage and complexity in the Innovation Diffusion Theory (IDT). Many researchers used different models in their studies to compare their findings in order to identify constructs that have a significant effect on the intention to use the technology. For example, Davis, Bagozzi & Warshaw (1989), using TAM and TRA models, investigated the intentions of 107 users in organisations to use a computer system. The findings showed that perceived usefulness had a strong effect on intention, whereas the effect of ease of use reduced over time, and subjective norm had no significant effect on intentions.

Mathieson (1991), on the other hand, compared TAM with TPB in a study predicting junior and senior users' intention to use an information system. The findings indicated that TAM succeeded in explaining intention, where usefulness and ease of use contributed to attitude, and usefulness and attitude contributed to intention. In relation to TPB, the findings showed that intention was predicted by attitude and perceived behavioural control but not by subjective norm, confirming the findings of Davis, Bagozzi and Warshaw (1989). This suggests that TAM was better than TPB at explaining users' intention to use the information system.

Taylor and Todd (1995) investigated 786 potential users of IT in a comparative study to assess which of three models best predicted the usage of information technology. These models were TAM, TPB and Decomposed TPB, which includes constructs from the Diffusion of Innovation theory. Taylor and Todd (1995, p.152) claim that peer influence can divert an individual's opinion towards the use of IT, especially in the early stages of a system's implementation when a subjective norm is found to be more important as users have only limited experience of the system to be introduced (Taylor & Todd, 1995, p.152). Unlike Mathieson (1991) and Davis, Bagozzi and Warshaw (1989), Taylor and Todd (1995) found an influence which explained part of BI, which became more important for those without prior experience. Therefore, their findings

show that Decomposed TPB provides a fuller understanding of behavioural intention than TAM and TPB. Igbaria *et al.* (1995) surveyed part-time MBA students to investigate the determinants of the use of microcomputers. Their study proposed the use of certain constructs in TRA and TAM, which are: individual characteristics represented in user training and computer experience, organisational characteristics found in organisational support, system characteristics in the quality of a system, and finally users' beliefs, which are represented in perceived ease of use and perceived usefulness. Their findings show that not only perceived ease of use and perceived usefulness contribute to the use of microcomputers, but also the external factors of individual, system and organisational characteristics. These findings suggests that users' intentions might be added to the model in order to investigate potential users. Moreover, other variables that might affect users' beliefs, such as gender, peer influence and accessibility of the system, should also be investigated.

It is clear from the literature review and the above examples that the technology acceptance literature is well established and contains a variety of explanatory models. This, therefore, encouraged a number of researchers, namely Venkatesh, Morris, Davis and Davis, to create a synthesized model that presents a more complete picture of the acceptance process than any previous individual models had been able to do, called Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh *et al.* 2003).

3.2.1.5 *Unified Theory of Acceptance and Use of Technology (UTAUT)*

As mentioned above, Venkatesh *et al.* (2003) developed an integrated model by merging eight models previously used in the IS literature, all of which had their origins in psychology, sociology and communications. These eight models are the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Technology Acceptance Model (TAM) (Davis 1989), the Motivational Model (MM) (Davis, Bagozzi & Warshaw 1992), the Theory of Planned Behaviour (TPB) (Ajzen 1991), the combined TAM and TPB (C-TAM-TPB) (Taylor & Todd 1995), the Model of PC Utilization (MPCU) (Thompson, Higgins & Howell 1991), Innovation Diffusion Theory (IDT) (Rogers

1995) and Social Cognitive Theory (SCT) (Compeau & Higgins 1995). Each model attempts to predict and explain user behaviour using a variety of independent variables. Venkatesh *et al.* (2003) created the Unified Theory of Acceptance and Use of Technology (UTAUT) model based on the conceptual and empirical similarities across these eight models. In their study, the UTAUT model explained about 70 percent of the variance in intention to use technology, which is vastly superior to the variance explained by any of the eight individual models, which ranged from 17 to 42 percent (Venkatesh *et al.* 2003, p.467). The study revealed that the UTAUT model was able to explain user acceptance in a more complete and realistic manner than earlier models. By consolidating and improving upon existing IT acceptance models, it is argued that the UTAUT model should now serve as a benchmark for the acceptance literature, much as TAM had done over the past 15 years (Rosen 2005, p.3).

The UTAUT model contains five direct determinants of intention and use of IT: performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention. Performance expectancy has been defined as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” (Venkatesh *et al.* 2003, p.447); effort expectancy as “the degree of ease associated with the use of the system” (Venkatesh *et al.* 2003, p.450); Social influence as “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh *et al.* 2003, p.451); and facilitating conditions as “the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system” (Venkatesh *et al.* 2003, p.453).

The UTAUT model also considers moderators influencing the four direct determinants: gender, age, experience and voluntariness of use. Sharma, Durand and Gur-Arie (1981, p.291) define a moderator as a variable which “systematically modifies either the form and/or strength of the relationship between a predictor and a criterion variable”. Venkatesh *et al.* (2003) found that the effect of performance expectancy on intention is moderated by gender and age; the effect of effort expectancy on intention is moderated by gender, age and experience; and the effect of social influence on intention is moderated by gender, age, experience and voluntariness of use. Lastly, the effect of

facilitating conditions on usage is moderated by age and experience. Further, the model considers three determinants which are not hypothesised to have a direct influence on intention: computer self-efficacy, computer anxiety and attitude toward using technology (Venkatesh *et al.* 2003); see Figure 3.4.

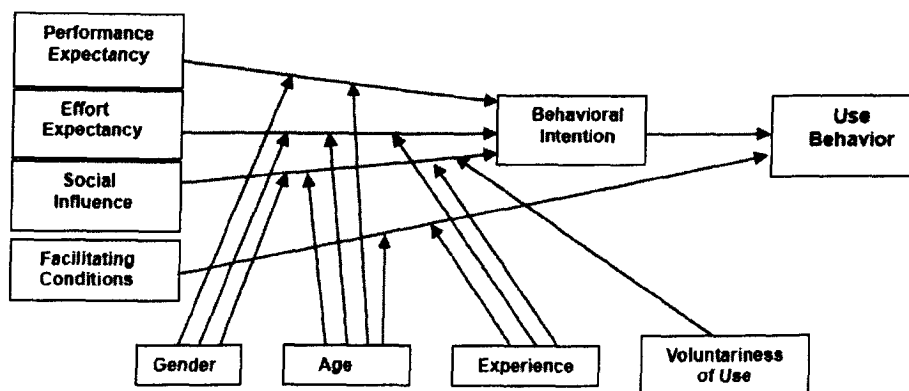


Figure 3.4 Unified Theory of Acceptance and Use of Technology (Venkatesh *et al.* 2003, p.447)

Although the UTAUT model is relatively new, its comprehensiveness, suitability, validity and reliability in technology adoption studies in different contexts has been proven; see, for example, Anderson and Schwager (2004), Lin, Chan and Jin (2004), Ristola and Kesti (2005), Venkatesh *et al.* (2003) and Rosen (2005). Therefore, the researcher of the current study adopted this model, which is explained in greater detail in the following section.

3.3 Research model and hypotheses

The UTAUT model created by Venkatesh *et al.* (2003) and adopted for this study contains five direct determinants of behavioural intention and use of a technology: performance expectancy, effort expectancy, peer influence, facilitating conditions and behavioural intention. The UTAUT model also considers moderators influencing the five direct determinants: gender, Internet experience and type of academic course. The research model used in this thesis included the causal relationships between the

constructs proposed by the amended UTAUT model. The research model and hypotheses are explained below.

Performance expectancy (PE)

Venkatesh *et al.* (2003, p.447) define performance expectancy as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance”. This construct is a compound from four other constructs in other models. Perceived usefulness, a major construct in TAM and the combined TAM and TPB, is almost identical in definition to performance expectancy. The extrinsic motivation construct in MM is “the perception that users will want to perform an activity because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions”; job-fit in MPCU measures “the extent to which an individual believes that using a PC enhances the performance of his or her job” (Thompson, Higgins & Howell 1991, p.129); and relative advantage in IDT and the construct of outcome expectations in SCT are related to the efficiency and effectiveness of job performance in using a computer (Compeau, Higgins & Huff 1999, p.147). These five constructs share common aspects of an expectation of improved job performance due to the use of IT. The similarities between those constructs have been acknowledged in the literature, for example, usefulness and extrinsic motivation by Davis, Bagozzi & Warshaw (1989, 1992) and usefulness and job-fit by Thompson, Higgins and Howell. (1991). Venkatesh *et al.* (2003, p.447) found in their study that the performance expectancy construct within each individual model is considered the strongest predictor of intention as it remains significant at different points of measurement. Rosen (2005), in a longitudinal study investigating the effect of personal innovativeness in the domain of information technology based on a modified UTAUT model, found that performance expectancy influences behavioural intention. In this study, this construct is measured by the perceptions of using e-government services in terms of benefits, speed, saving time, money and effort, facilitating communication with government, improving the quality of government services, and giving citizens an equal chance to carry out their business with government. The following hypothesis is proposed to address the issue of construct of performance expectancy:

H1: There will be a significant positive relationship between performance expectancy and behavioural intention to use e-government services.

Effort expectancy (EE)

Venkatesh *et al.* (2003, p.451) captured the concept of effort expectancy from the similarities shared between three constructs from the eight models: perceived ease of use in TAM, complexity in MPCU (which is “the degree to which a system is perceived as relatively difficult to understand and use” (Thompson, Higgins & Howell 1991, p.128)), and complexity in IDT. Rosen (2005, p.22) points out that all of these constructs measure how difficult it is to use a system, and therefore, according to Venkatesh *et al.* (2003, p.450), they are combined in the construct of effort expectancy, which is “the degree of ease associated with the use of the system”. Consistent with previous studies, Venkatesh *et al.* (2003, p.450) found that although the effort expectancy construct is significant in different usage contexts, namely mandatory and voluntary, it is significant only during the first time period, for example, before training, becoming insignificant over periods of extended and sustained usage. Similarly, Rosen (2005) found that effort expectancy was significant in only three of the five periods of time which helped in predicting some of the intention to use technology. This construct is measured by the perceptions of ease of use of e-government services as well as ease of learning how to use these services. The following hypothesis is proposed to address this issue:

H2: There will be a significant positive relationship between effort expectancy and behavioural intention to use e-government services.

Peer influence (SI)

Students in their teens need to belong to or feel connected with people of their own age and be with them to share attitudes, interests and circumstances that resemble their own (Focus Adolescent Services 1999). In fact, adolescents spend twice as much time with peers as with parents (Csikszentmihalyi & Larson 1984, cited in Lin, Chan & Jin 2004).

Their relationships with peers are more salient during this time, which also makes them more vulnerable to peer pressure than small children or adults. This peer influence, whether positive or negative, is a very important factor in many aspects of the lives of teenagers and is likely to be more influential than social influence (Lin, Chan & Jin 2004). Since this study examines the adoption of e-government services by young adult students at Kuwait University, the influence of peers on intention and use of technology is expected to be greater than the influence of other referent groups (Lin, Chan & Jin 2004). Social influence, including peer influence, has been defined as “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh *et al.* 2003, p.451). This construct is represented as a subjective norm in TRA, TAM2, TPB/Decomposed TPB and C-TAM-TPB; as social factors in MPCU, referring to “the individual’s internalisation of the reference group’s subjective culture, and specific interpersonal agreements that the individual has made with others, in specific social situations” (Thompson, Higgins & Howell 1991, p.126); and as image in IDT. Although these constructs have different labels, all include the notion, explicitly or implicitly, that an individual’s behaviour is influenced by the way in which he or she believes others will view them as a result of using the technology (Venkatesh *et al.* 2003, p.451). Venkatesh *et al.* (2003, p.451) found that social influence is a direct determinant of behavioural intention. Taylor and Todd (1995, p.152) claim that subjective norm, especially in the early stages of system implementation, is more important when users have only limited experience of the system. Although neither Davis, Bagozzi & Warshaw (1989) nor Mathieson (1991) and Rosen (2005) found subjective norm to be a significant influence on behavioural intention, Taylor and Todd (1995, p.167) found such an influence, which explained part of behavioural intention, and became more important for those without prior experience, as stated above. The peer influence construct, in this study, is measured by the perception of how peers will affect students’ use of e-government services. The following hypothesis is proposed to address this issue:

H3: There will be a significant positive relationship between peer influence and behavioural intention to use e-government services.

Facilitating conditions (FC)

Facilitating conditions has been defined as “the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system” (Venkatesh *et al.* 2003, p.453). This definition has been derived from the following three constructs in the models: perceived behavioural control in TPB and Combined TAM-TAPB; the construct of facilitating conditions in MPCU (which refers to “objective factors in the environment that observers agree make an act easy to do” (Thompson, Higgins & Howell 1991, p.129)); and compatibility in IDT. Venkatesh *et al.* (2003, p.453) mention that these constructs incorporate aspects of technology designed to remove usage barriers and fit an individual’s style to the use of the system. In their empirical study Venkatesh *et al.* (2003) found that the construct of facilitating conditions is not significant in predicting intention when performance and effort expectancy constructs are present. However, the results indicated that a facilitating conditions construct has a direct influence on actual use. Rosen (2005) found that the relationship between facilitating conditions and use was not significant. This result could be explained by student respondents who did not place much importance on support provided to them. Since facilitating conditions are important in the use of e-government services for everybody, including students, it is measured by the perceptions of accessing required resources, knowledge and support to use e-government services as well as the compatibility of such services with students’ lifestyle. The following hypothesis is proposed to address this issue:

H4: There will be a significant positive relationship between facilitating conditions and use behaviour of e-government services.

Behavioural intentions (BI)

Behavioural intention (BI) to use a technology is considered a dependent variable as well as an independent variable in most studies that used technology acceptance models. Consistent with the models TRA, TPB, TAM, Combined TAM-TPB and MM, behavioural intention has a significant positive influence on technology usage (Venkatesh *et al.* 2003, p.456). Its inclusion in the model increases its power to predict

use behaviour. In technology acceptance models, use behaviour is modelled as a direct function of behavioural intention (Taylor & Todd 1995, p.147). In their study of information technology usage, Taylor and Todd (1995) found that behavioural intention was the most important determinant of IT usage in the three models compared. This confirms that use behaviour is driven by behavioural intention, which explains about 30% of the variance in the behaviour, whereas its deletion from the model decreases the percentage of the variance explained (Taylor & Todd 1995, p.166). Fishbein & Ajzen (1975, p.288) defined behavioural intention as “the person’s subjective probability that he will perform the behaviour in question” and is thus dealing with future behaviour. Measurements include the intention, prediction and plan to use e-government services in the future. The following hypothesis is proposed to address this issue:

H5: There will be a significant positive relationship between behavioural intention and use behaviour of e-government services.

The UTAUT model also considers moderators influencing the four direct determinants: gender, age, experience and voluntariness of use. Sharma, Durand and Gur-Arie (1981, p.291) define a moderator as a variable which “systematically modifies either the form and/or strength of the relationship between a predictor and a criterion variable”. According to the context of this research, changes have been made to moderators used in the UTAUT. Age and voluntariness of use moderators were omitted from the amended model since subjects are in the same age group and use of e-government services by students is voluntary. Experience was renamed as Internet experience for context purposes. Type of academic course was added to the moderators to identify its significant effect, as explained below.

Gender

Research on gender differences indicates that men tend to be more highly task-oriented than women. Performance expectancy which focuses on task accomplishment is likely to be more significant to men, whereas effort expectancy is more significant for women (Venkatesh *et al.* 2003). Venkatesh, Morris and Ackerman (2000) mentioned that women tend to be more sensitive to others’ opinion and, therefore, found that peer

influence is more significant to women in the intention to use technology. The following hypotheses are proposed to address these issues:

- H6: The relationship between performance expectancy and behavioural intention will be moderated by gender, such that the effect of performance expectancy will be stronger for men.**
- H7: The relationship between effort expectancy and behavioural intention will be moderated by gender, such that the effect of effort expectancy will be stronger for women.**
- H8: The relationship between peer influence and behavioural intention will be moderated by gender, such that the effect of peer influence will be stronger for women.**

Internet experience

Many studies have supported Internet experience as strongly influencing intention to use or actual use of specific systems through perceived usefulness (Jiang *et al.* 2000) and through perceived ease of use (Agarwal & Prasad 1999). As online services have been introduced to the public, experienced Internet users may likely be more skilful in using such services. Thus, Internet experience has to be considered in order to explain users' effort and performance expectancy (Lu 2003, p.214). Further, use of the system is expected to increase as users of technology find that help and support in using the system is effective. Hence, Internet experience refers to the "continuous[ly] and frequent[ly] use Internet for specific tasks" (Wang & Yang 2005, p.75). It is measured by the time spent on and the frequency of using the Internet. The following hypotheses are proposed to address these issues:

- H9: The relationship between performance expectancy and behavioural intention will be moderated by Internet experience, such that the effect of performance expectancy will increase with greater Internet experience.**
- H10: The relationship between effort expectancy and behavioural intention will be moderated by Internet experience, such that the effect of effort expectancy will decrease with greater Internet experience.**

H11: The relationship between facilitating conditions and use behaviour will be moderated by Internet experience, such that the effect of facilitating conditions will decrease with greater Internet experience.

Type of academic course

Al-Gahtani and King (1999) studied the impact of type of academic course on user's beliefs and showed that students studying scientific courses found it less easy to use the system than their counterparts taking other programs. This is related to the applications used by engineers and scientists being more complex. Although the study only investigated the effect of academic course on ease of use, users, whatever type of academic course they are taking, found the system advantageous in performing their job. As this study includes participants from different colleges, the effect of type of academic course becomes very important to be investigated. The following hypotheses are proposed to address these issues:

H12: The relationship between performance expectancy and behavioural intention will be moderated by type of academic course, such that the effect of performance expectancy will increase for those studying scientific courses.

H13: The relationship between effort expectancy and behavioural intention will be moderated by type of academic course, such that the effect of effort expectancy will decrease for those studying scientific courses.

H14: The relationship between facilitating conditions and use behaviour will be moderated by type of academic course, such that the effect of facilitating conditions will decrease for studying scientific courses.

All the hypothesised relationships between the research variables are portrayed as per the research model in Figure 3.5.

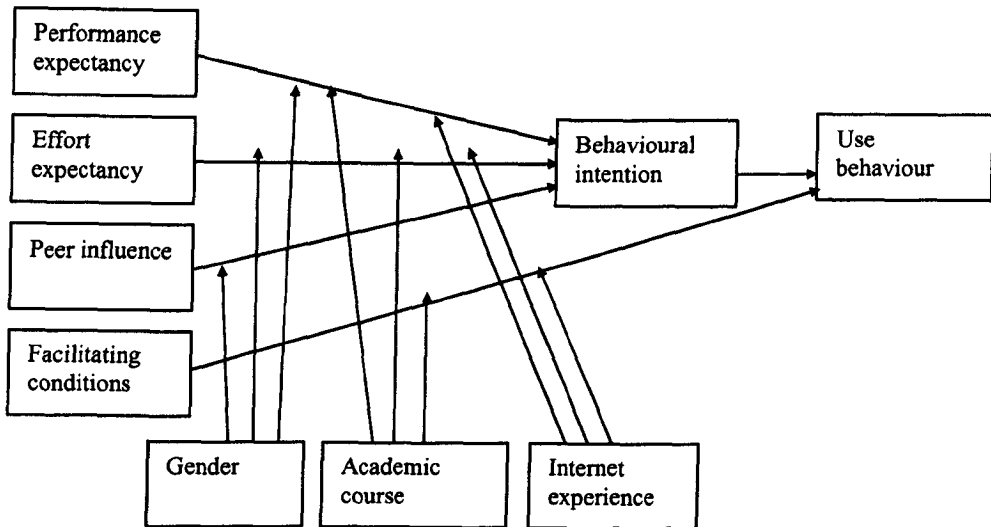


Figure 3.5 Research model

The adoption of the UTAUT model in an e-government context would help in identifying variables that determine citizens' adoption of e-government services. However, there are other related factors found in the e-government literature that might influence adoption. These factors are examined in the next section.

3.4 Factors affecting adoption of e-government

The review of the literature has identified a number of factors that influence citizens' adoption of e-government services. Li (2003, p.50) found that a perceived lack of "warmth" or personal interaction, and the preference of different people for different channels at different times and for different types of transactions is one of the factors that negatively affects the take-up of the services. Other factors are related to citizens' trust, cultural and social issues, and awareness, and these are discussed below.

3.4.1 Citizens' trust

Moon (2003) states that public trust in government has been declining during the past decades. This decline of trust, according to Moon, has administrative, political and

economic causes. The review of the literature indicates that administrative corruption, inefficiency and ineffectiveness of government performance are the main reasons for the decline in public trust. Other contributing factors are found in political scandals, policy failures and the economic performance of governments. Evans and Yen (2005, p.367) argue that benefits received from e-government might not be sufficient to address users' needs unless they have trust in government. Based on incidents that occurred in various government administrations, the authors claim that distrust in government is increasing rather than decreasing. West (2004, p.25) also argues that negative views of government are deep-rooted. He further argues that educating the public about e-government and its use helps bring about positive change in citizens' beliefs about government effectiveness, adding that effective public sector website usage is capable of reshaping these underlying views about government. Moreover, Lollar (2006) discusses how e-government can build citizens' trust in government. He explains that there are factors in the Chinese system that undermine social cohesion and trust in government, especially in government officials, who "lay the basis for the corruption that dogs the system to this day" (Lollar 2006, p.40). These factors relate to the bureaucracy that is part of the system, its arbitrary control over citizens' personal lives, and the concentration of power in individual hands.

Looking at the same issue from another perspective, Van Riel, Liljander and Jurriens (2001, p.372) and Van Riel, Semeijn and Janssen (2003, p.438) claim that users' trust of online services is determined by prior experience of the technology and performance of the services delivered by e-government. Users with positive experience of the technology and satisfactory use of the services are more likely to develop a positive attitude and thus adopt online services than those with a negative experience. George (2002, p.168) claims that Internet business is linked to Internet experience. In other words, novice users are less likely to conduct business online than experienced users. In a study of customers' expectations of e-service quality conducted by Van Riel, Semeijn & Janssen (2003), it was found that security and reliability of services are the most important dimensions that, if experienced, will incline customers to report a positive experience of e-services. Similarly, Dutton and Shepherd (2006, p.446) found that trust in the Internet will shape the future of online services. Such trust is undermined by bad

experiences that increase the risk entailed by the use of the Internet, such as computer viruses.

Li (2003, p.50) claims that people have feelings of confidence and more control over using traditional services in case “something happens”. Therefore, Jaruwachirathanakul and Fink (2005, p.300), West (2004, p.24) and Deakins and Dillon (2002, p.382) believe that users’ trust of e-government is associated with security and privacy assurances provided to users. They counsel that evidence of security issues having been addressed be presented clearly in non-technical terms on e-government websites in order to ease public concerns and build users’ confidence in e-government, as the more comfortable users are with website features, the more they are likely to adopt e-government services. Parent, Vandebek and Gemino (2004) surveyed 182 Canadian voters to measure the extent to which e-government and online interaction have succeeded in increasing citizens’ trust, using performance metrics traditionally applied to government performance. The results showed that the success of e-government and winning the trust of citizens are dependent on citizens’ engagement with persistently high levels of trust, in addition to government maintaining a good website and offering quality customer service. Moon (2003) hypothesised that the use of IT in governments could restore public trust and confidence in governments through transparency enhancements, effective performance, and public participation and involvement in governance. He tested the hypothesis against four mini cases: the Online Procedures Enhancement for Civil Applications (OPEN) system in the Seoul Metropolitan Government, the eVA system in Virginia, the eFiling system used for IRS documents and online policy forums in Seoul and Pennsylvania. The findings suggest that, on the one hand, IT offers a useful opportunity to government to restore public trust and citizens’ satisfaction. On the other hand, IT could provide governments and the public with many challenges relating to privacy, security and equal access.

Welch and Hinnant (2003) studied the interrelation between Internet use, citizens’ satisfaction with e-government and trust in government. They hypothesised that transparency and interactivity of e-government affected citizens’ trust in government. The results of their study demonstrated that Internet users were satisfied with the transparency of e-government, but they were dissatisfied with the level of involvement

they had with government. This can be explained by government websites providing reliable information to citizens, but having little interaction with them. However, both interactivity and transparency are positively related to citizens' trust in government.

3.4.2 Cultural and social issues

Bagchi, Hart and Peterson (2004, p.29) claim that IT adoption is affected by culture in every society. Assael (1987) quoted in Slowikowski and Jarratt (1997, p.97) defined culture as “the norms, beliefs, and customs that are learned from society and lead to common patterns of behaviour”. Cultural variations, which are determined by numerous sources, such as gender, age, profession, education, ethnicity, religion, nation and social class, distinguish members of one group from those of another group (Koszegi *et al.* 2003, p.3). Deakins and Dillon (2002, p.380) note that many countries, such as the US, Australia, Canada and New Zealand, have individuals from different nationalities and cultures living within their borders. Despite their large numbers, the identity and needs of various ethnic groups and cultures are expected to be respected and included in the plans of government as part of a strategy of social inclusion. Similarly, Evans and Yen (2005, p.369) assert that e-government “should be in place to preserve the freedom and integrity of its citizens and as a reliquary of their individual and unique cultural heritage”.

Chen *et al.* (2006, p.28), in a study comparing the adoption of e-government in developed and developing countries, found that the culture of some developing countries can affect their citizens' use of e-government. They believe that the citizens of some developing countries, especially those holding certain religious beliefs or being of certain backgrounds, might not carry out certain activities that are commonplace in developed countries. Evans and Yen (2005, p.368) support this view, arguing that the development of e-government faces opposition in many countries because some individuals' religious and other beliefs will avoid any outside influences that are seen to “contaminate” their countries.

Other studies have investigated gender differences in the adoption of technology as one aspect of socio-cultural differences between human beings. These differences have

implications for the distribution of power (which is often unequal), for the acceptance of individualism and the avoidance of uncertainty (Gefen & Straub 1997, p.390). Venkatesh *et al.* (2003, p.449) claim that research on gender differences shows that men tend to be more highly task-oriented than women. Nysveen, Pedersen and Thorbjørnsen (2005, p.250) claim that women tend to have lower self-efficacy, lower computer aptitude and higher computer anxiety than men. In contrast, Igarria (1993, p.76) claims that evidence concerning the effect of gender in the adoption of technology is equivocal, some studies having found no gender differences while others have reported such differences. Another claim often made is that women tend to focus on other people's opinions, while men are more likely to seek advice from others. Other researchers have often found that perceived usefulness and performance expectancy (both of which focus on task accomplishment) are likely to be more significant to men, whereas effort expectancy, ease of use, social influence, subjective norms, facilitating conditions and perceived behavioural control are more significant to women (Nysveen, Pedersen & Thorbjørnsen 2005; Venkatesh, Morris & Ackerman 2000; Venkatesh *et al.* 2003). A survey study carried out in the United States into Internet banking by Jaruwachirathanakul and Fink (2005, p.301) revealed that Internet business was likely to be used by males although other recent studies have shown that the number of female users of Internet banking is increasing.

Bagchi, Hart and Peterson (2004, p.30) found that individualism and collectivism, one or the other of which is generally dominant in a given culture, affect the adoption of IT. Individualism refers to “a loosely coupled social network where people take care of themselves and move readily from one social group to another” (Bagchi, Hart & Peterson 2004, p.30), whereas collectivism refers to “people who surround themselves with people and things that are consistent with their own identities” (Jaruwachirathanakul & Fink 2005, p.300). Unlike in individualistic societies, relationships between people in collectivist societies are strong and long-lasting, and overlap between work, family and friendship. The adoption of IT in both individualistic and collectivistic societies depends on the differences in the way these societies function and how interdependence is handled in each group. Therefore, as the use of IT decreases opportunities for face-to-face interaction, the likelihood of IT adoption in

individualistic societies is greater and quicker than in collectivistic societies (Bagchi, Hart & Peterson 2004, p.30). Jaruwachirathanakul and Fink (2005, p.301) point out that in Thai culture, for example, personal relationships and face-to-face contact can add value to customers dealing with banks, for example, when conducting regular transactions. This attitude would seem to justify the high rate of e-government avoidance in many cultures. Another consequence is that, once face-to-face contact is reduced, the uncertainty of many people when it comes to adopting e-government is increased. This depends on society and the extent to which a given society senses a threat from new technology and its needs for security (Bagchi, Hart & Peterson 2004, p.30).

3.4.3 Awareness of e-government services

In general, Baker and Bellordre (2004, p.6) consider lack of awareness of a given technology or of its benefits a primary concern associated with the adoption and use of IT. In order for ordinary citizens to recognise the value of the new technology, its potential utility must be known. The lack of familiarity with IT is simply another awareness barrier. Lack of familiarity with a range of technologies is evident in various groups of people, such as (some) older people, the economically disadvantaged, (some) persons with disabilities and individuals from a culture that is resistant to change. In reference to e-government websites, Chen and Dimitrova (2006, p.62) state bluntly that if potential users are not aware of online services, they will not be able to use them. The researchers claim that some government officials admitted that “making the public aware of available services is sometimes a challenging task” (Chen & Dimitrova 2006, p.62). Jaruwachirathanakul and Fink (2005, p.301) found that awareness in the early stages of an implementation of IT contributes to a willingness to adopt new technologies such as Internet banking. Attractive presentations in various media, such as newspapers, radio, television and the world wide web, are useful for introducing such services to a large number of potential users and for educating those users about the benefits the new technology offers. Information about the benefits should include references to savings in time, effort and money as well as convenience of access. Beynon-Davies (2005, p.14) states that the public awareness of accessing government

services on-line in the UK is increasing such that now over one sixth of the population regularly access six or more online services and that two in three people want to access at least one online service. These findings are from the annual benchmarking survey that measures the UK public's access to government online services, conducted in 2002 by the consulting firm KPMG. However, Beynon-Davies (2005, p.14) argues that awareness of the availability of information and services online will not necessarily help with their take-up. The take-up of Inland Revenue online services, for example, has been very low, although marketing campaigns have been conducted using different media to encourage the take-up of its online services. The reasons were found to be related to the lack of benefits offered to the taxpayer using online services over other conventional methods.

Similarly, in a study of marketing over local authority e-channels and identifying the potential for the take-up of e-government, Mellor (2006) found that despite the fact that large numbers of the adult population in England are ready and willing to use e-channels, the take-up is low. This goes back to a lack of awareness of e-channels among adults as confirmed by NOIE (2003), quoted in Mellor (2006, p.441), which found that in Australia, "e-government services were felt to be invisible by citizens and there was a perceived lack of promotion and efforts to create awareness". In contrast, Mellor (2006, p.441) found that in Canada and Singapore high value media communication strategies are used to encourage the use of online services. Hart-Teeter (2003) also found that about half of all Americans and about three quarters of all Internet users in the United States had adequate experience with government websites. Nonetheless, nearly two thirds of those users visited e-government websites for information about services, whereas only a quarter conducted transactions such as renewing a driver's licence. This shows that the awareness of e-government is limited to its services, and that e-government has not been demonstrating the benefits to be gained from using e-government services. Salman (2004, p.152) found that awareness of ICT use in some developing countries is limited. For example, people in Bangladesh have only recently been convinced of the importance and benefits of e-commerce. In contrast, Basu (2004, p.118) argues that successfully encouraging people in developing countries to use the Internet depends on providing them with compelling content and

services that satisfy their primary needs. Therefore, one could argue that e-government in such countries might have difficulty in being accepted by the public.

In this study, the intention is to explore the attitudes of a group of citizens towards e-government services. This will be guided by technology adoption theories and factors influencing adoption, with reference to findings from the empirical research reviewed below.

3.5 Empirical research on the adoption of e-government services

As mentioned in Chapter One, there has been relatively little published research on the adoption of e-government services (Carter & Belanger 2004). More specifically, AlShihi (2005) claims that to date little attention has been paid to the adoption of e-government services in the Arab world. This has resulted in an insufficient understanding of user acceptance of e-government services (Hung, Chang & Yu 2006, p.98). The little literature found reporting empirical research on the adoption of e-government services is considered helpful in providing valuable information about the adoption behaviour in addition to the adopters' profiles. This literature is critically reviewed and evaluated below.

Few studies have researched the adoption of e-government services based on various adoption theories. Based on the similarities between e-commerce and e-government, Carter and Belanger (2003) surveyed 140 undergraduate students in the US to investigate factors that influence citizens' adoption of e-government services. Adopting the Diffusion of Innovation Theory, Carter and Belanger examined the effects of relative advantage, compatibility, ease of use and image, as the most relevant constructs to adoption research, on the intention of citizens to use e-government services. The findings show that higher levels of relative advantage, compatibility and image are significantly associated with an increased intention to adopt e-government services. This suggests that governments should identify and communicate the advantages of using online services to citizens, such as faster and convenient services; pointing out that e-government services would lend prestige to those adopting them; and suggesting

that e-government services might be compatible with the lifestyle of many adopters of e-commerce.

Carter and Belanger (2004) studied citizens' adoption of e-government services based on an integrated model that incorporates constructs from the TAM and DOI theories, and from the Web trust model: perceived ease of use and perceived usefulness from TAM; compatibility, relative advantage, image and complexity from DOI; and trust of the Internet and trust of government from the Web trust model. In a pilot study, a questionnaire was administered to 140 undergraduate students in the US. The findings revealed that perceived usefulness, relative advantage, and compatibility were significant in increasing citizens' intention to use e-government services. However, in the main study, in which another group of adults aged 14 to 83 years was surveyed, Carter and Belanger (2005) found that perceived ease of use, compatibility and trustworthiness are significant indicators of citizens' intentions to use e-government services. A comparison of the findings of the pilot study with those of the main study shows that there are differences in the determinants of the intentions to use e-government services. Citizens' demographic attributes had a strong impact on the factors that indicate intentions. For example, the findings of the pilot study were influenced by students' Internet and computer experience, whereas, in the actual study, the familiarity of respondents with the e-services on which questionnaire questions were based had an influence on the findings. Despite the range of demographic attributes of users surveyed in the main study, the findings did not relate factors influencing the intention to use e-government to the attributes identified.

Another study based on technology adoption theories was undertaken by Hung, Chang and Yu (2006), who investigated the public's acceptance of e-government services in Taiwan through a well-known e-government service, namely the online tax filing and payment system (OTFPS). Based on the theory of planned behaviour (TPB), the researchers proposed a comprehensive model to elicit the users' salient attitudes towards e-government services. An e-mail questionnaire survey was conducted, with 8,500 questionnaires sent to users; however, only 1,099 responses were usable. The study found that perceived usefulness, ease of use, perceived risk, trust, compatibility, external influence, interpersonal influence, self-efficacy and facilitating conditions were

critical factors in the adoption of the OTFPS. Moreover, the acceptance of e-government services can be explained in terms of attitudes, subjective norm and perceived behavioural control. This study used a comprehensive theoretical framework which was able to identify determinants of e-government acceptance; the validity of the findings was not limited as the sample group were real taxpayers; and compared with other models, the proposed model had high explanatory power for user intentions. Further, practical recommendations were provided for government policy makers, government agencies, and system developers that would help in enhancing the adoption of e-government services in Taiwan.

Dimitrova and Chen (2006), in an exploratory study that went beyond demographic characteristics, examined the effects of socio-psychological factors on the adoption of e-government in the US by combining two theoretical perspectives, TAM and DOI. The researchers identified perceived usefulness, perceived uncertainty and civic-mindedness as adoption factors. Moreover, mass media channels were hypothesised to be more important than interpersonal channels for the early adoption of e-government services. An online questionnaire was posted to a census-balanced sample from the population of Internet users in the United States. The findings showed that perceived usefulness, perceived uncertainty and prior interest in government are associated with the adoption of e-government. The study also revealed that for the effective adoption of e-government in early stages, mass media channels are better in disseminating information about available e-government information and services. By investigating other factors that might contribute to the adoption of e-government, such as social influence and facilitating conditions, the study could have gained a more comprehensive picture.

In another study, Phang *et al.* (2005) studied Chinese senior citizens' adoption of e-government. They surveyed a small sample of randomly selected senior citizens in coffee shops and community centres in an Asian country where Chinese are the largest ethnic group. They tried to identify factors that affected senior citizens' perceptions of the usefulness and adoption of e-government services. Based on TAM, the researchers modelled compatibility, image and Internet safety perception as determinants of perceived usefulness and ease of use. The study revealed that perceived ease of use and

Internet safety influenced the senior citizens' perception of the usefulness of e-government; however, cultural considerations, image and compatibility had less influence on the usefulness of IT as perceived by users.

The above studies identified a number of factors that determine the adoption of e-government services, such as usefulness, ease of use, perceived risk, trustworthiness, compatibility, external influence, Internet safety, interpersonal influence, subjective norm, perceived behavioural control, facilitating conditions, relative advantage and image. However, it needs to be said that the significant factors identified are likely to vary from one study to another. This variance is determined by different factors, including sample, methods utilised and the context of the study.

Other studies have investigated other factors that potentially influence the adoption of e-government services. Although these studies were not grounded in any particular theoretical model, their findings indicate a number of factors in common with those reported in studies based on theoretical models. One of the studies was conducted by Millard (2006), who analysed data sets found in a questionnaire survey undertaken in 2005 by the eUSER project, which covered about 10,000 households in ten European Union member states. The study aimed at finding out the user behaviour of European citizens and their attitudes towards the use of public services. The findings show that in some countries, such as the UK, face-to-face contact, telephone and postal contact are still considered the most important channels for contacting government. About half of all users of government services revealed a potential demand for e-government services regarding services to do with information, communication and transactions. The findings also show that one quarter of e-government users had used e-government services on behalf of their families or friends, and another quarter had done so on behalf of their employers. In using e-government, users anticipated difficulties in how to start, with a feeling that face-to-face contact was better. Another issue concerned data privacy, although such a barrier appears to be less important once citizens use the system; however, in this case issues arose related to feeling left alone with problems and questions.

In another study, Choudrie and Dwivedi (2005) examined citizens' awareness and adoption of e-government initiatives in the United Kingdom (UK) through the "Government Gateway", using a postal survey sent to 1,600 households. The researchers found that citizens with home broadband access are more likely to be aware of and adopt e-government services. Moreover, demographic characteristics of citizens have an important role in explaining the adoption and awareness of e-government services in that the majority of adopters were males in the age range of 25 to 54 years. Also, the majority of adopters were educated (holding a degree and post graduate level education), with a higher income than average and from a high social class (professionals and academics). In their study, Choudrie and Dwivedi profiled UK citizens for the adoption of e-government services; however, they did not investigate factors that influenced adoption which, if identified, would have provided a complete picture about the adoption of e-government services in the UK.

West's (2004) national survey study examined the way citizens feel about e-government and their confidence in the effectiveness of service delivery. The survey was conducted across the United States, using a randomly selected sample of 1,003 adults plus 200 frequent Internet users. It used a random digit-dial technique to answer 79 "before" and "after" questions that sought to measure the use of government websites, and conducted evaluations of e-government in terms of ease of use, trust in government and government effectiveness. West's (2004) study showed that citizens intended to use e-government if they knew about it and had learned how to access its resources. Availability of access was also linked with marketing tools such as displaying a portal address on state documents and using televised announcements, since these play an important role in encouraging citizens to use e-government services. Other findings revealed that from one half to two thirds of the adult population did not use e-government due to a lack of awareness. Also, people with better education and a higher income made greater use of e-government information. West notes that better education about e-government would strengthen citizens' beliefs in the effectiveness of e-government. Although this study was not based on a theoretical model, such as TAM, it nevertheless provided valuable information about factors that encourage the adoption of e-government services.

On the other hand, Reddick (2005) studied the shift from traditional interaction with government to interaction via a computer system by examining citizens' interaction with e-government. The study was applied to the first two stages of the implementation of e-government, discussed in Section 2.6: the dissemination phase, where government information is catalogued, and the transaction phase, where e-services are delivered. Moreover, the demand side of e-government adoption was examined as an indicator of e-government development. Data used in this study came from a survey of American adult users of government websites undertaken by the Pew Internet and American Life project in 2001. Adult users of government websites were identified through a telephone survey, followed by ten telephone interviews conducted with a sample of 815 adult Internet users. The results revealed that the Internet improved citizens' ability to interact with government. The majority of e-government users preferred using government services via the Internet to traditional ways, such as the telephone. The evidence on the use of online services indicated a marginal shift from a "traditional bureaucracy" to a "system bureaucracy". Citizens engaged in e-government were found to be working for the government; they were educated (with a degree or post graduate level education) and had trust government. They were socially active, had many years of Internet experience and were frequent users of government websites. One can argue that these results cannot be generalised, since data for the study were gathered in 2001 and the results might not be valid today, considering changes in technology and other related factors.

In another study of the demand side of e-government, Graafland-Essers and Ettetdgui (2003) examined citizens' preferences in access and usage, and their attitudes towards e-government. The survey covered the EU member states, the U.S. and Switzerland. Graafland-Essers and Ettetdgui found that citizens were interested in some aspects of e-government and they significantly preferred e-government services over traditional services. However, despite the differences in service preference, citizens agreed in preferring to use services that did not require them to reveal a great deal of personal information, such as searching for library books. The researchers noted that a lack of awareness hindered citizens' adoption of services available online. The attitudes of citizens towards e-government were presented as factors that favoured e-government

over traditional government, such as convenience of time and access, and faster service performance. Other results indicated that about half of all respondents found it difficult to use e-government services and most of the answers given about the usefulness of e-government were neutral. Similar to Reddick's (2005) study, a greater preference for e-government was associated with citizens who had used the Internet extensively and for a long time. However, other results contradict those reported by Reddick (2005), in that variances in household incomes and social status did not make any difference in preferences; instead, it was the type of service that determined the survey participants' preferences for either the Internet or traditional ways.

Most of the above findings support findings from research based on technology adoption theories in which usefulness and ease of use are critical factors in adoption. In addition, other factors have been identified that influence the adoption of e-government services, such as awareness, security issues and availability of resources. Moreover, the above studies, most of which were undertaken in developed countries, have profiled the adopters of e-government services as being educated, having a higher income and being socially active, with adequate Internet experience.

On the other hand, only a few studies have been undertaken in developing countries. One of these was conducted by Akman *et al.* (2005) who investigated the impact of gender and education in the use of e-government services in Turkey, despite insufficient data about the country's progress in e-government activities. The researchers argue that there are differences in gender, education and occupation between people using ICT. Different groups of people were surveyed, such as ordinary citizens and IT representatives in the public and private sectors. The findings show that differences in gender and education had a significant impact on the adoption of e-government services. The researchers found that males used e-government information and services more than females, and as the level of education of survey participants increased, the interaction with e-government also increased. These findings agreed with the above findings to some extent. However, this study investigated some of the (demographic) attributes of e-government users and their significance in e-government adoption and ignored other factors that might have influenced adoption. Linking demographic

attributes with factors suspected of influencing the adoption of e-government might have provided a more comprehensive view of the adoption of e-government in Turkey.

The other two studies undertaken in developing countries were carried out in two Arab countries, namely Lebanon and Oman. The first study was undertaken by Charbaji and Mikdashi (2003) who investigated the attitudes towards e-government of a sample of 220 Lebanese graduate students at different universities in Lebanon, using a questionnaire with cognitive, affective and conative dimensions. The cognitive dimension refers to knowledge and awareness; the affective dimension to people's feelings towards e-government; and the conative dimension to the intention of using e-government. The findings showed a direct relationship between the cognitive and conative dimensions, while the dimension of affective feelings was found to be less influential. These findings confirm the importance of investigating other variables that underlie the intention to use e-government in Lebanon. However, the findings cannot be generalised to the whole Lebanese community, due to inadequate sampling.

Some of the above findings are similar to those reported in the second study conducted by AlShihi (2005) who investigated the development and adoption of e-government services in Oman, one of the Gulf Cooperation Council (GCC) countries, interviewing employees in both the private and the public sector and surveying different segments of Omani society. He found a number of barriers to the uptake of e-government in Oman are related to users' lack of IT knowledge, awareness and motivation; the under-marketing of e-government plans and initiatives; a lack of proper legislation and laws; and a lack of users' trust and confidence. However, the findings show that culture has little effect on e-government adoption. Generally, AlShihi's findings provide some insight into the adoption of e-government services in all GCC countries as they share a similar context; however, the findings related to culture show variation due to the fact that every country has its unique culture.

Although these two studies were undertaken in two different Arab countries, the findings confirm findings reported in studies conducted in developed countries which show that e-government services are under-marketed, leaving citizens with a lack of awareness, and that this is one of the barriers to the uptake of e-government services.

The above discussions and arguments presented in the previous and present chapters concerning the implementation and adoption of e-government demonstrate that effective change management initiatives are required to ensure a successful change process in government and thereby high rates of adoption of e-government services. Change management and challenges that might hinder the implementation of e-government services are discussed in subsequent sections.

3.6 Change management

Conklin (2007) states that the bringing of new ideas to an organisation requires effective change initiatives to implement the changes. Burn and Robins (2003, p.27) suggest that public organisations moving towards e-government could apply business process change (BPC). Guha *et al.* (1997, p.120) define BPC as “an organisational initiative to design business processes to achieve significant improvement in performance (e.g. quality, responsiveness, cost, flexibility, satisfaction, and other critical process measures) through changes in the relationship between management, information, technology, organisational structure, and people”. Burn and Robins (2003) developed a theoretical framework of change management designed for government changing to e-government, which is based on various antecedents of BPC, that leads to successful e-government change; see Figure 3.6.

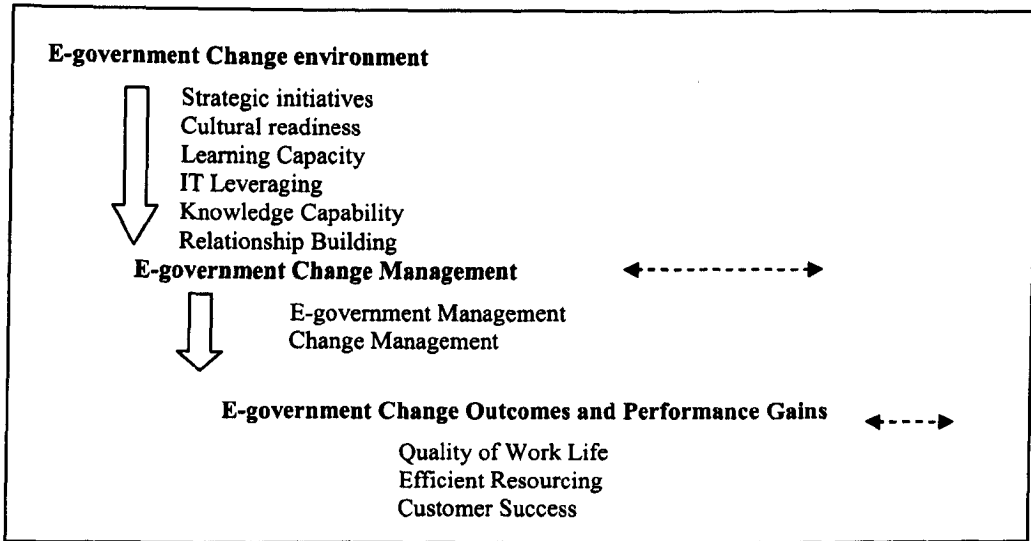


Figure 3.6 A theoretical framework of e-government change management (Burn and Robins 2003, p.27)

This framework of e-government change management, developed by Burn and Robins (2003), consists of three major steps: e-government change environment, e-government change management practices, and e-government change outcomes and performance gains; these are explained below.

E-government change environment

The change process usually begins with a change in the environment of the organisation, which includes the following:

- *Strategic initiatives*: A strategic initiative is required for any change process where top managers act as leaders in defining and communicating a vision of change (Kalakota, Oliva & Donath 1999, p.23). Jones, as quoted in Kaltenbach (2004, p.51), believes that a vision serves three important purposes: “[it] simplifies decisions, motivates people and aligns individuals”. In any change process, vision provides purpose and direction to employees that quell their anxiety and fear. Jashapara (2004, p.218) adds that leaders also play an important role in setting goals and gaining commitment to such goals. A

plan of action, including a strategy, is also developed to motivate the organisation towards achieving its goals (Burn & Robins 2003, p.27).

- *Cultural readiness*: Schein (1992, p.12) defines organisational culture as

a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

These basic underlying assumptions, which define prevailing norms and behaviour, pose a difficulty for change because values often exhibit a propensity to resist change due to their shared nature; in addition, norms may not be compatible with the organisational goals and objectives and thus discourage the change process (Guha *et al.* 1997, p.122; Jashapara 2004, p.189). Change, to many people, is annoying as it requires them to do things differently and takes them out of their “comfort zone”. Therefore, leadership plays a vital role in the change process as leaders have the power to influence employees by creating a culture that encourages change and embraces it. Various communication mechanisms help different levels of employees to understand and to be prepared for change, such as meetings, newsletters and guides. The creation of a reward and recognition environment encourages new values and beliefs and risk taking. It encourages employees to act differently and to develop new skills, and it challenges the status quo (Jashapara 2004, p.219; Kaltenbach 2004, p.51).

- *Learning capacity*: In general, organisations learn either from their own experience, which often entails experimentation of trial-and-error with a range of different routines, or from the experiences of other organisations. Organisational learning is considered a significant element in changing organisations as it responds to an uncertain environment (Brown 1998, p.100). Learning, in the organisational context, has been defined as “a process in which people discover a problem, invent a solution to the problem, produce the solution, and evaluate the outcome, leading to the discovery of new problems” (Argyris 1982, p.38).

- *IT leveraging and knowledge-sharing capability*: IT is regarded as an organisational resource which provides the necessary means to accomplish work in more productive ways (Office of Management and Budget 2002, p.5), thereby inducing organisational change (Guha *et al.* 1997, p.122). IT enables organisational streamlining, simplification, capturing and distributing of information, coordination, monitoring and decision-making. The communication infrastructure of IT, which facilitates learning, development and sharing of knowledge among individuals, plays an important role in creating an environment that helps to ensure the success of the project (Burn & Robins 2003, p.28).

- *Building relationships*: Building networks with customers and stakeholders helps in the success of the change process in organisations (Burn & Robins 2003, p.28; Guha *et al.* 1997, p.122). These alliances are the most effective way to respond quickly to changing market conditions. Organisations can also use the following strategies: creating flexible patterns of internal work, empowering employees and customers, enhancing individual work and teamwork, and creating more collaborative relationships among co-workers and customers (Burn & Robins 2003, p.28).

Effective change in the organisational environment facilitates the implementation of the second step, change management practice, which is discussed below.

Change management practice

Organisations, groups and individuals often resist change because they perceive change to be a threat to their prevailing situation (Guha *et al.* 1997, p.122). Change should always be introduced in a phased manner. Lewin's three-phase model is advocated to help organisations, groups and individuals to manage the process (Lewin 1952). According to Jashapara (2004, p.216), the three phases are:

- **Unfreezing**: where current sets of behaviours, mental models and ways of looking at a problem are loosened.

- Moving by changing the ways people do things, enhancing new structures, strategies, different types of behaviours and attitudes.
- Refreezing by stabilising and establishing new patterns and new organisational routines.

For effective change management practices that improve the way people work, Guha *et al.* (1997, p.123) suggest an evolutionary change or “incremental change”– not a revolutionary change – because it has been noted that organisations experiencing incremental change do things better (Jashapara 2004, p.215). Change management practices along with the change environment contribute to better business processes and help in securing improved quality of work within organisations. Both steps are required for the outcomes and performance gains, the last step in the framework.

Outcomes and performance gains

The outcomes of change practices can be measured at various levels to provide an overview of how things happen and also to identify areas of improvement. Performance also needs to be measured in terms of quality, cycle, time and customer satisfaction (Burn & Robins 2003, p.29). This helps in finding out whether the desired results are achieved or not as well as enabling follow-up in areas where goals have not been achieved (Kaltenbach 2004, p.52).

In summary, the outcomes of a successful BPC undertaken in organisations can exceed expectations, satisfy customers and improve the quality of employees’ work. However, Salman (2004, p.146) argues that the success rate of the BPC could be unsatisfactory if it is misunderstood. He mentions that developing countries find it difficult to understand the BPC due to strategic management, tactical planning and education issues; thus, they lag behind in government reforms.

The implementation of change management is complex and might encounter many challenges within organisations that hinder its full implementation. These challenges in the e-government context are described in the following section.

3.7 Challenges to the adoption of e-government by government organisations

Ebrahim and Irani (2005, p.608) state that there are several challenges that e-government implementers need to consider. These are related to IT infrastructure, financial issues, security and privacy, human capital and some organisational issues, as discussed below.

3.7.1 IT infrastructure

There are a number of challenges concerned with IT infrastructure:

- Having a clear strategy in developing IT infrastructure, which includes common architecture policies and definitions. The absence of such a strategy prevents the rational integration of systems (Fletcher & Wright 1995, p.127).
- Conducting proper planning for the implementation of an adequate technical infrastructure (McClure 2000, p.16).
- Developing an adequate communicative infrastructure capable of integrating information systems within and between government organisations (Ebrahim & Irani 2005, p.603).
- Developing an adequate network capacity to take the amount of electronic traffic generated by electronic services since otherwise extensive use might overwhelm and disable an e-government website (McClure 2000, p.16).

3.7.2 Financial issues

There is a general acknowledgement that funding and resource allocation in the public sector have always been a problem (Layne & Lee, 2001, p.127). This is demonstrated by Bonham, Seifert and Thorson (2003) and Ho (2002, p.441), who found that funding is a major barrier to the adoption of e-government by public organisations. Similarly, in

a comprehensive survey conducted to assess the diffusion of e-government applications among various government jurisdictions, Eyob (2004, p.110) found that lack of financial resources was one of the top barriers for e-government initiatives. Additionally, in 2000, a study conducted by International City/County Management Association and Public Technology Inc. in the US found that over 50% of government organisations which responded to the e-government survey thought similarly about financial resources (Ebrahim & Irani 2005, p.605).

Ebrahim and Irani (2005, p.605) also indicate that the cost of sophisticated hardware and software used for developing a secure and compatible IT infrastructure and integrated information systems represented a burden on funding for e-government. Additional costs for operations and maintenance of existing infrastructure represent another financial barrier. In order to evaluate the progress of e-government in some cities in the US, Ho (2002, p.441) analysed the contents of city websites and surveyed web development officials. He found that there was a lack of financial support for information technology developments, which was reflected in the development and maintenance of e-government websites.

Lau (2003, p.11), the United Nations Committee on Development Information (2003, p.7) and Collison (2002, p.8) all state that during the transition phase to electronic government, services provided by public organisations should be provided both electronically and via traditional means; thus, extra costs are likely to be added to the budget. Long-term funding is also needed for e-government projects since they normally take a number of years to be accomplished (Lau 2003, p.10; United Nations Committee 2003, p.7). Therefore, Irani, Themistocleous and Love (2003, p.182) suggest that before adopting any new technology, organisations should evaluate the cost relative to the benefits. Ebrahim and Irani (2005, p.603) also recommend outsourcing the activities of public sector information systems because this cuts additional costs and thereby achieves more within given financial constraints.

3.7.3 Security and privacy

Layne and Lee (2001, p.134) state that security and privacy are frequently cited barriers to e-government implementation. The issue of security is considered a major obstacle to the implementation of e-government initiatives in many countries. Wimmer and Bredow (2002, p.2) mention that security threats, from a non-technical viewpoint, arise as a consequence of the misuse of stored citizen data, such as misusing citizen data in terrorism or in committing crimes, whereas from a technical viewpoint a threat to the security of data can be classified into three basic threats:

Loss of confidence: unauthorised information access or transactions not completed;

Loss of integrity: unauthorised modification (corruption of messages and routing information); and

Loss of availability: loss of functionality.

McClure (2000, p.12), Pons (2004, p.33) and Udo (2001, p.167) claim that real stories about hacker attacks and the theft of credit card information increase the concern of many stakeholders and make them reluctant to do real business online. This has been reflected in statistics on security in past years. The statistics indicate that the Internet is considered to be a favourite point of attack. Computer crime and security surveys also reveal numerous internal and external security risks in the public sector. The surveys show that proprietary information can be stolen through the intrusion of outsiders, unauthorised insider access, viruses, denial of service attack and system penetration (Kim & Kim 2003, p.365; West 2002, p.16). Citizens are also concerned that with e-government services implemented, governments may collect and store personal information in databases which could then be cross-referenced for drawing conclusions about citizen behaviour (Pons 2004, p.33).

Mejahid *et al.* (2003, p.62) argue that although security and privacy are interrelated, having secure e-government services does not ensure the privacy of information. The authors mention that citizens need to reveal sensitive information when interacting with government, and therefore they expect to find adequate levels of privacy given to such information. Privacy problems in e-government become more complex as citizens'

information is shared among government organisations. McClure (2000, p.12) criticises the weakness of government information systems. He argues that the success of e-government is dependent on a secure environment that makes all users, including citizens, business and government organisations, feel comfortable using electronic means to carry out sensitive and private transactions. The findings of a study conducted by Jupiter Research in New York in 2003 on 2,015 government consumers showed that more than three quarters of the respondents were concerned about the security of their credit card information and nearly two thirds were worried about the privacy of their personal information (Ebrahim & Irani 2005 p.604). Therefore, Ebrahim and Irani (2005, p.604) recommend a periodic revision of information management policy guidelines and standards in order to ensure their adequacy in delivering electronic resources to users. They also recommend that privacy notices be used on e-government websites to inform citizens about the way their personal information is used. McClure (2000, p.12) insists that government organisations should invest in the best available privacy and security applications and tools because any shortage could lead to failure of the entire e-government project.

3.7.4 Human capital

Skilful IT human resources are required to manage and develop web-based government services. Moon (2002, p.431) and Ho (2002, p.440) identify a shortage of IT skills as another potential barrier to governments' abilities to provide the next generation of e-government services. International City/County Management Association and Public Technology Inc. ranked the shortage of IT skills as the number one barrier. Similarly, Ho (2002, p.440) in his study about web development found that the lack of IT staff prevents progressive changes in the development and design of e-government websites. IT skills such as computer information systems analysis, systems design and network construction are widely demanded of those aspiring to hold a position in a government organisation (McClure 2000, p.18). However, the scarcity of qualified applicants in the market and the difficulty of attracting and retaining IT talents form the largest skill gaps. McClure (2000, p.18) notes that, "the increasing need for qualified IT

professionals puts government in direct competition with the private sector for scarce resources”.

Training of staff is another issue. Peansupap and Walker (2005, p.28) argue that training and development help the workforce to understand the basics of ICT and its use and thereby engage it not only in the implementation of e-government but also in the decision-making process. However, Ebrahim and Irani (2005, p.604) note that inappropriate training of IT staff might not equip them for a government programme. McClure (2000, p.18) agrees, mentioning that lack of the right training could affect the proper execution of e-government plans. According to a study of a rural Internet project in India conducted by Kumar and Best (2006, p.9), one of the major reasons for the failure of this programme was that government officials were not adequately trained to provide a new version of services. Eyob (2004, p.110), on the basis of a survey, also argues that 66% of e-government failures were attributable to this factor. Conversely, the challenge of the new technology has led to an increased commitment to training by government organisations (Ebrahim & Irani 2005, p.604).

Fletcher and Wright (1995, p.116) note that human barriers also include psychological problems arising when change is undertaken. These problems include uncertainty avoidance and resistance to loss of power or status. Resistance to change is considered a fundamental block to e-government projects. As governments move towards e-government, employees resist such change, and in some cases prevent it from being implemented (Mabin, Forgeson & Green 2001, p.169). Resistance to change has been defined as “an expression of reservation which normally arises as a response or reaction to change” (Mabin, Forgeson & Green, 2001, p.170). It is human nature to resist change since such resistance is embedded in thinking, language and beliefs (Lorenzi & Riley 2000, p.117). The following factors might create resistance:

- *Fear of the unknown*: This is based in the fear of being unfamiliar with and uncertain about the nature of the proposed change. It is the feeling of not knowing what is going on and what the future is likely to hold (Davidson 2002, p.20; de Jager 2001, p.27; Le Tourneau 2004, p.287; Mabin, Forgeson & Green 2001, p.170; Morris & Dyer 1998, p.299).

- *Fear of obsolescence*: This is the feeling that existing knowledge, skills and competencies, acquired over a number of years, might be inadequate or obsolete when new systems and procedures are adopted (de Jager 2001, p.24; Folger & Skarlicki 1999, p.39; Le Tourneau 2004, p.287; Mabin, Forgeson & Green 2001, p.170; Morris & Dyer 1998, p.300).
- *Fear of insecurity*: This occurs when employees have misconceptions about the applications of IT and about the nature and implications of change, leading to them possibly becoming afraid of losing something valuable, such as autonomy and employment (Chawla & Kelloway 2004, p.487; Fors & Moreno 2002, p.203; Morris & Dyer 1998, p.300; Pons 2004, p.33). Folger and Skarlicki (1999, p.39) argue that even when training is made available, some employees may have the feeling of being replaceable.

In a study of the initial decision to implement a website, Ho and Ni (2004, p.75) found that the staff's concerns about their workload negatively affected their willingness to adopt the new technology. This result corresponds to employees' resistance concerns. Ho and Ni explain that the adoption of new technologies affects not only the operating routines and job responsibilities of workers, but also the nature of workers' jobs and the organisations' hierarchical relationships.

3.7.5 Organisational issues

When organisations undertake a change process to maximise the potential offered by e-government initiatives, many organisational problems might be encountered in its implementation (Li 2003, p.50). Ebrahim and Irani (2005, p.605) state that organisational barriers are related to structural issues. According to Fletcher and Wright (1995, p.116), structural issues are

factors inherent in the organisations' structure or systems that are not compatible with the new technology. These include communication authority flows and planning systems, fragmentation of data and systems

caused by decentralisation, poor coordination and cooperation between functional departments, and an acceptance by senior management of the strategic benefits of new initiatives.

The review of the literature shows that organisational barriers are more important than technological ones; however, organisations adopting new systems frequently do not recognise this. Fletcher and Wright (1995) evaluated the strength of perceived barriers to the adoption of database marketing in the UK financial services sector and found that respondents did not perceive the importance of organisational issues. The empirical findings show that technical issues were dominant and were not related to organisational problems, which were given less importance.

As discussed in Section 3.6, key management issues arise in the planning of e-government. Fletcher and Wright (1995, p.116) argue that these factors concern managers' attitude and commitment to the process, and their ability to measure and thus to justify the benefits of strategic Information Systems (IS) and to integrate IS into business strategy. Ebrahim and Irani (2005, p.605) insist that having strong leadership and responsive management is crucial to steering organisations through the complex changes involved in the implementation of e-government. Kumar and Best (2006, p.10) found that the lack of effective leadership and sustained commitment was the major reason for the failure of the rural Internet project in India. Replacing key officials who were instrumental in motivating the staff to provide e-government services with officials who failed to show the same level of commitment to the project destroyed the successful efforts of previous leaders and contributed to the project failing. Ebrahim and Irani (2005, p.605) argue that many government officials are reluctant to embrace the idea of e-government because they perceive it as a potential threat to their power, status and viability.

In light of the above challenges, Siau and Long (2006), in a recent study using United Nations data (2003) (*E-government Report (2003)* and *United Nations Development Programs Report (2003)*), investigated social factors that might explain the development of e-government services between countries. The factors investigated were income level, development status and region. Based on growth and regional

development theories, the findings showed that the level of e-government services was more advanced in developed countries than in developing countries; more advanced in high income countries than in low income countries; and that in regional terms, African countries had the least advanced e-government services. Chen *et al.* (2006, p.26) argue that the differences between developed and developing countries in terms of technological infrastructure, financial resources and adequate skills and knowledge to promote e-government determine the success and progress of e-government in every country and make it impractical to adopt successful strategies from developed countries and apply them in developing countries. Therefore, Ebrahim and Irani (2005, p.608) encourage the awareness of all such barriers while adopting e-government, arguing that such barriers alert the team responsible to any problems it might encounter in the implementation process, and hence enable it to be ready to overcome them.

3.8 Conclusion

This chapter has provided a general background and the theoretical foundation for the major themes of this study, and at the same time identified its boundaries. A review of the literature on IT adoption has revealed the indicators that have been found to be significant in citizens' adoption of e-government. These include usefulness, ease of use, awareness, trust and cultural issues, in addition to users' demographic attributes. It must be noted, though, that these indicators are essential in the development of e-government and that the little research that has been conducted in this area, especially in developing countries, did not provide a comprehensive picture about the adoption of e-government services. Some of such research tackled different aspects of e-government adoption without any theoretical basis to identify factors influencing the adoption, for example, West (2004), Graafland-Essers and Etedgui (2003) and Millard (2006).

Therefore, based on the theoretical research model identified in this chapter, which posited hypotheses concerning the relationship between the variables included in the model, the current study will attempt to investigate the factors that determine the adoption of e-government in relation to the demographic attributes of current and potential users of e-government services, as well as identifying other influencing factors

using qualitative methods. Moreover, the usability of the Kuwait e-government website will also be investigated using usability instruments, to supplement evidence that would indicate an increase or decrease in the adoption of e-government services. The research design adopted for this study is discussed in Chapter Five. First, however, the State of Kuwait, as the context for this study, will be introduced and background information on its e-government initiative will be presented in Chapter Four.

Chapter Four

Research Context and Background

4.1 Introduction

This chapter presents some background information to the research context, specifically about Kuwait. This chapter is divided into two sections. The first section briefly explores some features of Kuwait such as geography, economy, demography and education. The second section discusses the e-government initiative in Kuwait and its implementation, which is crucial for this study as it is related to the perceptions of potential users of e-government services investigated in this study. The e-government website, issues related to security, the awareness of e-government and future plans for its further development are also discussed.

4.2 Kuwait

This section provides a brief description of Kuwait, including Kuwait's geography, language, religion, constitution and government, economy, population and education.

4.2.1 Geography

Kuwait is an Islamic constitutional monarchy located in south-western Asia. Kuwait is bordered by Iraq to the north and west, Saudi Arabia to the south and west, and the Persian Gulf on the east. The capital of Kuwait is Kuwait City. Kuwait is one of the world's smallest countries, occupying 17,818 sq km (6,880 sq miles). Its terrain mostly consists of flat desert with little variation in altitude. It also includes several offshore islands on the north coast of the Persian Gulf, the largest of which is Bubiyan. Kuwait has no lakes or rivers and few sources of fresh water. The climate is extremely hot in summer, with temperatures routinely exceeding 45°C (113°F) and cool in the short winter (Kuwait e-government 2003); see Figure 4.1.



Figure 4.1 Map of the State of Kuwait (University of Texas at Austin 2004)

4.2.2 Language

Arabic is the official language of Kuwait. It is the language used in all government documents. English is the country's second language. It is widely spoken and commonly used in business, and within the educational system (Kuwait Information Centre 2004).

4.2.3 Religion

Islam is the official religion of Kuwait, with the majority of Kuwaitis being Sunni Muslims and about 40% Shia Muslims. Christianity and many other religions are also freely practised. Beside hundreds of mosques, there are three principal churches as well as other temples for practising various religions (Kuwait Information Centre 2004).

4.2.4 Constitution and government

The written constitution of Kuwait was approved on November 11, 1962. It combines aspects of both presidential and parliamentary systems of government (Kuwait Information Centre 2004). The constitution defines Kuwait as a hereditary emirate whose prince (Emir) is the chief of state. The Emir appoints the Crown Prince and the Prime Minister. A council of ministers aids the Prime Minister in his task as Head of Government. The National Assembly (Majlis al-Umma) consists of 50 members, who are chosen in elections held every four years (*Wikipedia* 2004).

Only male citizens aged 21 and above were able to vote for the National Assembly until May 2005 when Kuwaiti women were granted the right to vote. The passage of the new law was expected to increase the number of eligible voters from approximately 139,000 to around 339,000 (Kuwait Information Office 2005).

4.2.5 Economy

For many years Kuwait was a small emirate whose economy was dependent on sea trade, especially trades in spice and exports of pearls. The discovery of oil in the 20th century turned Kuwait into one of the richest countries on the Arab peninsula and today it has one of the highest per capita incomes in the world (Kuwait Information Office 2005). Its initial prosperity was founded almost completely on oil reserves, estimated at about 98 billion barrels, roughly 10% of the world's total reserves. Petroleum accounts for nearly half of the gross domestic product (GDP), 95% of export revenues and 80% of government income. Over time, large investments abroad were made of oil earnings so that by 1990, when Iraq invaded Kuwait, Kuwait earned more from foreign investment than from oil exports. A heavy economic burden was placed on the country due to the expenses of the Iraqi invasion and post-war reconstruction, but by the mid-1990s Kuwait had resumed its pre-invasion prosperity. The GDP for 2006 was US \$52 billion, giving Kuwait a per capita GDP of \$21,600 (Central Intelligence Agency 2007).

Notwithstanding its relatively high per capita income, the Kuwaiti economy is considered small because of its small budget, small population and small land area (API 2002). Consequently, the country suffers from major economic challenges that hinder

its development, above all, from a deficiency of human capital. Fergani (2001), as quoted in Alshebou (2007, p.14), argues that “no doubt, oil wealth has enabled some oil rich Arab countries to improve their infrastructure and material living conditions, but human well-being did not necessarily experience similar improvement”. The same can be said for Kuwait; the lack of human capabilities represents a big challenge for the country (Alsharah 2002).

4.2.6 Population

In 2006, Kuwait had an estimated population of 3,182,960, approximately two-thirds of whom are foreign workers. The majority of the population is of working age. The median age of the population is 25.9 years, 28.2 years for males and 22 years for females. The age structure of the population is given in Table 4.1.

Table 4.1 The age structure of the population in Kuwait (PACI 2007)

Age	Kuwaiti	Non-Kuwaiti	Total
14 and under	408,010	263,082	671,092
15-34	354,580	1,003,969	1,358,549
35-59	212,559	848,903	1,061,462
60 and above	48,167	43,690	91,857
Total	1,023,316	2,159,644	3,182,960

The labour force totals 1,962,955 people, less than a quarter (341,185) of whom are Kuwaiti citizens (PACI 2007). The non-Kuwaiti workers are immigrants from other Arab countries as well as Iran, India, Pakistan, Bangladesh, Sri Lanka and the Philippines. Due to the shortage of human capital in the country, as mentioned above, large numbers of workers are brought into the country to occupy skilled and technical professions. This indicates that Kuwaiti society is heterogeneous, a multi-cultural society with various cultural and religious groups.

It is worth mentioning that the unemployment rate of Kuwaiti people is considered relatively high and estimated to be 2.2%, with about 20,000 Kuwaiti unemployed. Its

two main causes are, the first is that many people are reluctant to work in the private sector because of advantages provided by the public sector, such as job security. The other is that there is a very large number of non-Kuwaitis working in the public sector (Al-Hamed 2000, p.159), despite the fact that nationalisation schemes in local manpower recruitment, known as Kuwaitisation, have been adopted in the public sector.

Kuwait also has one of the highest literacy rates in the Arab world, with approximately 94% of the population being literate. Broken down by gender, 81.7% of women are literate compared to 85.1% of men (Taqi 2007). Regarding Internet access, about 56% of Kuwait's population own PCs connected to the Internet, with the estimated number of Internet users reaching about 700,000 in 2006 (Central Intelligence Agency 2007).

4.2.7 Education

The wealth that oil has brought to the country has contributed to the development of Kuwait's education system. At the turn of the 20th century, the educational facilities were limited to the teaching and reciting of the Holy Quran. In 1939, the government started to build a more structured educational system, and by 1945, 17 schools had been built. After the discovery of oil in the 1950s, large sums of money were invested in social services, and education became one of the top priorities (Kuwait Information Centre 2004).

Education in Kuwait comprises three basic levels, elementary, intermediate and secondary school, with a duration of five, four and three academic years respectively. Schooling begins at the age of six; however, a kindergarten level is also provided to Kuwaiti children from age four to six. By the end of 2005, there were 176 kindergartens, 212 primary schools, 164 intermediate schools and 116 secondary schools in Kuwait (Kuwait Information Office 2005).

Education in Kuwait is compulsory and limited to all Kuwaiti children from age six to 14. The completion of basic education allows students to pursue higher education. All levels of state education, including higher education, are free. Although all schools are

segregated by gender, women are granted the same right in education as men (Kuwait Information Office 2005).

Under the supervision of the Ministry of Education, private education is also provided to expatriates. There are a number of Arabic private schools, foreign private schools (British, American, etc.) and other institutions offering specialised training courses and vocational and career studies (Kuwait Information Centre 2004).

4.2.7.1 Higher education

The development of higher education in Kuwait is important in providing the academic, professional and vocational skills necessary for different fields. Higher education is provided by two state supported institutions: Kuwait University and the Public Authority for Applied Education and Training. In addition, there are a number of private universities and colleges (Kuwait Information Office 2005). For the purposes of this study, an overview of Kuwait University only is provided.

Kuwait University

Kuwait University, the only state university of Kuwait, was established in October 1966 to facilitate the pursuit of advanced scholastic studies, leading to the award of Bachelor's, Master's and Doctoral degrees. The university is responsible for preserving, generating and dispersing knowledge, and encouraging scientific creativity to provide its students with a strong academic foundation with a critical scientific perspective. The underlying objective is to nurture future generations of responsible citizens and members of society who can lead the nation to progress and prosperity through the strength of their knowledge, the creative use of their intellects and awareness of their heritage (Office of the President 2005, p.4).

Kuwait University consists of 13 colleges: Arts, Business Administration, Education, Engineering, Law, Medicine, Dentistry, Pharmacy, Allied Health, Sharia, Science, Social Sciences, and Women's College, in addition to the College of Graduate Studies.

These colleges offer a wide range of programs in the sciences and humanities at undergraduate, graduate and doctoral levels. The internationally distinguished and culturally diverse community of professors and academics provides teaching, research and scholarship at the highest level (Office of the President 2005, p.6).

There are five sprawling campuses at Kuwait University, each of which is supplied with state-of-the-art facilities: sophisticated labs, libraries and technology resources that provide competitive assets for a challenging environment contributing to learning, with plenty of opportunities for scholarship and advancement (Office of the President 2005, p.7).

Over the years, the university has witnessed dramatic growth in its student numbers and the strength of its faculty, as well as in resources and facilities. The 2006 statistics show that there are 18,255 registered students, with 17,396 in undergraduate and 848 in graduate level programs. In addition, 16 students are currently pursuing doctoral level studies.¹

4.3 E-government in Kuwait

Prior to the introduction of e-government in Kuwait, the Government of Kuwait had implemented a number of projects to substantially improve its services. Since the early 1970s, ministries and government departments have resorted to computer technology to automate manual processes, using different ICT equipment and programs in order to operate more efficiently and address the service needs of its citizens in a timely and effective manner. The focus of this was initially to facilitate everyday data processing tasks in offices. These systems were later expanded to include applications ranging from management information systems and email applications to archiving systems to more advanced database management systems. Nearly all the ministries and government entities have Internet broadband connections as well as official web sites

¹ Statistics of registered students in second semester 2005/2006 (Statistics Unit/ Kuwait University 2006).

that offer detailed information about the departments and their services.² A study called *ICT and knowledge-based economy in the ESCWA region* (Economic and Social Council 2004, p.9) revealed that the ICT infrastructure in Kuwaiti ministries and government entities is ranked at level 2 out of 4. This measure reflects practices related to devising national ICT policies and strategies, updating and drafting ICT-specific laws, strengthening programmes for Internet backbone links, nationally and internationally, and building ICT capacity in dissemination and awareness campaigns in Kuwait. Moreover, training sessions have been provided to the workforce along with the implementation of ICT in Kuwaiti ministries and government departments. This training allows end users to use PCs, productivity tools and systems, databases and various other information system applications.³ Moreover, Al-Shayji (2005, p.11) claims that to use modern technology, business re-engineering processes were adopted in government organisations to rehabilitate the present workforce and open up new job opportunities.

The ever-increasing use and adoption of information and communication technologies by Kuwaiti government departments have helped in building an IT infrastructure capable of adopting the e-government initiative.⁴ In addition, the great move towards e-business, and the economic and social changes caused by it, the international trends towards a digital economy and an information-based society as well as other reasons, including the easy access provided by digitisation to vast amounts of information and knowledge, and the increasing role of electronic processes in daily life, have been the driving force behind the project of e-government services. By implementing this project the government's performance will be improved, Kuwait will be enabled to be abreast of the developments that are taking place in the world, governmental procedures for individuals and institutions will be facilitated and the standard of living will be raised (Al-Abdallah 2005, p.7).

² Interview with an official in the e-government project (Kuwait April, 2006).

³ Ibid.

⁴ Ibid.

4.3.1 Implementation of e-government

The former Prime Minister, the present Emir of Kuwait, Sheikh Sabah Al-Ahmad Al-Sabah, has paid special attention to, and shown an interest in, information and communications technology. He believes in the importance of ICT in people's day-to-day business and lives, especially of the young people, who represent any nation's real wealth. In the late 1990s, Sheikh Sabah Al-Ahmad ordered the establishment of a higher steering committee at governmental level to assess the e-readiness and management of ICT, and of control systems. He, therefore, adopted the e-government project in Kuwait as one of the government's top priorities, with the aim of executing a great transformation of government work (New Sabah 2006, p.3). Al-Shatti (2005, p.5) states that the motives for implementing e-government were to "activate and facilitate access to government information for more beneficiaries, facilitate completion of government procedures, and enhance the public's participation by enabling it to have greater interaction with government officials". However, Al-Kharafi (2005, p.3) argues that achieving the targets of e-government does not only depend on using modern systems, but also on the ability of government to "improve its existing administrative hierarchies, which are traditional in terms of their methods, means, and organisation, to incorporate modern systems". Al-Shatti (2005, p.5) also contends that the success of the e-government project depends on a number of factors, such as administrative reforms, an adequate number of decision-makers who are capable of adopting these reforms and who understand technology sufficiently well to draft the policies required as well as other factors related to the interaction of stakeholders. Al-Freih (2005, p.1) argues that the e-government project is not only relevant to the use of a website to pay a bill or make a business transaction, but "it involves a radical change in the activities of daily lives. It affects various aspects of life, at home, at school, at an institution and at work. It holds the message of a change in society that will alter the way we work, learn, buy and contact one another".

In 2000, the Council of Ministers issued Decree No. 759 concerning the implementation of e-government in Kuwait. The decree states that a National Higher Committee be established and led by the Prime Minister with the participation of the Minister of Planning, members of ministerial committees and a number of specialists. This

committee is responsible for supervising the implementation of the e-government project in Kuwait. Under the direction of this Committee, a Central Technical Body (CTB) needed to be established as stated in the decree. The CTB is responsible for coordinating the work between the National Higher Committee and government organisations. It is also responsible for seeking appropriate IT specialists in addition to exploring the relevant experience of the implementation of e-government in other countries. The CTB comprises a number of teams supporting its work (Kuwait e-government 2003):

Secretariat Team: This team is responsible for preparing, documenting, distributing and coordinating the other teams' tasks. It undertakes the supervision of establishing and maintaining the project website on the Internet (<http://www.e.gov.kw>), and offering technical support and maintenance of the site components and elements (Kuwait e-government 2003).

Technical Team: This team is responsible for following up the implementation of specifications, standards and modules proposed by the consultants and approved by the Higher National Committee. It is also expected to monitor the achievements of government authorities that implement various phases of the project and offer technical advice to them in cooperation with the project consultant (Kuwait e-government 2003).

Awareness and Information Team: This team is responsible for following up the information and marketing plan approved by the Higher National Committee, submitting recommendations and conducting appropriate studies on the effects of introducing digital services. It is also expected to gather the perceptions and input of citizens (Kuwait e-government 2003).

Legislative Team: This team is responsible for amending existing laws and regulations and drafting new laws relating to e-government business.

Changes and Process Engineering Management Team: This team is responsible for coordinating decisions made by the Higher National Committee and re-engineering some government processes according to the requirements of e-government. The team also reviews the technical and administrative experiences of government authorities in

order to benefit from the experience of those who have implemented e-government projects.

Al-Abdallah (2005, p.7) claims that the CTB has taken into consideration the successful experiences of countries that are considered pioneers in the implementation of e-government. The objective is to transfer their experience and knowledge to the situation of Kuwait. In light of this, a Memorandum of Understanding (MoU) was signed in 2004 with the Government of Singapore to cooperate in the implementation of e-government and benefit from the experiences of the Singaporean government. The MoU includes three phases: the first is a fact-finding phase where various government bodies and ministries in the country are closely studied. In this study phase, the focus is on looking into the currently available automated programs and see whether the government sector is technically ready for the implementation of the project. The second phase estimates the magnitude of discrepancy in Kuwait compared with what is needed to implement e-government. In this phase, an Information Development Authority (IDA) is planned to be established in Kuwait together with an action plan for the implementation of the Kuwait e-government (Al-Abdallah 2006, p.5). The third phase involves the evaluation of the general situation of readiness. Moreover, Al-Srayea (2005, p.9) stresses the need to enter into partnerships with the private sector in order to benefit from its successful experience in ICT. He argues that through such a partnership the government sector will be able to operate in parallel with the private sector and offer services meeting the expectations of citizens.

4.3.2 E-government website

Al-Srayea (2005, p.9) stresses that the launching of an official site (portal) of Kuwait's e-government on the Internet was the first step in the implementation phase of the project. The website enables visitors to "obtain instant services, and become familiar with the State of Kuwait and its different governmental and non-governmental sectors" (Al-Srayea 2005, p.9). The site provides its visitors with all the information and details needed, such as a brief overview of the State of Kuwait, a brief background on the Kuwait e-government and the accomplishments of the CTB, and an e-library.

Moreover, the site includes links to the websites of various government institutions, and the most important organisations and bodies of the private sector, a guide that provides information and contact numbers on the locations of government and non-government institutions, a list of automated government services, a search engine, the suggestion form that enables visitors to express their views of e-government and a variety of polls that elicit the opinions of the site's visitors. Other services are also provided to site visitors, such as local and international news around the clock from the Kuwait News Agency (KUNA), URLs of a number of regional and international e-government sites, prayer times and weather forecasts (Al-Srayea 2005, p.10). Al-Srayea (2005, p.10) mentions that in order to attract a large number of website visitors from within or outside Kuwait, it was decided to make the URL address representing the Kuwait e-government easy to remember. The site content is organised in a way that enables browsers to find information or services easily. In accordance with the objectives of e-government, the site maintains its goals of simplicity in the display of information and in the conduct of service transactions. By 2006 more than 50 government services were available through the e-government website, enabling users to accomplish a variety of transactions simply and easily: renewal of civil IDs, requesting industrial licences, searching for books in libraries and numerous other services provided by government.⁵

Several studies have been conducted on the evaluation of e-government in different parts of the world. However, there is little research investigating e-government websites in the Middle East. West (2006) annually conducts a survey of global e-government, which aims at analysing 1,782 national government websites in 198 countries around the world. Websites are evaluated against various features, dealing with information availability, service delivery and public access: online publications, databases, audio-clips, video-clips, foreign languages, advertising, fees, subject index, disability access, privacy and security. In 2006, on a scale of 100, Kuwait scored 28.9 whereas Taiwan scored 60.3, the highest score achieved by any country; see Tables 4.2-4.3. This indicates that Kuwait is still in an early stage of developing e-government and needs to improve its web instruments in order to improve in various areas, such as online

⁵ Interview with an official in the e-government project (Kuwait April, 2006).

services, privacy and security. However, this survey has been criticised by the Gartner Group which asserts that the survey has inappropriately assessed e-government progress in various countries where a number of fundamental factors were ignored, maintaining that the breadth and depth of e-government has not been covered (Government and Technology Partnerships 2003, p.5).

Table 4.2 Kuwait profile for selected features (West 2006)

Online services	Publications	Databases	Privacy policy	Security policy	Disability accessibility
17	92	39	0	8	8

Table 4.3 Kuwait profile for selected features (West 2006)

Foreign language	Ads	User fee	Comments	Updates
67	0	0	0	8

4.3.3 Awareness of e-government

Al-Shayji (2005, p.12) states that the media team within CTB is working on raising the awareness of the public regarding the benefits of e-government services. These awareness campaigns are undertaken through organising exhibitions, conferences and seminars, and through TV, radio and press interviews. Al-Freih (2005, p.1) mentions that *e-Kuwait*, a periodical bulletin issued in both Arabic and English and in the traditional printed and in electronic form, is one of the means through which a relationship between the e-government project and society in all its variety is developed. Her call to arms is “let’s make *e-Kuwait* the bulletin of inter-communication, idea enrichment, and a channel for a useful national dialogue”.

Al-Srayea (2005, p.10) indicates that the CTB is keen to know the views and comments of the public regarding the Kuwait e-government website. Suggestions for and opinions of users, sought through questionnaires, meetings and other ways, are considered in the development of the website. On the other hand, Al-Shayji (2005, p.12) stresses the importance of directing media efforts towards the various educational bodies as most of the future users will be current students.

4.3.4 Security issues

Al-Shayji (2005, p.12) mentions that despite the benefits gained in applying ICT in government, the means of abusing such technology have increased. This abuse negatively affects the economy, society, culture and the law. Al-Shayji believes that the main key to the success of the e-government system lies in protecting the privacy of individuals and keeping their data safely stored, out of the reach of hackers and abuse. Al-Abdallah (2006, p.3) claims that CTB has been working on the establishment of a special authority for information capable of overseeing all information-related activities and programs, and of formulating policies and standards relevant to the information sector. By 2006 a department had been set up to resolve any disputes arising from e-commerce in order to preserve ownership rights. In addition, a centre for managing information crises to fight computer hazards and information security threats is in a process of being established. Al-Sharaf (2006, p.13) confirms that draft laws covering e-transactions and e-commerce have been finalised by the legislative team in the CTB and submitted to higher authorities in the Government of Kuwait for revision and approval. These laws cover issues relating to e-signing, e-payment, data privacy and protection, proof of electronic transactions and e-commerce. Moreover, some articles of the criminal code have been amended to cover e-crimes. This legislation is intended to address potential problems in this area and contribute to ensuring the accuracy of transactions, something which will go a long way towards providing greater confidence in electronic transactions.

4.3.5 Future plans

Al-Abdallah (2005, p.8) claims that the implementation of the e-government project is considered a medium-range objective through which a further objective is achieved, the e-Kuwait project. This is designed to establish a national strategy for developing an information society. Al-Twajiry (2006) comments that a sustainable e-government is needed for the modernisation of public administration in order to meet the needs of citizens and businesses. He stresses that the implementation of e-government in Gulf Co-operation Council (GCC) countries is also essential to boosting the digital economy. Al-Twajiry suggests emulating the EU Commission by adopting its initiative *i2010*:

European Information Society 2010 to foster economic growth and jobs in the information society and media industries. The strategy of *i2010* is comprehensive and could be applicable in GCC e-government initiatives, which call for “modernising and deploying all [GCC] policy instruments to encourage the development of the digital economy, regulatory instruments, research and partnerships with industry” (Al-Twajiry 2006, no page number). A step towards GCC e-government has been undertaken through many initiatives, such as e-messaging between GCC ports, which has yielded positive results for the GCC ports, the most important of which is the provision of confidential and secure e-messaging services (Al-Mutairi 2006, p.6).

4.4 Conclusion

This chapter has provided the necessary background to the study in terms of a general overview of the State of Kuwait and the provision of its e-government services. The discussion of e-government indicates that the Kuwait e-government implementation is still in its infancy, and that it has a long way to go to achieve maturity where government services become fully integrated across different government departments and levels and can be executed online. In relation to the implementation of e-government discussed in Chapter Two, Section 2.6, e-government services are in the interaction stage where users are able to search the website, download forms and use links to other government websites. Further investigation of the Kuwait e-government website is achieved in the usability testing conducted in this study and presented in Chapter Seven.

Chapter Five

Research Design

5.1 Introduction

The literature review in Chapter Three has identified the research model adopted in this study, which is based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model. This chapter discusses the importance of the research framework in achieving the aims and objectives of the study. This chapter also discusses the issue of methodology and the philosophy underlying particular approaches, and provides a justification for the particular methods employed to fulfil the aims and objectives of this study. Both quantitative and qualitative methods were used in this study to explore factors identified by the amended UTAUT model that determine the use of e-government services, as well as other factors that influence the adoption of the services. These methods include surveys, interviews and focus groups. The research design, choice of methods, pilot study, sampling techniques and analysis of the results are also discussed in this chapter.

5.2 The theoretical model

Research in the area of technology acceptance and adoption has resulted in several theoretical models that explain an individual's intention and use of technology. A theoretical model provides a clear understanding of the problem under investigation and explains the theorised relationships between concepts and variables. It also allows for the generation of hypotheses governing the relationship between the different elements. Sekaran (1992, p.63) states:

It is how one theorises the relationships among the several factors that have been identified as important to the problem. This theory flows logically from the documentation of previous research in the problem area. Integrating one's logical beliefs with published reasons is pivotal in developing a scientific basis for investigating the research problem.

Therefore, a theoretical model was used in this study in anticipation that it would help in achieving the objective of this study with regards to identifying the factors that determine a potential user's intention to use the offered e-government services. This model served as a guide for developing hypotheses, testing and comparing the results, and assisting in the analysis and discussion of the findings.

The aims and objectives of the study as well as the development of the theoretical model have played a central role in identifying the research design to be adopted in this study and the justification for it, as discussed below.

5.3 Understanding methodology

The term “methodology” describes the principles and procedures of inquiry that comprise the research process, from the theoretical underpinning to the collection and analysis of data. It can be considered as a combination of techniques used to answer questions of what, why, how, and when (Collis & Hussey 2003, p.55). However, the concept of methodology within the context of social research should not be seen as a clear-cut set of procedures forming a neat pattern and fixed rules that should be followed in a particular order. Instead, it is a process of interaction between the theoretical framework of a given study, including its question, and the real world of doing empirical research, which includes data collection and analysis (Gill & Johnson 1997, p.4). The aim of this interaction process is to provide answers to the research questions and accordingly enable the achievement of the overall aim and objectives of the research.

Methodology is seen as a comprehensive process comprised of the necessary elements of the research process. These elements are related to the research framework, its philosophy, research evaluation steps, and a justification for those steps. Jayaratna (1997, p.37) defines methodology as:

An explicit way of structuring one's thinking and actions. Methodologies contain model(s) and reflect particular perspectives of reality based on a set of philosophical paradigms. A methodology should tell you what

steps to take and how to perform those steps but most importantly the reasons why those steps should be taken, in that particular order.

Therefore, the selection of an appropriate methodological approach for a particular research project requires an understanding of the underlying assumptions upon which any research is based, as proposed by Myer (1997).

5.3.1 Philosophical assumptions

Burrell and Morgan (1979, pp.1-2) identify four assumptions that underwrite different approaches to the social sciences. These assumptions are related to ontology, epistemology, human nature, and methodology. Subjects are researched via explicit and implicit assumptions about the nature of the world and the way in which it can be investigated. The first of these assumptions is of an ontological nature. It is concerned with whether the social world is seen as having an external reality, which is given “out there” and of an objective nature; or whether it is seen as internally constructed as a product of the mind and, hence, of a subjective nature.

The second assumption concerns epistemology. Such assumptions are about the basis of knowledge and the way knowledge can be obtained. They refer to what is true or what is false in knowledge. This is based on the nature of knowledge: whether it is “hard”, real, and capable of being transmitted in a tangible form; or whether knowledge is “soft”, subjective, and based on experience and insights of a unique personal nature.

The third type of assumption is related to human nature, and to the relationship between human beings and their environment in particular. Burrell and Morgan (1979, p.2) argue that there are two contrasting perspectives regarding these assumptions. The first involves human beings responding to situations in a mechanistic and deterministic way; this view regards human beings and their experiences as products of the environment. The other perspective, however, considers human beings as being creative. This view regards human beings as creators, controllers, and masters of their environment. These three types of assumptions have direct implications for the fourth type of assumption,

which concerns methodology. Methodological assumptions are concerned with the approach the researcher takes in order to find specific knowledge.

The epistemology, or “theory of knowledge”, the researcher adopts often defines and differentiates research within the social sciences (Easterby-Smith *et al.* 1991, p.33). Epistemology refers to beliefs about how knowledge is constructed. It is based on the identification of the relationship between the researcher and the phenomenon he/she is studying (Al-adaileh 2003, p.87). How research can best be conducted has been long debated by philosophers of science and methodologists. This epistemological debate “has centred on the relative value of two fundamentally different paradigms, the positivist and the interpretive paradigm” (Amaratunga 2002, p.18). Myers (1997) believes that these research paradigms could be contradictory or could be accommodated within a single study.

5.3.2 Positivism vs. interpretivism

Positivism is an “epistemological position that advocates the application of the methods of the natural sciences to the study of social context” (Byaman 2001, p.12). The idea behind positivism is that the properties of the external social world are measured through objective methods, rather than being inferred subjectively through impressions or intuitions (Easterby-Smith *et al.* 2002, p.28). Positivists use quantitative and experimental methods to falsify or validate a hypothesis and then arrive at generalisations by a process of deduction. The observer’s assumed independence of what is being observed is amongst the major assumptions of this approach. The aim of positivism is to identify any causal relationships between variables. Although highly structured research may impose certain constraints on the results, as some findings are reduced, at the same time, it provides a clear theoretical focus and improves the ability to retain control of the research process (Saunders, Lewis & Thornhill 1997, p.71).

Interpretivism, on the other hand, is based on the way people experience social phenomena in the world. It identifies the subjective aspects of human activities by focusing on the meanings of social phenomena rather than their measurement (Saunders, Lewis & Thornhill 1997, p.72). Interpretivism uses a qualitative approach to

understand human experience in a specific setting by a process of induction. In this approach, the aim is to understand and explain a phenomenon, rather than to search for its external causes and relationships (Easterby-Smith *et al.* 1991, p.30; Remenyi *et al.* 1998, p.34). Interpretivists attempt to minimise the distance between the researcher and what is being researched, which facilitates the understanding of the social world. This approach enables the researcher to deal with changes that may occur during the research process. However, data collection and analysis, according to the interpretative approach, are described as time consuming and findings are difficult to interpret, so the researcher may have to live with uncertainty, as clear patterns may not emerge by the end of research process (Saunders, Lewis & Thornhill 1997, p.72).

5.4 Research strategy

Bryman (2001, p.20) refers to research strategy as a “general orientation to the conduct of social research”. The most appropriate strategy to achieve the aims and objectives of this research is to adopt both positivist and interpretive approaches, entailing both quantitative and qualitative research. The combination of quantitative and qualitative methods, which constitutes mixed methods research, is appropriate for this study as it allows for greater confidence in the research findings. Sekaran (1992, p.219) states, “Because almost all data-collection methods have some biases associated with them, collecting data through multi-methods and from multi-sources lends rigor to research”. The differences between the two research approaches and their combination into mixed methods research encourage the researcher to adopt both methods in order to fulfil the aims and objectives of this research. These are discussed in the following subsections.

5.4.1 Quantitative and qualitative research

To many researchers, quantitative and qualitative approaches are clearly distinct from each other. Quantitative research emphasises quantification in the collection and analysis of data. It uses statistical models to explain data, deals mainly with numbers, and is considered “hard” research (Bryman 2001, p.20; Patton 1984, p.56). Qualitative

research, on the other hand, attempts to study the nature of a person's experiences of some given phenomenon, which are difficult to convey as part of quantitative research (Strauss & Corbin 1990, p.19). It emphasises words rather than numbers in the collection and analysis of data. It deals with interpreting social realities and is considered "soft" research (Bryman 2001, p.20; Patton 1984, p.56).

Bryman (2001, p.20) stresses that quantitative research incorporates the practices and norms of the natural scientific model. It involves a deductive approach to the relationship between theory and research, for the purpose of testing theories. It represents a view of social reality as an external, objective reality. In contrast, qualitative research rejects the practices and norms of the natural scientific model and emphasises the way in which individuals interpret their social world. It also emphasises an inductive approach to the relationship between theory and research, within which theories are generated from the data collected, and it embodies a view in which social reality is regarded as a product of human construction.

While qualitative methods allow a researcher to study issues in depth and in detail without being constrained by predetermined categories, quantitative methods use standardised instruments so that responses are limited to certain categories. The quantitative approach has the advantage that the researcher can measure the reactions of many subjects to a limited set of questions, thus allowing statistical treatment of the data. Qualitative methods, however, can yield much detailed data about a smaller number of people and cases (Patton 1984, p.54).

Quantitative data, which are obtained from various forms of standardised observation, make it possible to treat the complexities of the world in a numerical fashion. Such data are more restricted and thus amenable to computerised treatment and statistical analysis. Qualitative data, however, consist of detailed descriptions of situations, events, people, interactions, observed behaviour, attitudes, and beliefs. These are descriptions of the empirical world and they do not fit into predetermined categories (Patton 1984, p.55). Jarratt (1996, p.7) summarises the differences between quantitative and qualitative research as shown in Table 5.1.

Table 5.1 Differences between qualitative and quantitative research (Jarratt 1996, p.7)

Dimensions	Quantitative paradigm	Qualitative paradigm
Purpose	Prediction and control	Understanding
Reliability	Stable – reality is made up of facts that do not change.	Dynamic – reality changes with changes in people’s perceptions
Viewpoint	Outsider – reality is what quantifiable data indicates it to be.	Insider – reality is what people perceive it to be.
Values	Value-free – values can be controlled.	Value-bound – values will impact on understanding the phenomena.
Focus	Particularistic – defined by variables studied.	Holistic
Orientation	Verification	Discovery
Data	Objective	Subjective
Instrumentation	Non-human	Human
Conditions	Controlled	Naturalistic
Results	Reliable	Valid – focus is on design and procedures to gain real, rich and deep data.

Researchers have been involved in a long-standing debate about the differences between qualitative and quantitative research (Hoepfl 1997, p.47; Tashakkori & Teddlie 2003, p.20; Trochim 2006). Trochim (2006) claims that this “qualitative-quantitative debate” is never-ending because no one approach is better than the other, as they serve different purposes. Trochim (2006) and Patton (1984, p.56) argue that qualitative and quantitative data are intimately related to each other and both are recognised as legitimate. According to these authors, there are no logical reasons why qualitative and quantitative methods cannot be used together. Although qualitative methods are appropriate in some cases and quantitative methods are appropriate in others, in many cases there is value in combining qualitative and quantitative methods in what is referred to as “mixed methods”.

5.4.2 Mixed research methods

Many researchers believe that qualitative and quantitative research methods can be combined in a single study, as quantitative methods are appropriate for answering certain kinds of questions, and qualitative methods are right for the others (Hayati *et al.*

2006, p.370; Hoepfl 1997, p.48; Myers 1997). This is known as “methodological triangulation” (Amaratunga *et al.* 2002, p.23). Amaratunga *et al.* (2002, p.23) refer to methodological triangulation as “the combination of methodologies in the study of the same phenomenon”. They add, “the assumption in triangulation is that the effectiveness of triangulation rests on the premise that the weaknesses of one method will be compensated for by the counter-balancing strengths of another”. Johnson & Onwuegbuzie (2004, p.14) stress that the goal of mixed methods is that the two approaches draw from their strengths and minimise their weaknesses not only in a single study but also across studies. Creswell (2003, p.15) argues that mixed method designs now serve purposes beyond triangulation, as discussed by Brannen (2005, p.176). Brannen (2005, p.176) notes that a unitary or rounded reality cannot be produced by only adding data collected with different methods; however, there are a number of possible outcomes that can be found when methods are combined. The first outcome is *corroboration* of data, where both qualitative and quantitative methods produce the same results. The second outcome is *elaboration*, as the analysis of qualitative data can explain the application of quantitative findings in particular cases. There is also a third possible outcome, which can be referred to as *complementarity*, where different results are obtained from the two methods, but new insights are generated when they are taken together. The last possible outcome is *contradiction*, when qualitative and quantitative findings are in conflict with one another.

Research employing mixed methods, the third of the research paradigms outlined above, may also help in resolving any division that may occur between quantitative and qualitative research (Johnson & Onwuegbuzie 2004, p.15). The mixed method allows the researcher to have greater confidence in the research findings than if only a single method were to be used. Employing multiple methods effectively reduces measurement error and helps to overcome problems of bias (Clarke & Dawson 1999, p.88). However, Easterby-Smith *et al.* (2002, p.41) warn against mixing methods simply for the sake of obtaining a slightly richer picture, because this may lead to contradictions or confusions. They add that the reality of what is being investigated may be considerably more complex than the data collection methods are capable of investigating.

The mixed methods approach employs strategies of inquiry that involve collecting data either simultaneously or sequentially in order to understand research problems better. For final results derived from both quantitative and qualitative information, data collection itself involves gathering both numeric information and textual information. (Creswell 2003, p.18-20). In view of the benefits, mentioned above, of mixing different types of data, researchers have been encouraged to develop procedures for strategies of enquiry that adopt mixed methods (Creswell 2003, p.16) and to form procedures for mixed method research (Tashakkori & Teddlie 1998, p.42). In particular, there are two main strategies (Creswell 2003, p.16): *sequential procedures* and *concurrent procedures*. When using sequential procedures the researcher uses the second method to develop or explain the findings of the first method (Creswell 2003, p.16). For example, a qualitative method may be used for initial exploratory purposes and be followed by a quantitative method with a large sample. In this way, the results can be generalised to the population being studied. Alternatively, a quantitative method may be used first to test theories or concepts and then a qualitative method used with a few cases or individuals to provide more explanation.

In the other main strategy, concurrent procedures, quantitative and qualitative data are brought together so that a comprehensive analysis of the research problem can be carried out. In this strategy, both types of data are collected at the same time and then the information is integrated as part of the interpretation of the overall results. In this approach, different levels in a study can be analysed by nesting one type of data within another (Tashakkori & Teddlie 1998, p.42).

Johnson and Onwuegbuzie (2004, p.19) point out that the relative emphasis on a particular research paradigm should also be considered; for example, the quantitative and qualitative paradigms may be regarded as equal, or one paradigm may dominate.

5.5 Research design

Research design can be classified into four types: exploratory, descriptive, explanatory, and predictive (Collis & Hussey 2003, p.10). Exploratory research is undertaken when

not much is known about the phenomenon. Such research is carried out to better understand the nature of the problem, as few studies might have been conducted in that area (Sekaran 2003, p.119). This is a valuable way of obtaining new insights and assessing phenomena in a new light (Saunders, Lewis & Thornhill 1997, p.78). This type of research uses methods such as case studies, observations and interviews, so that both qualitative and quantitative data can be obtained. Such data provide a good coverage of the phenomena being studied and help in developing theories and formulating hypotheses, but rarely provide conclusive answers to problems or issues. Nevertheless, exploratory research may provide guidance to what future research should be conducted (Collis & Hussey 2003, p.10; Saunders, Lewis & Thornhill 1997, p.78).

Descriptive research aims to describe and understand the characteristics of a particular problem or issue. It is also intended to offer the researcher a profile of the relevant aspects of the phenomenon under study. Descriptive studies, which use quantitative and statistical techniques, can go further than exploratory research, as quantitative data become essential to provide descriptive information about the issue (Sekaran 2003, p.120).

An extension of descriptive research is referred to as analytical or explanatory research. Explanatory research emphasises the study of issues relating to a phenomenon in order to explain the way things happen. This is done through measuring causal relationships between the different variables (Saunders, Lewis & Thornhill 1997, p.79) that can be controlled within the research programme. Predictive research, on the other hand, aims to provide a valid generalisation of the research outcome by analysing these outcomes and predicting phenomena on the basis of hypothesised and general relationships. Thus, the predictive research provides answers on how, why, and what not only about current events but also about similar events in the future (Collis & Hussey 2003, p.12).

5.6 Choice of methods

Briedenhann and Wickens (2002, p.6) argue that for any reputable investigation, solid evidence is essential, thus making the selection of an appropriate data collection strategy imperative. Important issues to consider when making choices amongst different methods include the ease with which the data to be evaluated can be understood and its credibility in the eyes of the audience who will receive and utilise the results. They add that the financial resources available to the researcher, the cultural perspectives of participants, and the credibility of the results that are produced using the methods selected help in deciding which research methods to use.

The literature review, in Chapters Two and Three, identified pertinent issues concerning the adoption of e-government services that need to be investigated using appropriate research methods. In addition, the background and familiarity of the researcher with the study context and with the environment played an important role in selecting the most suitable methodology for the topic being researched and through which the aims and objectives of the study may be achieved.

This study combines elements of the four types of research design. It is mainly exploratory, since it aims to explore the adoption of e-government services in a context that has not previously been investigated, namely in Kuwait. This study is expected to contribute to a better understanding of the nature of the adoption of e-government services as no studies, to the best of the researcher's knowledge, have been conducted in this area. In this type of research, both qualitative and quantitative methods can be used to provide a good coverage of the research topic, as theories can be developed and hypotheses can be formulated.

This research is also descriptive, as statistics are provided to describe the characteristics of the sample used in the study, to describe the categorical and continuous variables and to report how many respondents gave each response. Moreover, the measurement of causal relationships between the different variables, testing of hypotheses, analysis of the data and clarification of the way things happen allow this research to be described as explanatory. Finally, the predictive power of the logistic regression analysis used to test the relationships between explanatory variables and outcome variables in the

amended UTAUT model is expected to lead to reliable predictions of respondents' intentions regarding their use of e-government services. This, therefore, makes this study one of a predictive nature.

A concurrent mixed research approach, which uses both qualitative and quantitative methods in one phase, was chosen for this study. This research approach, which is the most familiar approach of the mixed methods models, was adopted in an attempt to confirm, cross-validate and corroborate the findings within this study. Cross-validation means comparing one result with another and examining the correlation of findings that are generated from different methods (Bryman 2001, p.30). This strategy, as discussed above, is expected to compensate for the weaknesses of one method by the strengths of another. It is intended to integrate the results of the two methods in the interpretation phase and allow the researcher to note any convergence of the findings in order to strengthen the claims made for the results or explain any lack of convergence. In addition, the choice of the concurrent strategy was influenced by time constraints and the need to minimise travel expenses, as the study was to be carried out in Kuwait.

In combining the quantitative and qualitative approaches, quantitative data techniques were appropriate for testing the theoretical model adopted in this study as well as for the evaluation of the e-government website. These methods treat data as numbers that can be ordered in terms of magnitude and allow statistical treatment of the data, and so are capable of recording any variations in the students' adoption of e-government services. However, the use of standardised instruments as well as the limited response characteristics of such methods prompted the complementary use of qualitative methods, to elicit greater depth and detail. Such methods were used to obtain information on factors that encouraged or discouraged the adoption of e-government services from a smaller number of participants. In addition, these methods help in capturing the adoption of e-government services through the eyes of participants and the way they experience it, rather than in categories predetermined by the researcher. Therefore, questionnaire surveys and usability testing methods were considered the most appropriate quantitative methods to achieve some of the research objectives, whereas focus groups, interviews and open-ended questions were considered the most

suitable qualitative methods to achieve others. The methods used in this study are discussed in the following subsections.

5.6.1 Quantitative methods

Quantitative methods were adopted in this study to fulfil objectives 2, 3 and 5 stated in Chapter One. The methods used were questionnaire surveys and usability testing, which are explained below.

5.6.1.1 Questionnaire surveys

The questionnaire survey was selected in this study to obtain data on topics to be covered in the research model adopted for this study, as well as to test the relationships between the model's constructs. The majority of studies investigating the adoption of e-government services have employed the questionnaire survey. They include, for example, Carter and Belanger (2003), Carter and Belanger (2004), Carter and Belanger (2005), Charbaji and Mikdashi (2003), West (2004), Reddick (2005), Graafland-Essers and Ettetdgui (2003), Akman *et al.* (2005) and Phang *et al.* (2005). Moreover, Schutt (2001, p.210) and Saunders, Lewis and Thornhill (1997, p.244) state that survey research via questionnaire is often the only means available for developing a representative picture of the attitudes and characteristics of a large population. Survey research refers to the "collection of information from a sample of individuals through their responses to questions" (Schutt 2001, p.209). The questionnaire is a popular technique and is normally used to discover peoples' attitudes and to enable the researcher to identify and describe the variability in phenomena as well as to examine and explain relationships between variables (Saunders, Lewis & Thornhill 1997, p.244). A survey is an "efficient method for systematically collecting data from a broad spectrum of individuals and in a variety of social settings" (Schutt 2001, p.209). It has been argued that although a survey is not an ideal method for testing all research hypotheses, or learning about every social process, a well designed survey can enhance the researcher's understanding of the social issue being investigated. With this

technique, it is possible to collect data from many people quickly and at relatively low cost. Moreover, the survey method allows the researcher to generalise the findings from a sample to the larger population and, as mentioned above, it is the only means available for developing a representative picture of the attitudes and characteristics of a large population to the adoption of e-government services.

5.6.1.2 Usability testing

User needs have become an essential part of user interface development. Website developers have recently begun to address customers' needs and to design usability into websites rather than focusing solely on functionality (Battleson, Booth & Weintrop 2001, p.188; Brinck, Gergle & Wood 2002, p.64). Usability testing is described as a "process that employs participants who are representative of the target population to evaluate the degree to which a [website] meets specific usability criteria" (Rubin 1994, p.25). The goal of usability testing is to identify and rectify usability deficiencies existing in websites. This aims to ensure that the website is easy to learn and use, satisfying to use; and found to be functional by its target population. Corry *et al.* (1997, p.65) point out that the primary goal of usability testing is to improve the usability of the website, and consequently help in developing the website. Usability testing, however, has a number of limitations, including that testing is always an artificial situation and does not represent the actual situation of website usage and that participants are rarely fully representative of the target population (Rubin 1994, pp.26-27).

If an e-government website is not designed so that it provides satisfactory services to users, but prevents the less knowledgeable citizen from satisfactory contact with government organisations, the evolution of e-government will be impeded. Although the usability of an e-government website was considered a critical issue in the adoption of e-government services, in this study it was used as a supplemental method in order to find out additional information that would encourage or discourage the adoption of e-government services.

Nielsen and Norman (2000, no page number) also recommend the use of a website usability test because “most websites are tough to use. Usability studies find a success rate of less than 50%. When the average person is asked to accomplish a simple task on the average website; the outcome all too often is failure”. Schultz (2001) as quoted in Baker (2004, p.48) insists that the face that a government presents to the public should include an easily navigable array of services. He adds that users need to learn quickly to accomplish a specific task on a website. Baker (2004, p.47) argues that e-government will fail to achieve its full potential success unless the barrier of website usability is recognised and bridged. Therefore, it was decided to examine the Kuwait e-government website in an attempt to investigate the usability of a website that is the “face of government” so that any reasons that might prevent the public from adopting the e-services could be identified.

Moreover, the usability testing was used in this study to determine how effectively the e-government website worked when used by real users with little or no experience of the website. In other words, the test attempted to identify how usable the Kuwait e-government website was found to be by its users; and to identify the strengths and weaknesses of the site design, for example, whether it encouraged or impeded its use, and thus increased or decreased the benefits of using e-government services offered to its users.

Brinck, Gergle and Wood (2002, p.406) claim that there are numerous ways of assessing the usability of websites, including inspection, group walkthrough, and user testing. Battleson, Booth and Weintrop (2001, p.189) state that user testing, which involves real users, can be divided into two categories: inquiry and usability testing. Inquiry involves requesting information about a particular website from users. Methods of inquiry include focus groups, interviews, and surveys. Usability testing, however, involves observing real users performing given tasks. This study employed the user testing method, involving real users. The inquiry method, represented by the use of focus groups, is discussed later in this chapter.

It is worth mentioning that the examination of website statistics was considered as another method of evaluating the e-government website. This method enables the

investigator to analyse and monitor website performance. It provides information about the number of website visitors and about the website traffic, which shows the parts of the website mostly used. It also gives the investigator the opportunity to monitor the behaviour and the patterns of the website visitors. In this way, the investigator is able to identify the weaknesses of the website and consequently make the necessary changes (Visitorlogs 2004). However, it was not possible for the researcher to adopt this method because it was difficult to access the required government information, due to its confidentiality. Moreover, the sample was restricted to university students and the e-government website could be accessed by anyone interested in the website or in services the website provides, so, it would have been difficult to identify the sample members from all the users to report their performance behaviour.

5.6.2 Qualitative methods

Although quantitative methods provided an illuminating spotlight on students' attitudes towards e-government services, it was beneficial to expand on some issues in more detail and through different experiences. Qualitative methods were adopted in this study to fulfil objectives 1 and 4. Focus groups, interviews, and open-ended questions are the qualitative methods used in this study; these are explained below.

5.6.2.1 Focus groups

The focus group method was considered to be appropriate for providing more information and explanation on issues relating to the adoption of e-government services. This method was chosen to help interpret the results of the surveys, especially unanticipated findings, and to explore hidden meanings, as indicated by Bernard (2000, p.208) and Schutt (2001, p.295). Focus groups are “a small group discussion (often consisting of six to twelve participants) guided by a facilitator and used to gain an understanding of participants' attitudes and perceptions relevant to a particular topic” (Gorman & Calyton 1997, p.143). It is a method that attempts to gather data relating to the feelings and opinions of a group of people who have had certain experience and

investigates how they arrive at these feelings (Bernard 2000, p.208; Bryman & Bell 2003, p.369; Collis & Hussey 2003, p.166). Under the guidance of a moderator or facilitator, participants are stimulated to discuss their opinions, reactions and feelings about a topic. Participants are encouraged to voice their own opinions, as they listen to the views of other group members (Collis & Hussey 2003, p.166).

The focus group method offers a number of advantages to the researcher. Morgan (1998, p.188) stresses that “the explicit use of the group interaction to produce data and insights that would be less accessible without the interaction found in a group” provides the researcher with rich data. The presence of several participants allows a variety of points of view to emerge, which the group can respond to and discuss. A number of ideas can be generated or evaluated in an innovative way by a dynamic group, which helps the researcher to explain or explore concepts (Saunders, Lewis & Thornhill 1997, p.233). The decision to use the focus group method was influenced by the idea that participants in a focus group session often argue and challenge one another’s views. Such debate may help the researcher to reach a more realistic view about the adoption of e-government services, as participants are forced to think and possibly to reconsider their opinions. Moreover, as Mahoney (1997) points out, participants are allowed to hear each other’s responses and what other participants have to say. Thus, they are given the chance to make additional comments beyond their own original responses. However, it is not necessary for people to disagree, nor it is necessary for the group to reach any kind of consensus.

The use of the focus group method provides the researcher with a number of advantages, as suggested by Stewart and Shamdasani (1990, p.16). Data are provided from a group of people quickly and at relatively low cost. The response format of a focus group is open, and thus provides the researcher the opportunity to obtain large and rich amounts of data in the participants’ own words. Focus groups are also very flexible; and can thus be used to examine a wide range of topics with a variety of individuals and in a variety of settings.

However, focus groups also have their limitations: the researcher has less control over the participants than in some other methods; the recordings of focus group sessions are

more time consuming to transcribe than interviews with a single informant because of variations in voice pitch and the need to take account of who says what; a huge amount of data is produced and analysis of such data becomes an enormous task. Focus groups can also be difficult to organise, particularly in obtaining the agreement of people to participate and ensuring they attend the session. Small inducements, such as payments, are sometimes used to encourage participation, but even then, it is common for people not to attend a focus group session (Stewart & Shamdasani 1990, p.16).

5.6.2.2 Interviews

It was also decided to conduct a small number of interviews with officials in the Central Technical Body for Implementing Information Technology in Government Business so as to develop the little amount of literature about e-government in Kuwait, and to highlight the progress made in Kuwait in providing e-government services. Clarke and Dawson (1999, p.72) describes the interview as “a conversation with a purpose”. Interviews can be helpful in finding out what is happening and seeking out new insights (Saunders, Lewis & Thornhill 1997, p.212). An interview can be an appropriate method for exploratory research, such as this, to obtain information and a full understanding of the nature of the programme’s context, its principal objectives, and the theory behind its design and implementation, especially during the early stages of a study. This can be done by talking to various individuals, such as programme planners and administrators (Clarke & Dawson 1999, p.72). Moreover, the interview has a number of advantages, such as immediate data collection, and gathering large amounts of data in a short time, and explanations can be provided for unclear answers. However, the interview also has several disadvantages, such as high cost, and interviewer influence on the interviewee. It was thought that semi-structured, one-to-one interviews with officials associated with the e-government programme would be the most fitting approach for this research. Such interviews enable the interviewer to be flexible in omitting or adding any questions related to the research topic (Collis & Hussey 2003, p.168).

5.6.2.3 Other qualitative methods

Open-ended questions were also employed in this study. They were provided in the survey questionnaires to allow respondents an opportunity to express personal responses or opinions in their own words, as mentioned by Collis and Hussey (2003, p.179). Moreover, such questions were also employed in the usability testing as a possible supplement for checklist questions because checklist questionnaires are not sufficient for evaluating websites according to Chin, Diehl and Norman (1988, p.213). Open-ended questions offer the advantage of allowing the researcher to ask more probing questions and obtaining unanticipated perspectives on an issue, but their weakness is that the analysis of responses can be difficult and time consuming (Collis & Hussey 2003, p.179; Easterby-Smith *et al.* 2002, p.133).

5.7 Sampling

Kuwait e-government services are available for anyone that has business with the government; however, they are mainly used by adults. Because the adult population in Kuwait is very large, it was necessary to limit this study to a specific group of the population for reasons of practicality. A population refers to “a body of people under consideration for research purposes” (Collis & Hussey 2003, p.155); whereas the sample is made up of some of the members of the population (Collis & Hussey 2003, p.155). It was decided to limit the study to a sample from the population of Kuwait University students, which included undergraduate and postgraduate students, for the following reasons:

- When the e-government project is fully implemented in Kuwait, this group will be its main users. Therefore, knowing their attitudes and perceptions towards these services will help in project improvement to serve the largest number of people.
- University students are amongst the adult population for whom the Internet has become part of their daily routine (Jones *et al.* 2002, p.2). This means that the

majority of university students know about the Internet, which is required for the use of e-government services.

- Kuwait University is the only university owned by the government.
- Because the researcher works as a teaching assistant on a scholarship in this institution, permission to access the targeted sample could be obtained readily.

There were 18,255 registered students in the second semester 2005/2006,⁶ distributed in 14 colleges within Kuwait University. Rather than using a sampling frame where all students' names were listed, stratified sampling was employed. This type of sampling ensured that the sample consisted of members from identified strata, for example the 14 colleges; males and females. Then, students were selected from identified colleges using a random sampling technique.

The generalisability of the findings is related to the size of the sample. Saunders, Lewis and Thornhill (1997, p.127) state that the “larger your sample size, the lower the likely error in generalising to the population”. Therefore, it was intended to survey a large number of respondents in the 14 colleges within the university to increase the generalisability of the results to all university students. The table of sample sizes by Al-Duhayan and Hassan (2002, p.250) calculates the sample size according to the 95% level of confidence and to different percentages of margin of errors. These figures describe the precision of the estimates of the population. The table gives the suggested sample sizes for a population of 20,000 (the nearest number for 18,255). These are 377 at 5% margin of error; 538 at 4% margin of error, 1,013 at 3% margin of error; 2,144 at 2% margin of error; and 4,688 at 1% margin of error. It was decided to choose the sample size of 1,013 at the 3% margin error because this was an acceptable margin of error and a sample size that could be handled within the period specified for data collection.

⁶ Statistics of registered students in second semester 2005/2006 (Statistics Unit/ Kuwait University 2006)

The survey method was chosen to find potential respondents interested in participating in the usability testing and the focus groups. Nielsen (2000) mentions that when dealing with a homogenous user group, as few as five users can identify a high percentage of the most critical errors in a website:

The most striking truth... is that zero users give zero insights... . As soon as you collect data from a single test user, your insights shoot up and you have already learned almost a third of all there is to know about the usability of the design... . As you add more and more users, you learn less and less because you will keep seeing the same things again and again... . After the fifth user, you are wasting your time by observing the same findings repeatedly but not learning much new (Nielsen 2000, no page number).

Morgan (1997, p.43) suggests that three to five groups are adequate for having in-depth information about the topic. The number of participants is also an important variable. If a group is too small, it can be dominated by one or two “loudmouths”, while if it gets beyond 10 or 12, it becomes difficult to manage (Bryman & Bell 2003, p.380; Stewart & Shamdasani 1990, p.17). Bernard (2000, p.210) argues that smaller groups are better when the researcher is trying to get in-depth discussions going about sensitive issues. Consistent with these views, it was decided to conduct four focus group sessions with five participants in each group.

5.8 Data collection

The methods chosen for data collection in this study are explained in this section.

5.8.1 Questionnaire design

The questionnaire was designed to be short, unambiguous, and easy for a respondent to complete. May (1993) as quoted in Clarke and Dawson (1999, p.69), argues that the questionnaire is “an instrument for measuring the ideas that go into its design. For this

reason, the questions must not only reflect the survey's aims, but also must be understood by respondents in a clear and unambiguous way". Clear and well-structured questionnaires are important for obtaining valid results, since poorly framed questions or badly structured questionnaires can easily discourage respondents and lead to a low response rate. The structure of the questionnaire is explained in detail as follows.

Introduction

An introductory paragraph was included at the beginning of the questionnaire for respondents to read. It included background information about the study, purpose of the research, confidentiality instructions, and the researcher's identity and contact information, as suggested by Sekaran (2003, p.245).

Section one: General information

This section comprised questions that gathered general information about the respondent. The questions were related to the student's gender, age, college and department in which he/she was registered. Further, questions regarding the Internet were also included in order to identify whether Internet experience played a role in adopting e-government services. Respondents were also asked to indicate how long they had been using the Internet and how frequently they used the Internet and to rate their Internet proficiency by using a five-point Likert scale ranging from 1, "poor", through to 5, "excellent".

Section two: E-government and online services

This section aimed to explore respondents' attitudes and perceptions regarding e-government and the services provided online. It started with a definition of e-government and included the e-government website address. Because the e-government website was not widely known or used by people in Kuwait, respondents were asked whether they had used any e-government services. Then respondents were instructed to indicate their perceptions of the amended UTAUT model, which included performance expectancy, effort expectancy, peer influence, facilitating conditions, and behavioural intention to use e-government services, all elicited by using a seven-point Likert scale ranging from 1 "strongly disagree" through to 7 "strongly agree".

Consistent with other research, it was appropriate to keep the statements of each construct together. Davis and Venkatesh (1996) recommend using similar items grouped together for the higher reliability and validity of the model.

There was a concern that some of the statements making up the constructs were irrelevant to the research; therefore, such statements were modified to fit the research context. The statements related to each construct, adopted from Venkatesh *et al.* (2003), are listed in Tables 5.2, 5.3, 5.4, 5.5, and 5.6.

Table 5.2: Performance expectancy statements

Statements
Using the system in my job would enable me to accomplish tasks more quickly
Using the system would enhance my effectiveness on the job
Using the system would make it easier to do my job
I would find the system useful in my job
If I use the system, I will spend less time on routine job tasks

Table 5.3: Effort expectancy statements

Statements
Learning to operate the system would be easy for me
My interaction with the system would be clear and understandable
It would be easy for me to become skilful at using the system
I would find the system easy to use
Using the system takes too much time from my normal duties
Overall, I believe that the system is easy to use

Table 5.4: Social influence statements

Statements
People who are important to me think that I should use the system

Table 5.5: Facilitating conditions statements

Statements
I have the resources necessary to use the system.
I have the knowledge necessary to use the system.
Given the resources, opportunities and knowledge it takes to use the system, it would be easy for me to use the system.
I think that using the system fits well with the way I like to work.
Using the system fits into my work style.

Table 5.6: Behavioural intention statements

Statements
I intend to use the system in the next <n> months.
I predict I would use the system in the next <n> months.
I plan to use the system in the next <n> months.

Moreover, other statements related to the constructs were constructed and added by the researcher in consultation with the supervisor to give a clear and comprehensive picture about the study context. Such statements are listed in Tables 5.7, 5.8, 5.9 and 5.10.

Table 5.7: New performance expectancy statements

Statements
E-government website would enable me to access government information and services when I need them - 24 hours/day, 7days/week.
I think interacting with the government face to face would be preferable to interacting online.
The e-government website would give all citizens equal chances to carry out their business with government.

Table 5.8: New effort expectancy statements

Statements
I would find it easier to talk face to face with someone rather than use online services.

Table 5.9: New peer influence statements

Statements
I would only use online services if I needed to.
I would use the online services if my friends used them.

Table 5.10: New facilitating conditions statements

Statements
I have enough Internet experience to use online services.
I would not like to carry out my business with government online.
I would find it difficult to use online services due to lack of time.

Respondents were also asked to express their opinion about e-government services. This open-ended question gave respondents the opportunity to express themselves freely about any issue regarding e-government services.

Finally, respondents were invited to take part in practical sessions that afforded them the opportunity to browse the e-government website as part of a usability testing, followed by discussion about various issues arising from using e-government services. The interested respondents were invited to add their email address or any other contact details where they could be reached. Respondents were thanked for their time and participation.

5.8.2 Pre-testing and pilot study

It is recommended to test and pilot the questionnaire as fully as possible before distributing it (Bryman & Bell 2003, p.170; Collis & Hussey 2003, p.175). A pilot study is usually undertaken in advance of the main study, not only to ensure that the survey questions operate well but to ensure that the research instrument as a whole functions well (Bryman & Bell 2003, p.170). Saunders, Lewis and Thornhill (1997, p.269) add that the pilot test refines the questionnaire so that respondents have no difficulties in answering the questions. Oppenheim (1992, p.47) states:

Questionnaires do not emerge fully-fledged; they have to be created or adapted, fashioned and developed to maturity after many abortive test

flights. In fact, every aspect of a survey has to be tried out beforehand to make sure that it works as intended.

Collis and Hussey (2003, p.175) suggest that questionnaires should be pre-tested with colleagues and with those who are part of the target population. Colleagues, who may know little about the subject, can often spot glaring errors. Those who are part of the target population can also help in improving the clarity of instructions; identifying unclear or ambiguous questions or questions that respondents may feel uneasy about answering; commenting on unclear and unattractive layouts; and adding any other comments (Saunders, Lewis & Thornhill 1997, p.269).

The pilot questionnaire consisted of three pages with a covering letter asking participants to describe any problems they encountered when completing the questionnaire and add any comments. The pilot study was conducted in three phases. First, the questionnaire was sent to 15 colleagues within the Department of Information Science at Loughborough University. For the second phase, two academic staff, one in the Mathematics Support Unit, and the other in the Department of Information Science at Loughborough University, both of whom had considerable experience in the design of questionnaires, were consulted. Comments received from the two phases were about scaling, the wording of some questions, and the layout of the questionnaire. All suggested changes should be made to ensure the clarity of the questionnaire. As the questionnaire was in English and the study was to be carried out in Kuwait, it was necessary to translate it into Arabic, the language spoken in Kuwait. Then a copy of each questionnaire was passed to a translator to compare the two versions, so that the accuracy of the translation was assured before distribution. The third phase took place in Kuwait after translation. Twenty university students, 10 male and 10 female, participated in the pilot study. All participants provided constructive comments, notably on the layout and instructions. Changes were made in the light of all the comments to produce the final version of the questionnaire; see Appendix 1.

5.8.3 Questionnaire distribution

An official letter from the researcher's supervisor was sent to the president of Kuwait University explaining the study and requesting his approval for the researcher to undertake the fieldwork within Kuwait University; see Appendix 2. On April 1, 2006, the researcher was given the approval to conduct the study within the university premises. Statistics of registered students in every college were obtained from the Statistics Unit at the University. This enabled the researcher to define the sample in every college. The researcher arranged for meetings with the vice deans within the colleges to explain the purpose of the study and to obtain permission to access the defined sample in each college. It was decided to approach students in normal classroom sessions to ensure access to a large number of students and a higher completion rate at both reasonable cost and within a reasonable time frame. Babbie (1973, p.159) emphasises that "it may be appropriate to administer the questionnaire to a group of respondents gathering at the same place at the same time". He adds that the appearance of a research worker, either delivering the questionnaire, picking it up, or both, seems to produce a higher completion rate and lower costs than straightforward mail surveys. Therefore, arrangements were made in every college for questionnaire distribution and collection within classroom sessions. At later stages, other arrangements were made regarding the reservation of computer labs for the usability testing and focus groups. Between April and June 2006, the researcher was able to distribute the questionnaires to all the colleges within the university and collect them after completion, with a response rate of 86.8%.

5.8.4 Website usability testing and focus groups

5.8.4.1 Usability testing design

The usability testing was used to assess the usability of the Kuwait e-government website. It was designed on A4 paper for respondents to follow and complete; see Appendix 3. The detailed structure of the testing is explained below.

On the first page of the testing paper, a brief introduction was provided to inform the participants about the aim of the session and its structure into three main sections. In

section one, participants were asked to perform a series of tasks. Krug (2005, p.133) points out that usability testing usually includes a set of structured tasks performed by a representative sample of users on the website. Typically, about six to twelve tasks should be developed to provide sufficient coverage of the information on the website (Battleson, Booth & Weintrop 2001, p.191; Fuller & Hinegardner 2001, p.341; Mack *et al.* 2004, p.19; McMullen 2001, p.9). In light of these recommendations, the participants were asked to perform 11 tasks on the Kuwait e-government web site. The selected tasks were planned to take respondents about 30 minutes to perform. The goal behind this exercise was to familiarise the participants with the website and examine some of the links, rather than observing the participants.

Usability testing often includes questionnaires covering the user's background and experience and inquiring about their impressions of the functionality of the website, as recommended by Tolliver *et al.* (2005, p.157). This study used an adapted version of the Questionnaire for User Interface Satisfaction (QUIS 5.0) by Chin, Diehl and Norman (1988) as an instrument to evaluate the e-government website. As mentioned in the Chapter Two, QUIS has recently been used successfully in many studies. Harper and Norman (1993) claim that QUIS has proved to be an excellent tool that guides the development of websites. QUIS focuses on user evaluation of a website's interface. It measures the user's satisfaction using a subjective rating scale, because user acceptance and satisfaction of a website are critical measures of a website's success (Chin, Diehl & Norman 1988, p. 213). In a number of studies, user information satisfaction has been used as a surrogate measure of system effectiveness (Ives *et al.* 1983, p.786). Ives *et al.* (1983, p.785) argue that the absence of information needed by the user from the system will make the user dissatisfied and cause him or her to look elsewhere. The system usage by its users will reflect whether the system is unreliable or data are inaccurate. Ives *et al.* (1983, p.785) note that, under certain conditions, system success could be measured by its usage.

Therefore, the QUIS 5.0 instrument by Chin, Diehl & Norman (1988) was adopted as a means for evaluating the website interface in section two of the test. The QUIS instrument attempted to investigate three areas of the website design: overall reaction to the website; website content; and website capabilities. Items in the original version of

QUIS were modified according to the context of the testing. Many items were deleted because they did not fit the context. Some terms were also changed, for example 'system' was changed to 'website' so as not to confuse the participants. Chin, Diehl and Norman (1988, p.213) mention that users preferred concrete adjectives for evaluation and the specific evaluation questions appear to be more accurate than general satisfaction questions. The amended QUIS had 24 questions and rating scales ascending from 1 on the left to 9 on the right with adjectives anchored at both endpoints, for example, slow/fast. The position of these adjectives shows that the scale goes from negative on the left to positive on the right, as recommended by Chin, Diehl and Norman (1988, p.214). In addition, a question regarding the overall impression of the website was added, after the questionnaire items, using a 10 point scale from 1 being the worst to 10 being the best, in line with Pearrow (2000, p.336).

Chin, Diehl and Norman (1988, p.213) suggest that open-ended questions are essential in usability testing. Barnes and Vidgen (2003) support this view and claim that qualitative data drawn from the open comments of respondents support many of the features investigated in the quantitative findings. This adds richness and helps to explain what lies behind some of the patterns in the quantitative data. Thus, open-ended questions were added in the testing for respondents to express their views and add suggestions that could help in explaining some results from the quantitative data, as well as their ideas for improvement.

In section three of the testing, respondents were asked to provide demographic information about themselves and to indicate their Internet experience, as this would help in the data analysis.

5.8.4.2 Focus group design

Focus groups are recommended in a number of studies (for example, Clark (2004) and Battleson, Booth and Weintrop (2001)) to be conducted after usability testing in order to gain detailed information about the users' experience, opinions and feelings (Krug 2005, p.133). A focus group guide was designed to seek the clarification necessary to

gain full understanding about different issues regarding e-government services and the website. In particular, such issues included the advantages and disadvantages gained, cultural issues, and trust issues (see Appendix 4 for focus group guide).

5.8.4.3 Conducting usability testing and focus groups

All instructions and questions in the usability testing and focus groups were translated into Arabic, as they were designed in English. Again, a translator was consulted to ensure the accuracy of the translation.

As mentioned above, the questionnaire method was considered an appropriate channel in which to advertise both the usability testing and the focus groups. A brief description about the session was provided. Interested students were able to respond by entering their email address or any other contact details so that they could be reached to discuss their participation in such sessions. This also provided some indication as to how many participants might take part, which assisted in planning and organising these sessions.

In total, 168 respondents expressed an interest in participation; 139 gave their email addresses and 29 their mobile numbers. Because the respondents were in different campuses within the university, arrangements for the sessions in the computer labs were made on three campuses, Khaldiya, Keafan, and Al-Shuwaik. The time was fixed according to the availability of the computer labs and students' lunchtime. The respondents were contacted via email and sms text messages to ensure that all had an equal chance to participate, and to enable the researcher gauge the number of respondents who were willing to participate. The respondents were informed about the session times and asked to indicate their preferences. Unfortunately, 67 emails were returned as undeliverable due to errors with addresses; 21 replied declining participation; and 33 did not respond to the email or text messages. Only 31 responded with a choice of a session, thus confirming their participation. Although Nielsen (2000) recommends five participants in each session, the researcher organised up to eight participants for each session to allow for any "no-shows".

The first session was held on the Khaldiya campus, where only five of the eight participants attended. The second session took place on the Keafan Campus; only two attended and six were “no-shows”. It was decided to hold the last two sessions on the Al-Shuwaik campus, the largest campus with five colleges. For the third session, only four participants attended out of a potential seven, and for the last session none of the potential participants attended. Consequently, the researcher had to consult the Research and Statistics Consultation Unit at the Social Science College to arrange one more session. It was decided to use monetary incentives to encourage participation, in line with Stewart & Shamdasani (1990, p.55). It was planned to give five Kuwaiti Dinars (equal to 10 Pounds Sterling) to each participant. The Statistics Unit succeeded in recruiting 16 participants, although only 13 attended the last session. For detailed information about the participants, see Table 7.1 in Chapter Seven.

Prior to the arrival of the participants in each session, the researcher spent some time in the computer lab, where the testing and focus groups were to be conducted, to ensure the suitability of the settings, that the computers were in working order and that provisions were in place for digital recording, plus microphones in some sessions. This is recommended by many researchers, for example Morgan (1997), so that problems or obstacles that hinder the process are avoided. As the participants came to the sessions, they were welcomed, given the usability testing papers to follow and fill in, and instructed as to what to do. The testing papers were collected from participants as they finished, then the focus group sessions were started. Detailed findings of the sessions are presented in Chapters Seven and Eight.

5.8.5 Interviews

The Central Technical Body for Implementing Information Technology in Government Business was contacted to arrange interviews with two officials. The aims of the interviews were to obtain additional information about the e-government services in Kuwait and about the progress made in Kuwait regarding such services. Therefore, the aims of the research as well as the aims of the interviews were explained to justify the researcher’s request. Unfortunately, the researcher was then contacted to confirm the

date and time for one interview only. The interview was important in providing background information about the implementation of the e-government project in Kuwait to complete the picture of the study (see Appendix 5 for interview guide). The data collected were added to the literature about the implementation of e-government in Kuwait, which is found in Chapter Four.

5.9 Data Analysis

Quantitative and qualitative data, generated from the research methods, were analysed separately at different stages and then integrated for a complete picture. The quantitative data were coded and entered into the Statistical Package for the Social Sciences (SPSS), the most powerful tool for analysing quantitative data (UCLA 2006). Before starting the analysis process, it was important to screen and “clean” the data, for example, to check for errors (Pallant 2005, p.40). Data screening and cleaning involved a three-step process: checking for errors where values fall outside the range of possible values for a variable; locating errors; and correcting errors by referring to the original questionnaire. Qualitative data, on the other hand, were recorded, transcribed, translated into English, coded and analysed using ATLAS/ti, a qualitative data analysis software.

5.9.1 Survey analysis

The data analysis of the survey started with statistics to describe the characteristics of the sample used in the study. Frequencies were used to describe categorical and continuous variables and tell how many respondents gave each response. For the statements in the amended UTAUT model, where the level of disagreement is important, statements c, d, and h in Performance Expectancy, c, e, and f in Effort Expectancy, c in Peer Influence, and c, e, and f in Facilitating Conditions were reversed to prevent respondents from simply looking down a list of statements and choosing the same answer. In addition, Likert scores for the statements of the amended UTAUT model were calculated in order to suggest overall results for the statements. The Likert scores were calculated by multiplying the number of respondents for each preference

with the score for each statement, where 1=strongly disagree, 2= disagree, 3= slightly disagree, 4= neither agree nor disagree, 5= slightly agree, 6=agree, and 7= strongly agree, in line with Spacey (2004). For example, question 11, statement a, produced the following output:

$$\frac{(1 \times 17) + (2 \times 10) + (3 \times 35) + (4 \times 52) + (5 \times 141) + (6 \times 301) + (7 \times 324)}{880} = 5.83$$

The results were presented in tables and graph forms created in Excel. Moreover, a Chi-square test was used for a number of questions where uncertain results were reported in order to determine the significance of any difference between respondents with greater Internet experience and those with little Internet experience. According to Coolidge (2000, p.252) the Chi-square test is “one of the most popular non-parametric tests that involves the assessment of one or more independent variables, each with two or more levels of nominal or categorical data”. It is often used to analyse data that consist of counts and frequencies, and this is the case for respondents’ Internet experience.

Regression analyses are “statistical procedures that describe the relationship between an outcome (dependent, or response) variable and one or more explanatory (independent, or predictor) variables” (Chen 2005, p.1). The research objectives and the measurement scales of the outcome variable in the study determine the choice of the most suitable model amongst several regression models (Chen 2005, p.1; Hosmer & Lemeshow 2000, p.1). In relation to this research, the use of the amended UTAUT required an analysis that was able to test all the relationships between explanatory variables, outcome variables and the moderators, as well as testing the identified hypotheses. Moreover, as the e-government services were not widely known among the population in Kuwait, which means that they were not used by a large number of people, the intention and use of the services should be predicted by the explanatory variables identified in the amended UTAUT model. The binary outcome variables, behavioural intentions and use of e-government services also played an important role in determining the type of analysis. Therefore, logistic regression analysis was considered the most suitable and useful technique to be used in the analysis of the quantitative data generated from the questionnaire.

Hair *et al.* (2005, p.368) state that logistic regression is the preferred method for (two-group) binary dependent variables due to its robustness, ease of interpretation and diagnostics. In fact, logistic regression predicts a discrete (binary) outcome from a set of variables that may be continuous, discrete, dichotomous, or mixed (Tabachnick & Fidell 2001, p.517). In addition, based on the resulting model, predictions can be performed (Chen 2005, p.1, Kinnear & Gray 2004, p.387).

Logistic regression analysis has been widely used in disciplines like health sciences, social sciences and business, enabling investigators to predict which of the two categories a person is likely to belong to, such as disease/no disease or success/failure, given certain other information (Field 2000, p.163; Hair *et al.* 2005 p.169; Peng *et al.* 2002, p.259; Tabachnick & Fidell 2001, p.517). In other words, logistic regression, instead of using statistical distance or a linear function for classifying groups, estimates the probability that an individual is in a particular group. The effects of the explanatory variables on the binary outcome can be estimated and interpreted by investigators using the logistic regression method. This allows investigators to identify explanatory variables that significantly contribute to the probability of a person obtaining a binary outcome (Albright *et al.* 2004, p.834).

In this method, the regression coefficients are estimated and the non-linear model equations are constructed by the use of the maximum likelihood estimation technique. To estimate the regression coefficients, the iterative procedure is used in the application of the maximum likelihood estimation technique in a way that maximises the likelihood of data observed. In the iterative procedure, the value for initial parameters in the log likelihood functions, which determines the size change starts, and a re-estimation cycle of values to improve the model fitting follows. This procedure is repeated until the maximum likelihood estimates of the regression coefficients are reached (Chen 2005, p.13; Hosmer & Lemeshow 2000, p.8).

There are a number of different methods that can be used in the logistic regression analysis, such as “enter” and “stepwise” methods (Field 2000, p.168; Chen 2005, p.13). The “enter” method is the default method, where the regression model includes all the explanatory variables in one block. The stepwise methods include forward and

backward methods. In the forward stepwise method, based on the cut-off level (0.05 by default), the regression model adds variables one at a time. All variables that have significance higher than 0.05 are removed from the model. However, in the backward method, the logistic regression model includes all variables in one step and variables are removed one at a time as they do not meet the cut-off level.

In a logistic regression model, judgments concerning the significance of the explanatory variables are made through the use of the -2 log likelihood values. In the -2 log likelihood (-2LL), a Chi square statistic is used to assess the significance of logistic regression. It is also used to measure how well data are predicted by the model; the model predicts the data well when the value of the -2 log likelihood is low. Moreover, the likelihood ratio test can be performed within the model. It “compares the likelihood for the intercept only model to the likelihood for the model containing the explanatory variables within each analysis” (Chen 2005, p.13). If the p value is significant at a pre-determined level, the outcome variable is significantly predicted by at least one of the explanatory variables in the model. In addition, the model includes the use of the Wald statistic to ascertain whether a variable is a significant predictor of the outcome variable. Conclusions can be made by when the outcome is predicted by a specific explanatory variable at a p value for the Wald test less than the pre-determined significance level (Chen 2005, p.13; Field 2000, p.178-80).

A logistic regression model also allows for the interpretation of the effect of the $\exp(\beta)$ value, the odds ratio, of specific explanatory variables on the outcome variable. The interpretations of the odds ratio $\exp(\beta)$ indicate that a change in the odds results from a unit change in the explanatory variable (Chen 2005, p.13; Field 2000, p.182). The logistic regression model’s main focus is that the probability to obtain the binary outcome is estimated. It is a continuous measure that begins with zero and ends with one, forming an S-shaped curve. The values of explanatory variables and the regression coefficients determine the predicted value of the probability, which falls between zero and one (Chen 2005, p.14; Hair *et al.* 2005 p.356). A respondent’s placement in the “yes” or “no” groups depends on the probability he/she obtains. If the probability of a binary outcome is greater than or equal to a pre-determined cut-off point, then the respondent is categorised into the “yes” group; or if it is less than the pre-determined

cut-off point, that respondent is placed into the “no” group (UCLA 2006). Therefore, when the predictive results and actual observations are compared, the prediction accuracy for the “yes”, “no”, and combined groups are calculated. As highly recommended in the literature, adjusting the cut-off point for predicting the binary outcome either upward or downward is necessary for the increase of the “specificity (accuracy of the prediction results for the no group) or sensitivity (accuracy of the prediction results for the yes group) of the model equation” (Chen 2005, p.4).

Logistic regression has the capability to assess the model’s prediction power and to perform future predictions. The predicted results can be used as criteria to judge the accuracy of the classifications. The classifications use a cross-tabulating method, 2x2 tables, where the predicted and the actual responses are categorised and consequently, the accuracy of the classification results are indicated (Chen 2005, p.14).

The model’s goodness of fit is assessed by the pseudo R-squares, available in the logistic regression model. They measure the success of the model in explaining the variations in the data. This shows how much of the variation in the outcome variable is accounted for by the explanatory variables (Chen 2005, p.15; Field 2000, p.130).

Logistic regression, however, has two serious drawbacks. First, it is not possible to show that the error terms are normally distributed because the response variable has only two possible values, 0 and 1, and this violates the regression assumption, which requires normal distribution of error terms. The second problem is that when values are predicted to estimate the probability, values less than 0 or greater than one make no sense, because predicted values are only between 0 and 1 (Albright *et al.* 2004, p.835).

In this study, a forward stepwise logistic regression analysis was chosen to identify the explanatory variables contributing to predicting the respondents’ intentions and use of e-government services. Logistic regression has been proven to be a useful tool in studying explanatory variables that are significantly associated with the binary outcomes.

5.9.2 QUIS analysis

As with the surveys, data analysis of the QUIS responses started with statistics to describe the respondents' characteristics. Frequencies were used to describe categorical and continuous variables. Data ratings on a 1-9 point scale, used for the evaluation statements, were described in three sets, one to three being negative, four to six being in the mid range between positive and negative, and seven to nine being positive. In addition, Likert scores were calculated and given for each statement to provide the overall findings.

To identify differences between the Internet experienced respondents and the novice respondents regarding ratings of the evaluation statements, the Mann-Whitney U test was used. This was the most appropriate statistical technique, due to the small sample size. The Mann-Whitney U test is a non-parametric test that compares medians. It “converts the scores on the continuous variable to rank, across the two groups. It then evaluates whether the ranks for the two groups differ significantly” (Pallant 2005, p.291).

5.9.3 Qualitative data analysis

Data obtained from the focus groups and interviews were transcribed and translated into English, as original data were gathered in Arabic. ATLAS/ti was used to analyse all the qualitative data including those gathered from focus groups, interviews and open ended questions. ATLAS/ti is considered to be the premier software tool for analysing qualitative data (Woolf Consulting 2006). The strengths of the software supported its choice; these include: there are no limits in coding, so any amount of text can be coded as one unit; it has a visual networking tool for theory building that is fully integrated with the codes and the data; conceptual network displays can be manipulated; it is visually attractive and creative; and all features are on screen at once (Barry 1998; Woolf Consulting 2006). However, ATLAS/ti has some limitations, which include: loose structure; limited searching capacity; and files cannot be altered or annotated (Barry 1998).

5.10 Reliability and Validity

Reliability and validity need to be considered when determining how to measure intervention outcome (Clarke & Dawson 1999, p.95). Reliability is concerned with “issues of consistency of measure” (Bryman 2001, p.70), while validity refers to the “extent to which measures indicate what they are intended to measure” (Schutt, p.91). Clarke and Dawson (1999, p.95) claim that the reliability of an outcome measure is determined when the same results on repeated occasions are produced, and its validity is established when it measures what it purports to measure. They add that in mixed methods, cross-checking for internal consistency is essential for “within-method” reliability, and a degree of validity is necessary between methods. In this study, the reliability of the amended UTAUT scale and the amended QUIS scale was ascertained by measuring internal consistency, a method appropriate for scales with Likert type answers, as claimed by Spacey (2003, p.93). The most commonly used indicator of internal consistency is the Cronbach alpha coefficient, where “high correlations between alternative measures or large Cronbach alphas are usually signs that the measures are reliable” (Straub 1989, p.151).

Straub (1989, p.153) argues that the validity obtained in the original study is not necessarily obtained when a similar study is applied in a different context. Although the UTAUT is relatively new, it has proved to be a well-validated instrument in various studies, for example, Venkatesh *et al.* (2003) and Rosen (2005). Straub (1989, p.153) recommends that “the more format, order, wording and procedural setting of the original instrument is changed, the greater the likelihood that the derived instrument will lack validated qualities of the original instruments”. As amendments were made to the UTAUT model to match the context of this study, the construct validity becomes an essential issue. Construct validity is about whether the methodology suggested for an event really reflects that event or not. It can be assessed through various techniques (Straub 1989, p.150). In the case of this research, the likelihood ratio test within the logistic regression analysis indicates how well data are predicted by the model. Further, the validity between methods was examined by correlating the responses drawn from quantitative methods to the responses drawn from qualitative methods, as proposed by Straub (1989, p.157).

5.11 Ethical issues

Ethics refers to “the appropriateness of [the researcher’s] behaviour in relation to the rights of those who become the subject of [his/her] work, or are affected by it” (Saunders, Lewis & Thornhill 1997, p.109). Various ethical issues need to be considered while formulating the research plan. In this research, anonymity and confidentiality, which encourage the participants to give more open and honest responses, were strictly assured, as proposed by Collis & Hussey (2003, p.38). The research aims and objectives were explained to participants and efforts were made to ensure that participants understood the general aspects of the research. The principle of voluntary participation was also assured and individuals’ wishes were respected, despite the fact that the questionnaires were distributed in classroom sessions. Individual differences concerning the understanding and interpretation of questions were also respected and clarified as politely as possible.

5.12 Conclusion

The research model used in this study was adopted from the Unified Theory of Acceptance and Use of Technology (UTAUT) model. It takes into account performance expectancy, effort expectancy, peer influence, facilitating conditions and behavioural intention as direct determinants of intention and use of e-government services. The model also considers gender, Internet experience and type of academic course as moderators of the relationship between the determinants and intention and use behaviours. Based on the research model, hypotheses were formulated concerning all the relationships between various variables included in the model.

This chapter has provided an overview of the appropriate research strategies used in this study to achieve the aims and objectives set for the study. A mixed methods strategy, using quantitative and qualitative methods, was deemed most appropriate as it could ascertain various factors determining and/or influencing the adoption of e-government services. Therefore, it was decided to use a questionnaire survey, focus groups, usability testing, interviews, and open-ended questions methods in this study. The sampling

techniques for all methods were also explained and the pilot study of the questionnaire, which was undertaken before the actual distribution, was described.

The analysis of the qualitative and quantitative data was carried out using various analyses, such as logistic regression and the Mann-Whitney U test which provided some form of validity and reliability to the findings of this study.

Chapter Six

Questionnaire Analysis

6.1 Introduction

This chapter presents the findings of the quantitative data collected in the survey entitled *E-government: Attitudes and Perceptions Survey*. This chapter presents an overview of the characteristics of the survey respondents, in terms of gender and age, college of study, year of study and use of the Internet. This is followed by a measurement of the respondents' attitudes and perceptions towards e-government services on the basis of the amended version of the UTAUT statements, using descriptive analysis and chi-square tests. The reliability of the scales used in the UTAUT is also demonstrated, and a logistic regression analysis is presented showing which variables predicted respondents' behavioural intentions and use of e-government services. At the end of this chapter, a summary of the survey's main findings is provided.

6.2 Overview of respondents

The survey was completed by 880 respondents from a potential of 1,013, thus yielding a response rate of 86.8%; Table 6.1 shows the number of male and female respondents in every college who completed the questionnaire.

Table 6.1 Demographic research sample and number of responses

College	Female No.	Male No.
Graduate Studies	29	16
Law	26	19
Arts	67	32
Science	78	33
Health Sciences	53	17
Engineering	56	61
Business	70	29
Social Sciences	77	25
Education	120	15
Women	24	0
Islamic Studies	15	18
Total	615	265
Grand total	880	

6.2.1 Gender and age

In the first section of the questionnaire, respondents were asked to provide some personal information. About two thirds (69.8%) of respondents were female and one third (30.2%) male. As shown in Figure 6.1, more than half (61.7%) of all respondents were aged 19-21, whilst about a quarter (24%) were either 18 or 22 years. There was very little difference between the respondents in terms of their age because university students are usually in the same age range.

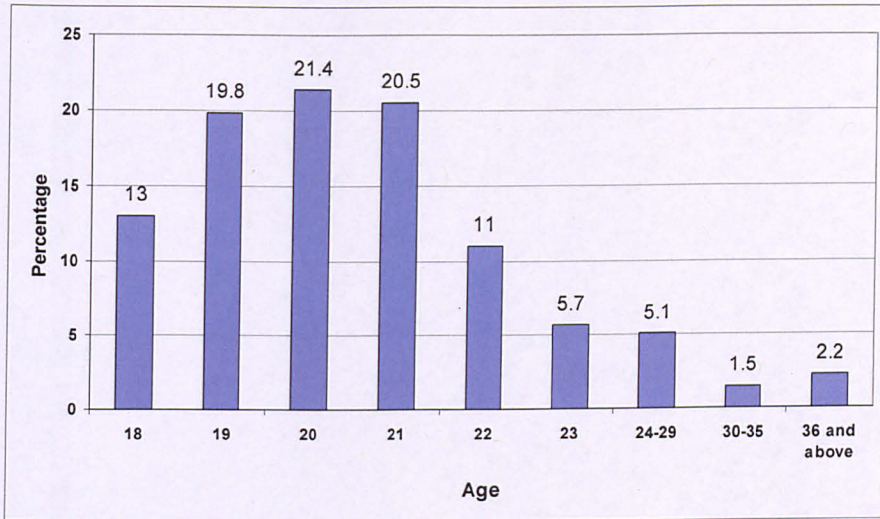


Figure 6.1 Age of respondents

6.2.2 College

Respondents were asked to indicate the college they were registered with. The largest number of respondents were from the College of Education (15.3%) and the smallest from the College of Women (2.7%); see Table 6.2. For research purposes, colleges were grouped as follows: humanities, sciences and “mixed”, with each of these groups comprising about one third of respondents; see Figure 6.2. The humanities group comprised colleges of Arts, Law, Social Sciences and Islamic studies; the science group comprised colleges of Science, Health Sciences and Engineering; and the mixed group comprised colleges of Graduate studies Business, Education and Women.

Table 6.2 Distribution of respondents in colleges

College	No.	%
Graduate studies	45	5.1
Law	45	5.1
Arts	99	11.3
Science	111	12.6
Health Sciences	70	8
Engineering	117	13.3
Business	99	11.3
Social Sciences	102	11.6
Education	135	15.3
Woman	24	2.7
Islamic Studies	33	3.8
Total	880	100

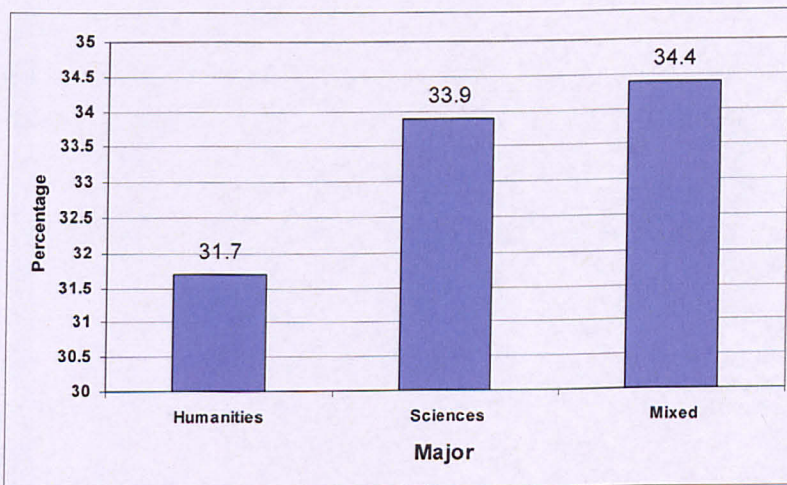


Figure 6.2 Groupings of colleges

6.2.3 Year of study

Respondents were asked to indicate their year of study. Figure 6.3 shows that three quarters (75%) of respondents were in their second, third and fourth years, with about a

quarter of respondents in each year. The remaining quarter included respondents in their first year of study (17%) and some doing postgraduate studies (5.2%); only 2.6% were in their fifth and sixth year of study, referred to as “others”.

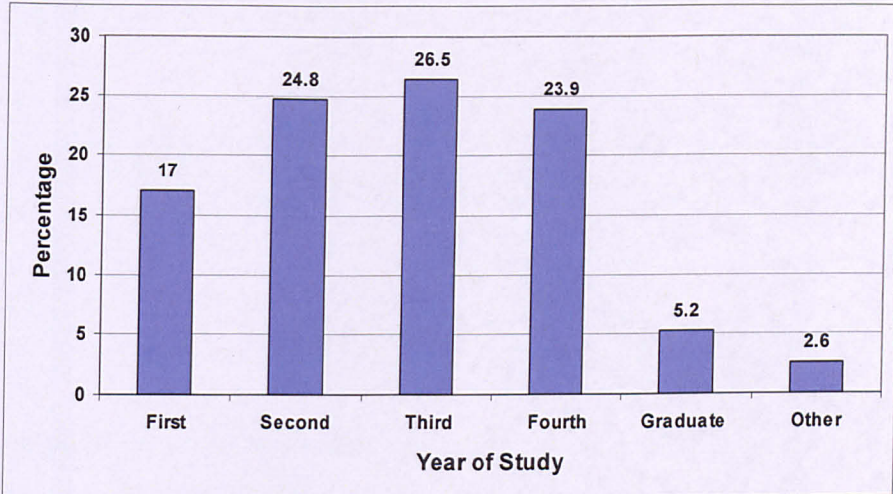


Figure 6.3 Year of study

6.2.4 Internet Use

Respondents were asked to specify the length of time they had been using the Internet. As shown in Figure 6.4, the majority (73.6%) had been using the Internet for more than three years, the longest period of time stipulated in the questionnaire, whilst less than 10% had been using it for less than a year and about 15% for more than one but less than three years.

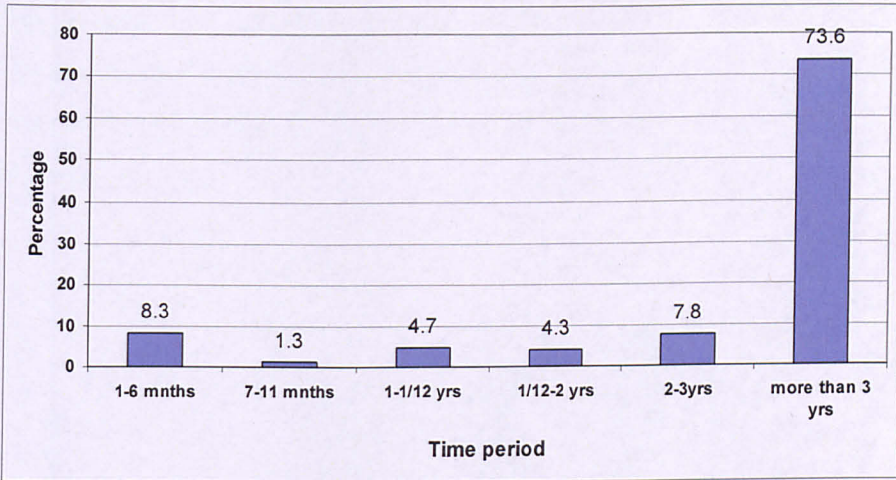


Figure 6.4 Internet use: history

Respondents were asked to indicate how often they used the Internet. As shown in Figure 6.5, about half (43.2%) of all respondents used the Internet on a daily basis, whilst about one third (31.8%) used it two to three times a week. A quarter (25%) of respondents indicated that they used the Internet less frequently, between once a week and less than once a month.

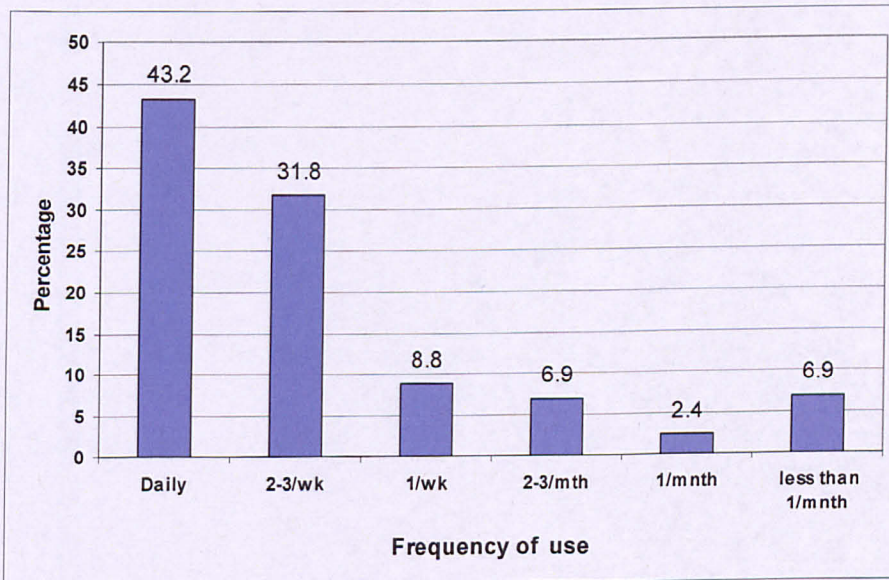


Figure 6.5 Internet use: frequency

Respondents were asked to rate their proficiency in using the Internet. Figure 6.6 shows that over two thirds (70.4%) of respondents rated their Internet proficiency to be either good, very good or excellent, whilst less than 30% rated their Internet proficiency to be only fair or poor.

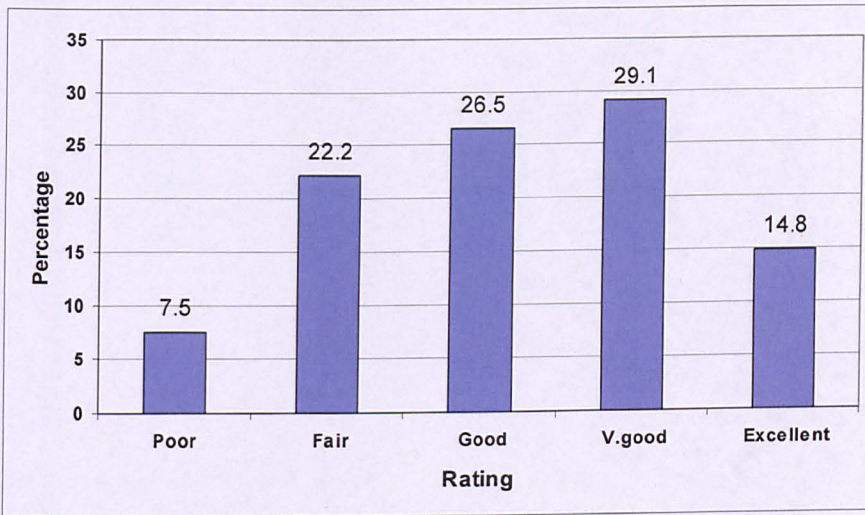


Figure 6.6 Internet use: proficiency

Respondents were also asked to indicate the purpose for which they used the Internet. As shown in Figure 6.7, the majority (90%) of the respondents used the Internet for finding information, generally for education purposes. About two thirds (69%) used it also for e-mail and likewise for entertainment, whereas more than a quarter (27.2%) used it for online shopping. Only 14.7% of respondents used the Internet for other purposes, such as group discussions, course registration and website design. This suggests that the majority of respondents are more likely to use the Internet for informative purposes, such as finding information related to education, that do not require them to reveal their personal data.

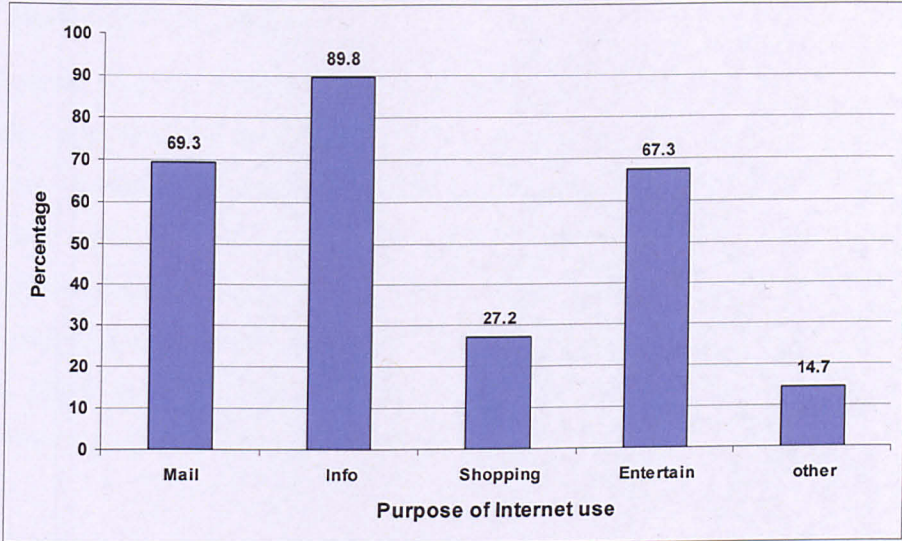


Figure 6.7 Internet use: purpose

6.3 Use of e-government services

Respondents were asked whether they used e-government services. More than three quarters (76.4%) of respondents indicated that they did not use e-government services, whilst a quarter (23.6%) did use them; see Figure 6.8. This suggests that e-government services are not widely used and probably not known to respondents.

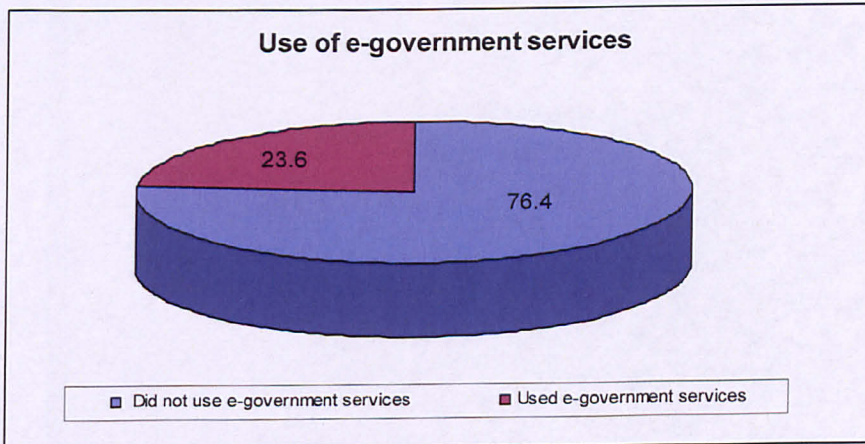


Figure 6.8 Use of e-government services

6.4 The UTAUT constructs

In this section of the questionnaire, respondents were asked to describe their attitude towards e-government services in relation to the amended UTAUT model, which measures performance expectancy, effort expectancy, peer influence, facilitating conditions and behavioural intentions. Such attitudes were examined through positive and negative statements using a Likert scale. The Likert scale, which is mostly used for measuring people's attitudes, measures the extent to which a person agrees or disagrees with a given question. Likert scale scores were also calculated in order to compare respondents' perceptions of each construct.

6.4.1 Performance expectancy

For the statements in the section on performance expectancy of using e-government services, respondents were asked about their ability to access e-government services. As shown in Figure 6.9, the majority (86%) of respondents agreed (from "slightly" to "strongly") that the e-government website would enable them to access government services and information 24hours/day, 7days/week, with only 6% responding neutrally and 7% disagreeing (from "slightly" to "strongly"). The Likert score was 5.83, suggesting respondents' agreement with the availability of services round the clock through the e-government website.

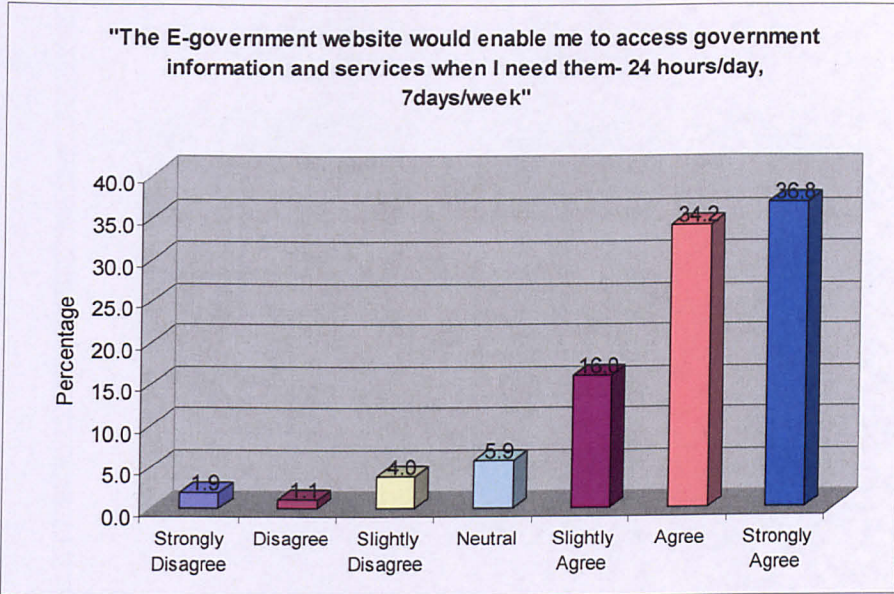


Figure 6.9 Accessing government information and services, 24 hours/day, 7days/week

Respondents were asked to indicate their view on the statement “using online services would enable me to carry out my business with government quickly and efficiently”. As shown in Figure 6.10, more than three quarters (75.5%) of respondents agreed (from “slightly” to “strongly”), with a small number (8.5%) disagreeing (from “slightly” to “strongly”), only 6% of respondents were neutral to the statement. The Likert score of 5.63 shows that respondents thought that carrying out their business with the government electronically could be quicker and more efficient as this might save them time normally wasted in visiting government organisations.

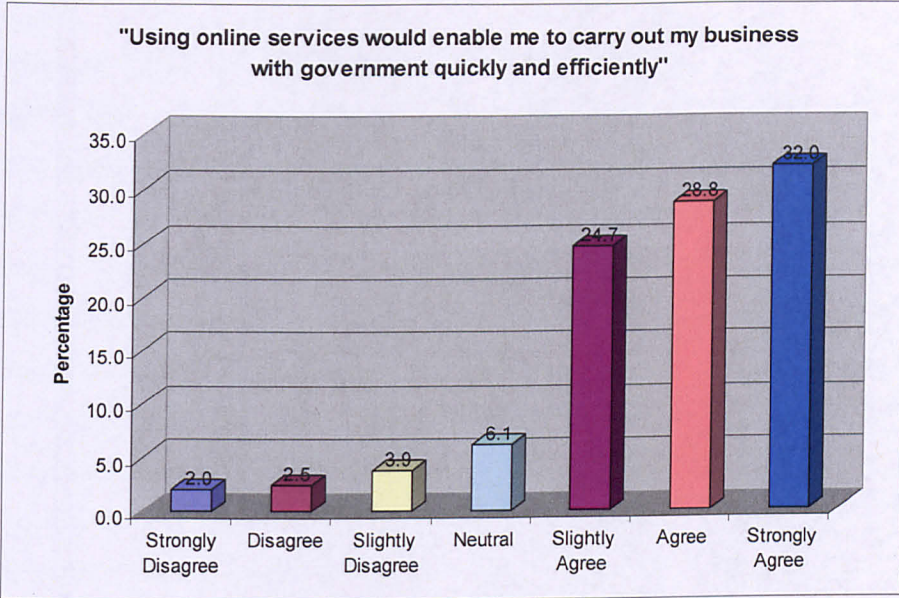


Figure 6.10 Quick and efficient services

Responses to the statement “online services would make my communication with the government difficult” indicate, as shown in Figure 6.11, that about two thirds (63%) of respondents disagreed (from “slightly” to “strongly”) whilst 19% agreed (from “slightly” to “agreed”) with the above statement. The responses by the sample population gave a Likert score of 2.98, thus indicating that online services would make communication with the government easy rather than difficult.

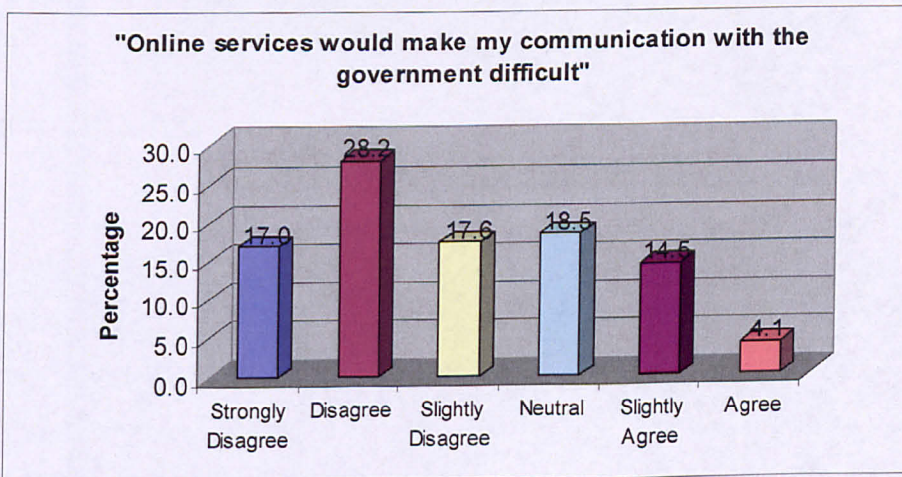


Figure 6.11 Difficult communication with the government

As shown in Figure 6.12, 41% of the respondents disagreed (from “slightly” to “strongly”) with the statement “I think interacting with the government face-to-face would be preferable to interacting online”, with a similar percentage agreeing (from “slightly” to “strongly”) and 18% showing their neutrality to the statement. The statistical evidence gives a Likert score of 3.91 to support this. The results show that the respondents were uncertain whether they would prefer online or face-to-face interaction with the government. The chi-square results indicate that there is a significant difference between those with greater Internet experience and those with little experience in terms of interacting with government online ($df=6, P \leq 0.05$). It can be assumed that respondents with little Internet experience did not trust the Internet to carry out their business with the government; instead, they preferred face-to-face interaction.

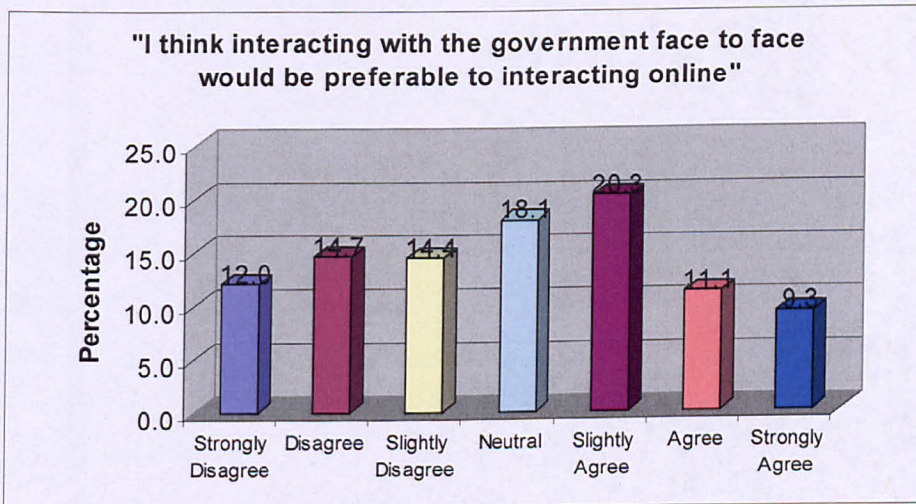


Figure 6.12 Preference of face-to-face interaction

Respondents largely agreed with the statement “I would find online services useful as there is a wide range of information and services available on the e-government website, just ‘one click’ away”. Figure 6.13 shows that an overwhelming majority (86%) agreed (from “slightly” to “strongly”) while only 6.6% disagreed (from “slightly” to “strongly”) with the statement. The Likert score of 5.72 suggests that

online services would be useful to users as respondents thought that a wide range of information and services is available on the e-government website.

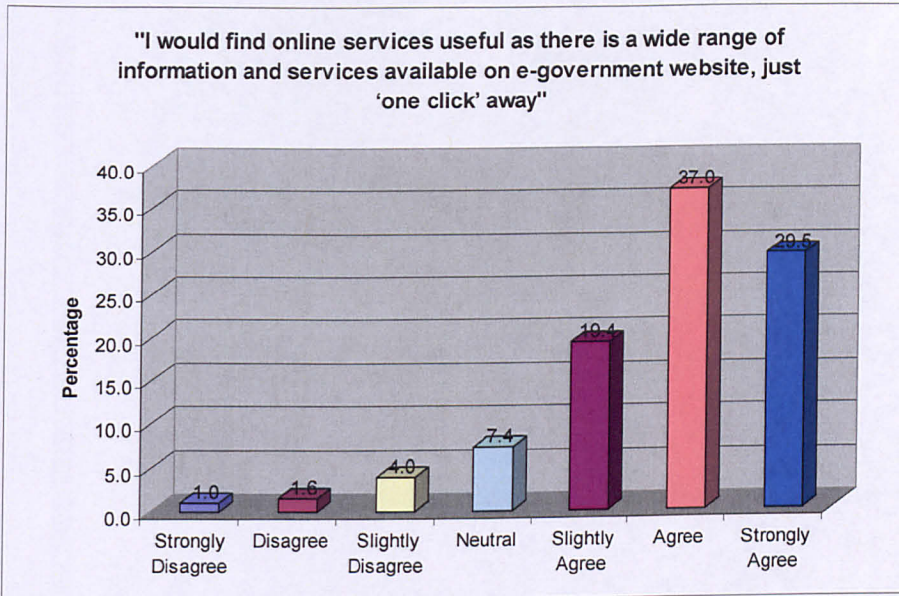


Figure 6.13 Availability of useful information and services

Figure 6.14 shows that the majority (85%) of the respondents agreed (from “slightly” to “strongly”) with the statement that “online services would improve the quality of traditional services provided” whereas only about 6% disagreed (from “slightly” to “strongly”), with about 9% being neutral, giving a Likert score of 5.66. These results indicate that the online services are expected to improve the quality of the services traditionally available.

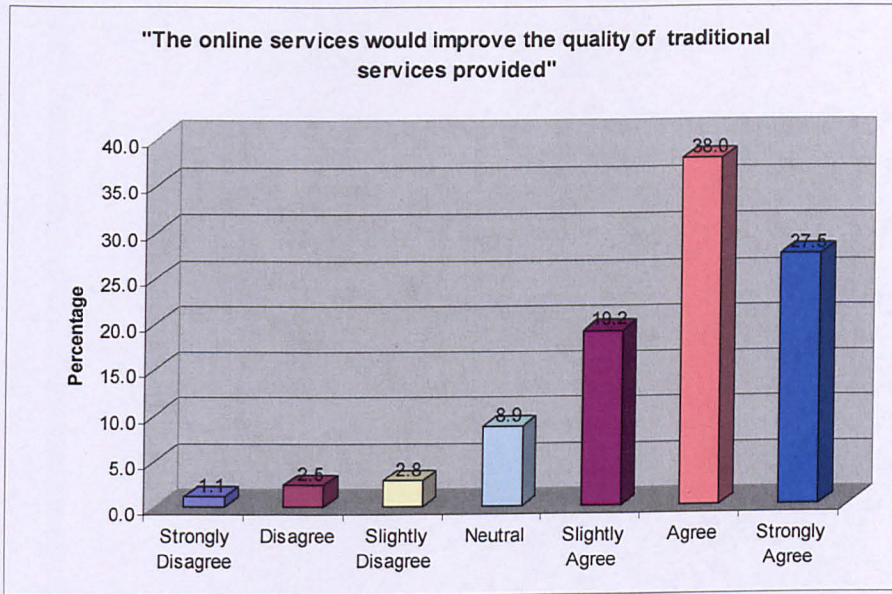


Figure 6.14 Improving the quality of traditional services

It is apparent from Figure 6.15 that the overwhelming majority (86%) of respondents agreed (from “slightly” to “strongly”) with the statement “The e-government website would give all citizens an equal chance to carry out their business with government”, whereas only 6% disagreed (from “slightly” to “strongly”) with the statement, giving a Likert score of 5.76. The results suggest that the respondents thought that the e-government website would make all citizens equal when it comes to availing themselves of services or to carry out tasks required of them.

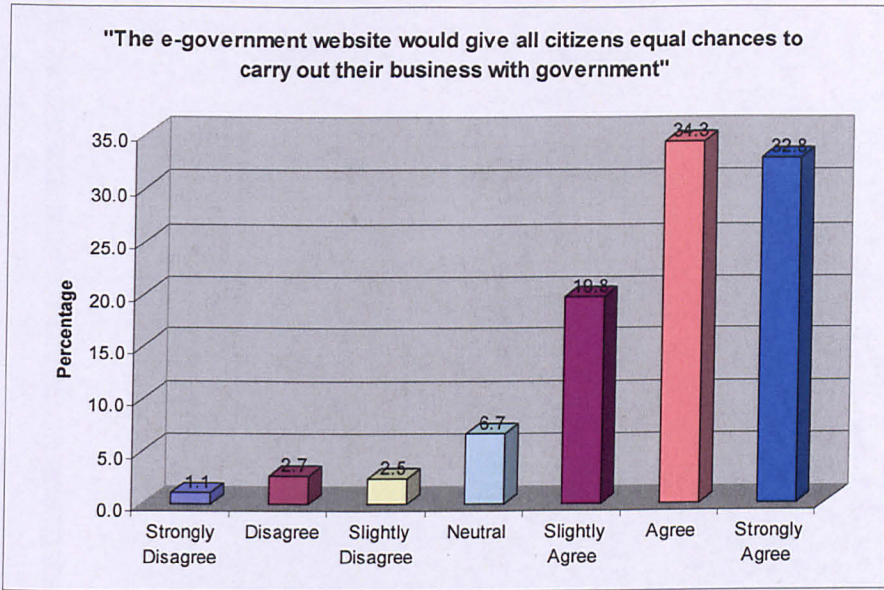


Figure 6.15 Providing citizens an equal chance

Respondents were asked to indicate their views regarding the statement "I don't think that using online services would save me time". Figure 6.16 shows that more than three quarters (81%) of the respondents disagreed (from "slightly" to "strongly") with the statement while only about 9% agreed (from "slightly" to "agreed"). A Likert score of 2.3 suggests that respondents believed that using online services would save a lot of time.

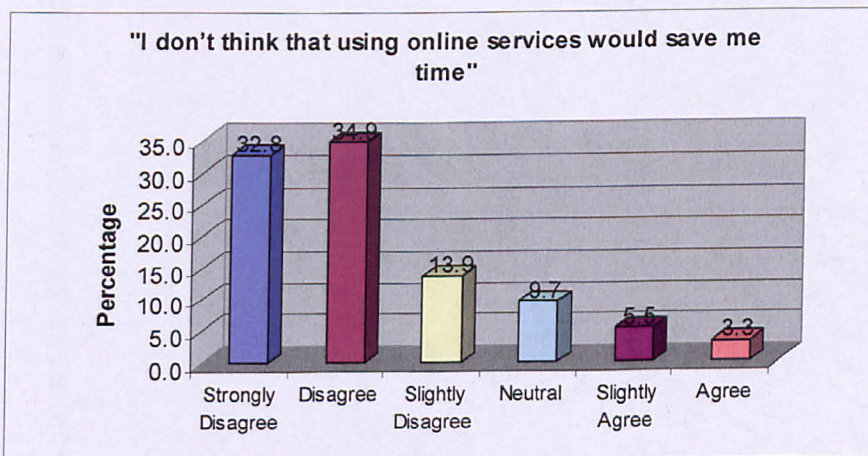


Figure 6.16 Online services would not save time

6.4.2 Effort Expectancy

Respondents were asked to indicate if they “would find it easy to learn how to use online services”. Figure 6.17 shows that the majority (86%) of the respondents agreed (from “slightly” to “strongly”), with a small number (8%) disagreeing (from “slightly” to “strongly”) and about 7% giving neutral answers. A Likert score of 5.61 suggests that respondents thought they would find it easy to learn how to use online services. This result attributes to respondents’ Internet experience.

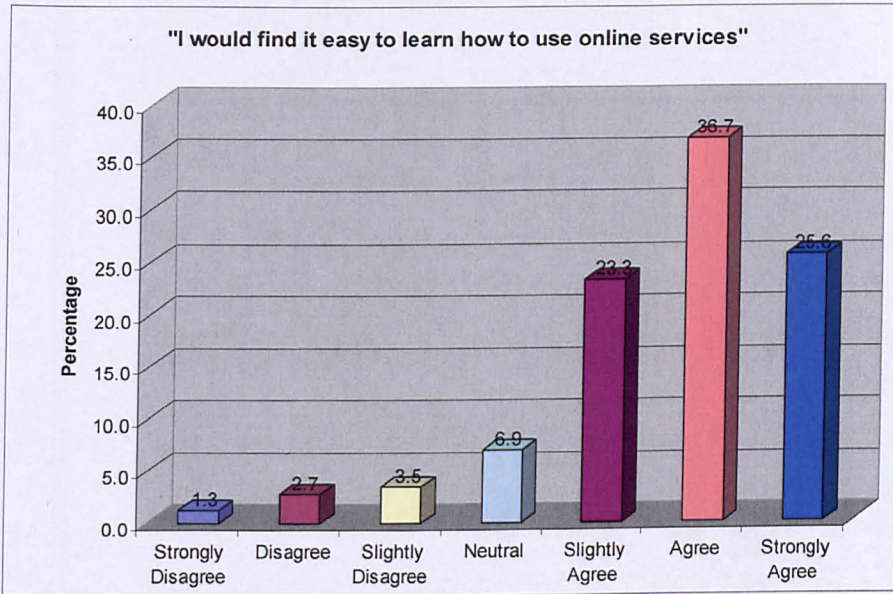


Figure 6.17 Easy learning of using online services

It can be seen from Figure 6.18 that more than 90% of the respondents agreed (from “slightly” to “strongly”) with the statement “I would find it easy to use online services if support is provided”, while only 3% disagreed (from “slightly” to “strongly”) and about 6% gave neutral responses. The Likert score was 5.93, suggesting that the majority of respondents found that availability of support would make using online services easy for them.

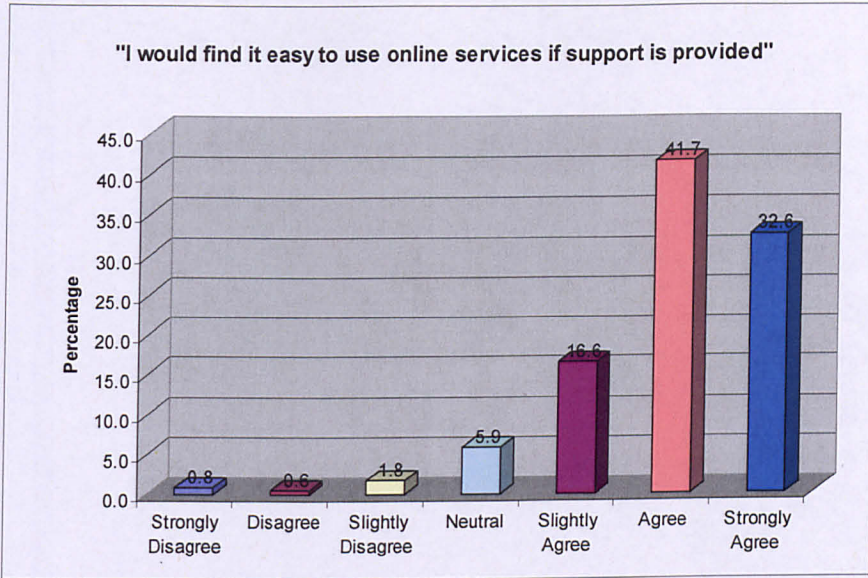


Figure 6.18 Finding online services easy to use if support is provided

Respondents were asked to specify whether they “would find it difficult to become skilful in using online services”. Figure 6.19 shows that about two thirds (66%) of the respondents disagreed (from “slightly” to “strongly”), whereas about one third (32%) agreed (from “slightly” to “strongly”) with the statement. A Likert score of 2.92 suggests that respondents expected that they would find it easy to become skilful at using online services. The chi-square results indicate that there is a significant difference between those with greater Internet experience and those with little experience in terms of becoming skilful using e-government services ($df=5, P \leq 0.005$). This was expected, as those with little Internet experience stated that they occasionally use the Internet for information only.

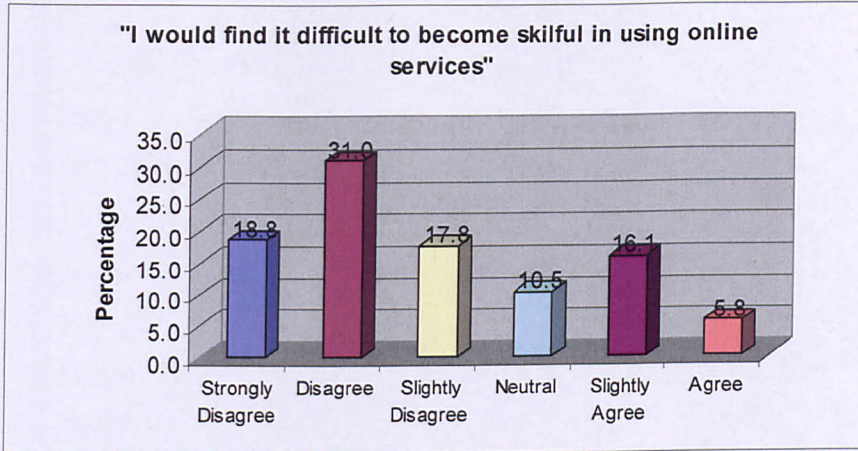


Figure 6.19 Difficulty of becoming skilful in using online services

Respondents were asked to indicate if they “would find online interaction with government clear and easy”. Figure 6.20 shows that about three quarters (74%) of the respondents agreed (from “slightly” to “strongly”) with this and only 11.5% disagreed (from “slightly” to “strongly”), whereas about 15% of them gave neutral answers. A Likert score of 5.26 indicates that respondents thought they would not face any problem in interacting with government electronically.

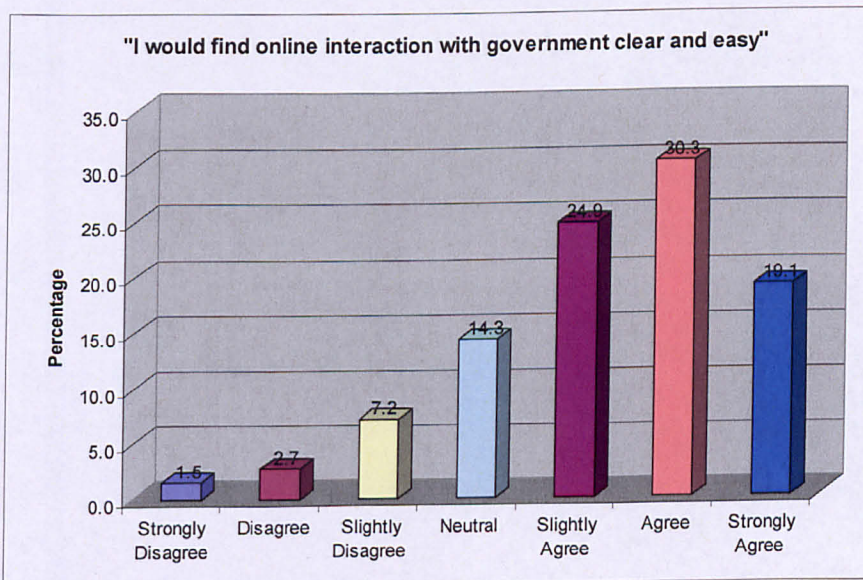


Figure 6.20 Clear and easy interaction with government

As seen in Figure 6.21, nearly half (43%) of the respondents disagreed (from “slightly” to “strongly”) with the statement “I would find it easier to talk face-to-face with someone rather than use online services”; more than one third (36.5%) agreed (from “slightly” to “strongly”) whereas 20% were uncertain about the statement. A Likert score of 3.79, the same as for performance expectancy, suggests that respondents were uncertain about finding using online services easier than face-to-face communication. Similar chi-square results were reported, indicating that there is a significant difference between those with greater Internet experience and those with little experience in terms of interacting with government online ($df=6, P \leq 0.05$).

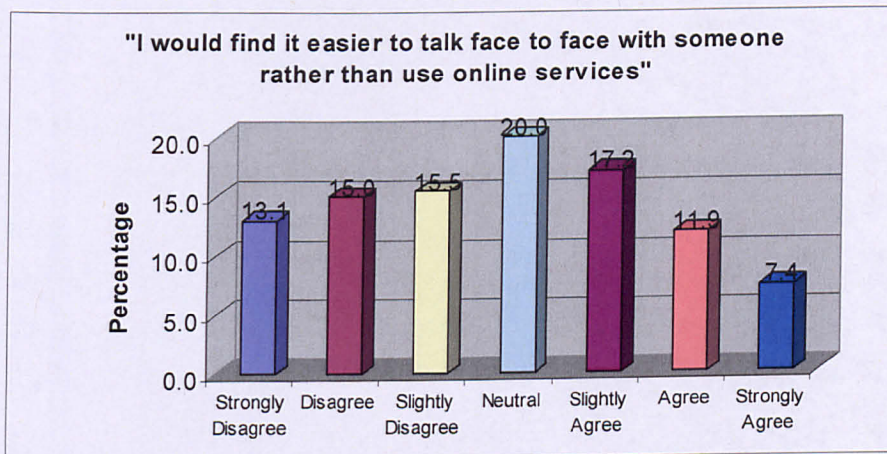


Figure 6.21 Finding it easier to talk face-to-face with someone rather than using online services

Respondents were asked to indicate their view regarding “I would find carrying out my business with government online too time consuming”. As shown in Figure 6.22, more than three quarters (79%) of respondents disagreed (from “slightly” to “strongly”), while only 9% agreed (from “slightly” to “strongly”) and about 11.5% were uncertain about the statement. A Likert score of 2.42 suggests that carrying out business with government online would be time-saving rather than time-consuming.

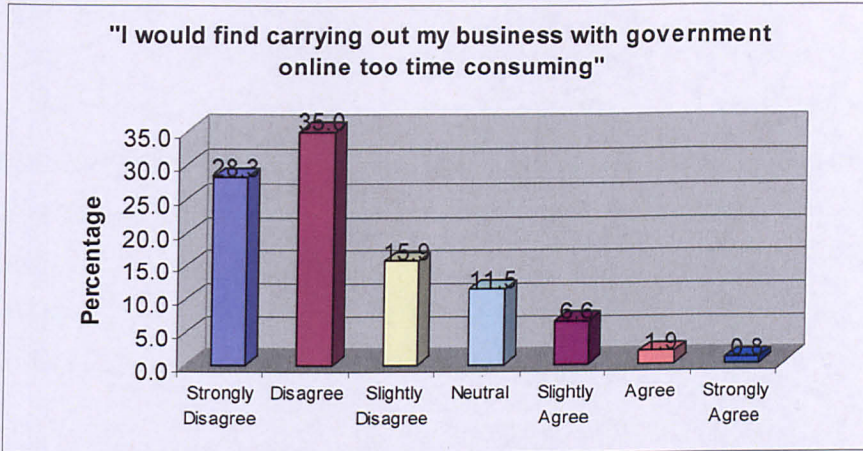


Figure 6.22 Carrying out online services is too time consuming

It can be seen from Figure 6.23 that the majority (87%) of respondents agreed (from “slightly” to “strongly”) with the statement “Overall, I believe that online services are easy to use”, while only 7% disagreed (from “slightly” to “strongly”) and a similar percentage gave a neutral answer. The Likert score was 5.67, suggesting that many respondents expected that they would find online services easy to use.

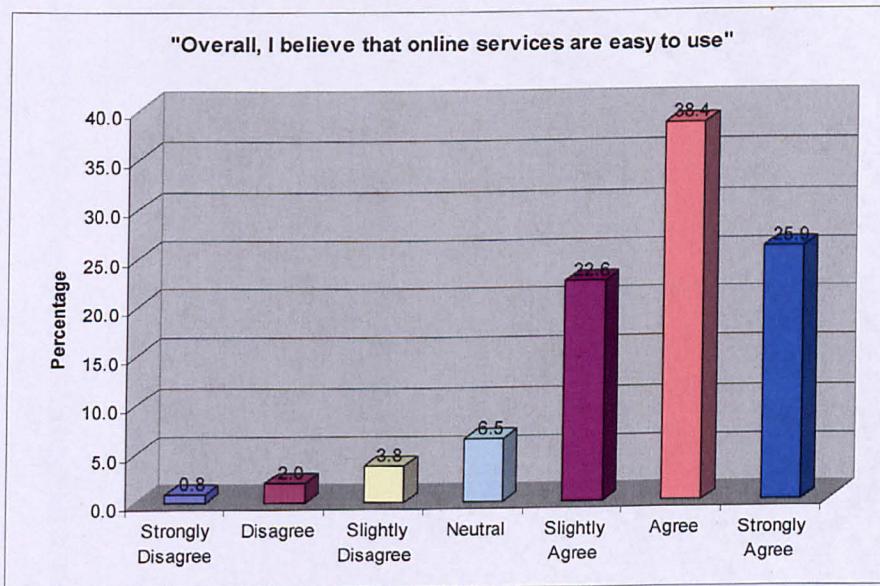


Figure 6.23 Overall, online services are easy to use

6.4.3 Peer influence

Three statements investigated the influence of peers on an individual's adoption of e-government services. Respondents were asked to indicate their view regarding the statement "I would only use online services if I needed to". Figure 6.24 shows that the overwhelming majority (91%) of respondents agreed (from "slightly" to "strongly"), whilst only about 5% disagreed (from "slightly" to "strongly") and 4% were uncertain, giving a Likert score of 5.84. The results suggest that most of the respondents would use online services when they had a need to use them.

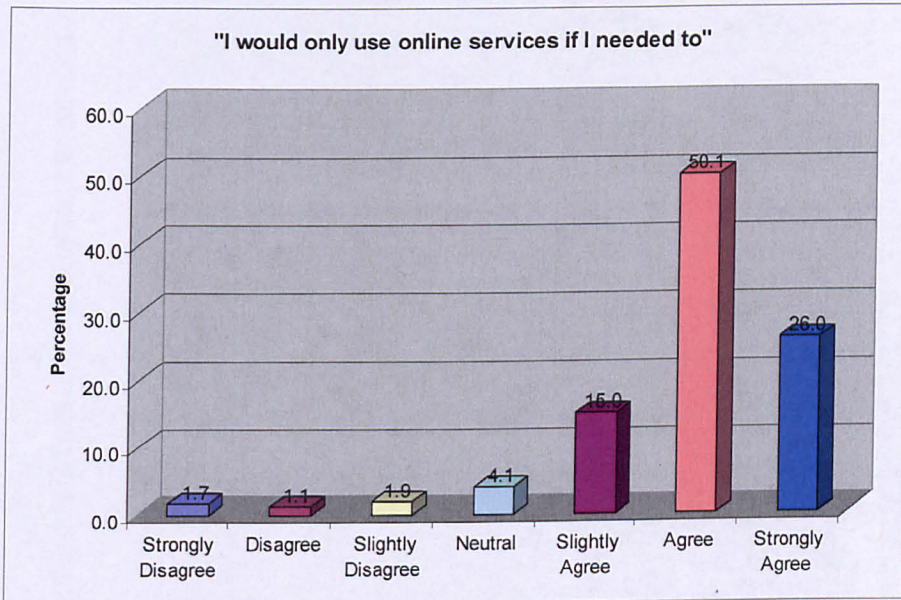


Figure 6.24 Use online services if needed to

In respect of the statement "I would be prepared to use online services even if no one else I knew was using them", Figure 6.25 shows that the majority (89%) of respondents agreed (from "slightly" to "strongly"), giving a Likert score of 5.77. The results show that the respondents were independent in deciding on their use of online services.

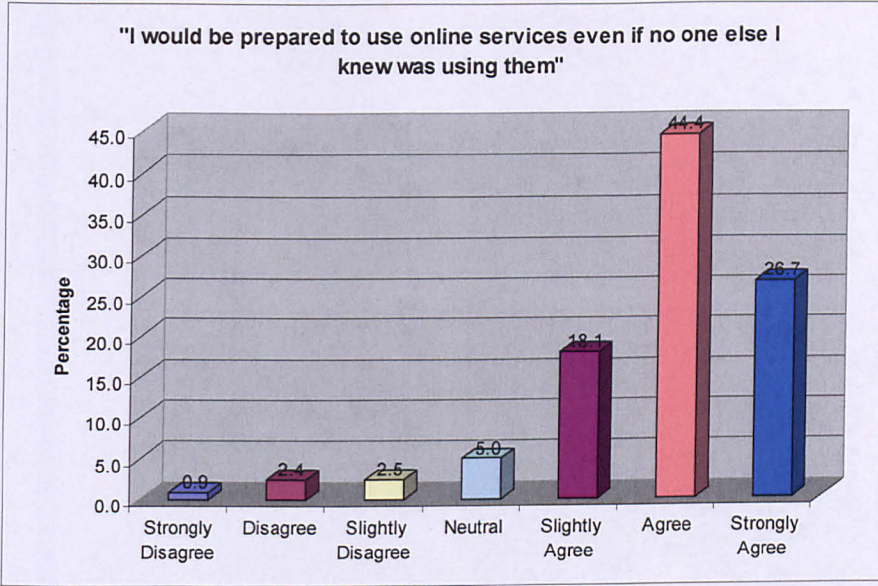


Figure 6.25 Using online services even if no one else used them

Figure 6.26 shows that (39%) of respondents disagreed (from “slightly” to “strongly”), with a similar percentage for those who agreed (from “slightly” to “strongly”) with the statement, and only 22% giving neutral responses. The Likert score of 3.92 suggests that respondents were uncertain whether they would be using online services only if friends used them or not.

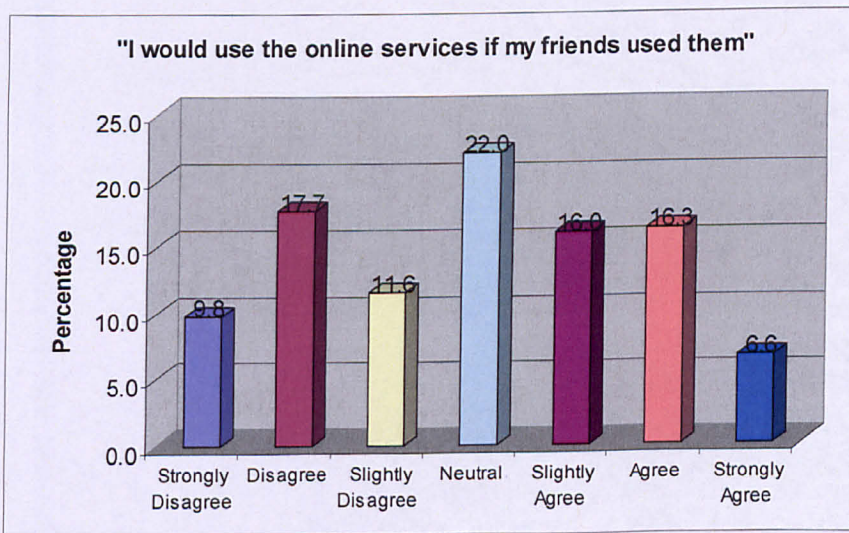


Figure 6.26 Using online services if friends used them

6.4.4 Facilitating conditions

In relation to facilitating conditions and the availability of resources, the majority (82.6%) of respondents indicated their agreement (from “slightly” to “strongly”) regarding having enough Internet experience to use online services, as seen in Figure 6.27. A Likert score of 5.45 was obtained, suggesting that respondents thought that they had enough Internet experience to enable them to use online services.

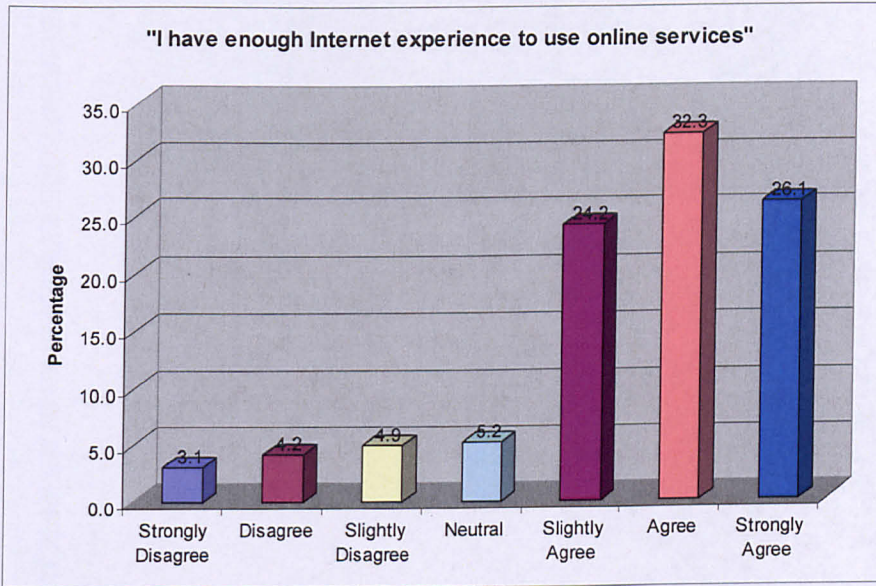


Figure 6.27 Having enough Internet experience to use online services

With regard to the statement “I have the resources necessary to use online services such as a PC, the Internet, etc.”, the majority (87%) of respondents agreed (from “slightly” to “strongly”) with the statement, giving a Likert score of 5.76; see Figure 6.28. The results suggest that the resources necessary for using online services were available to many respondents.

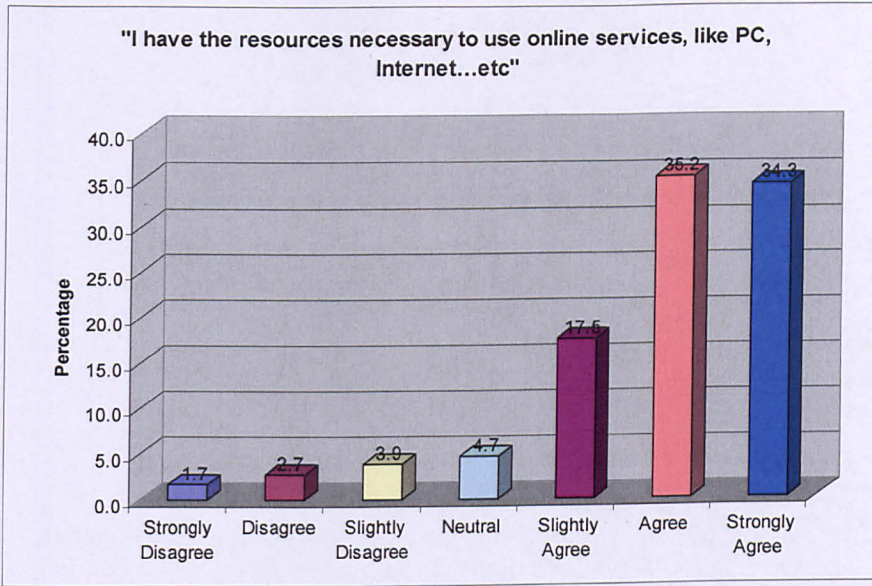


Figure 6.28 Having the resources necessary to use online services

Regarding the respondents' views of the statement "I would find it difficult to use online services because of lack of knowledge about them", Figure 6.29 shows that over half (51%) of respondents disagreed (from "slightly" to "strongly"), while 37% agreed (from "slightly" to "strongly"), and 12% were neutral in their answers. The Likert score of 3.54 indicates that respondents were uncertain about whether they would find it difficult to use online services because of a perceived lack of knowledge. The chi-square results also indicate that there is a significant difference between those with greater Internet experience and those with little experience in terms of interacting with government online ($df=6, P \leq 0.005$). It can be assumed that respondents with little Internet experience might not be interested in learning to use online services if knowledge were not provided. This indicates that if online services were under-marketed, people with limited Internet experience might not bother to adopt them.

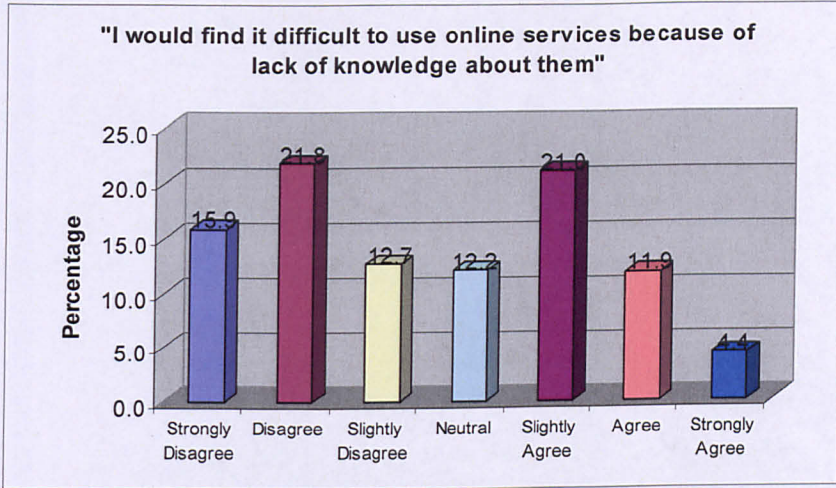


Figure 6.29 Finding it difficult to use online services because of lack of knowledge

When asked to indicate their view of the statement “If I were given the resources, opportunities and knowledge for online services, it would be easy for me to use such services”, it is apparent from Figure 6.30 that the majority (90%) of respondents agreed (from “slightly” to “strongly”). The Likert score of 5.96 suggests that respondents perceive that online services would be easy to use when resources, opportunities and knowledge about the services were provided for them.

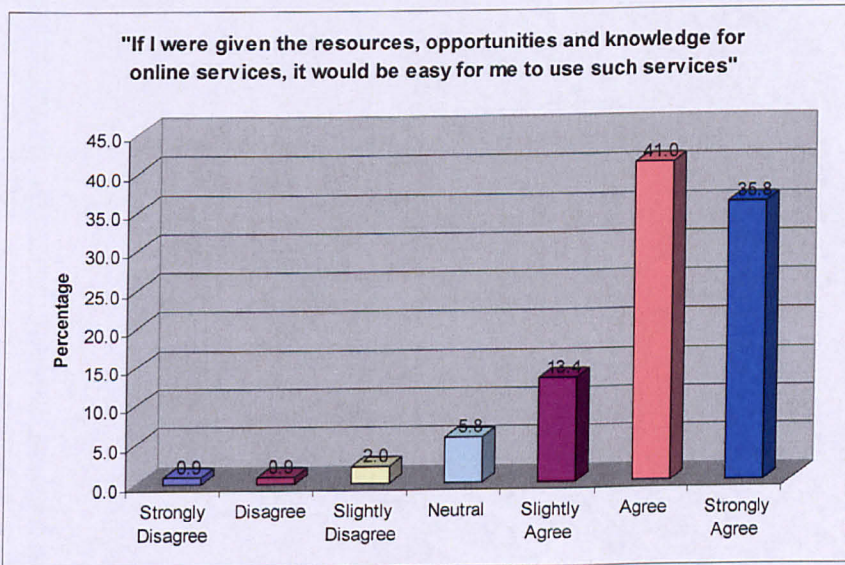


Figure 6.30 If given the resources, opportunities and knowledge, online services would be easy to use

Regarding the respondents' views of the statement "I would not like to carry out my business with government online", Figure 6.31 shows that over half (60%) of respondents disagreed (from "slightly" to "strongly"), with about 20% agreeing (from "slightly" to "strongly"), whereas 18.5% were neutral. A Likert score of 3.01 shows that the majority of respondents had a positive attitude and liked carrying out their business online whereas a substantial minority did not.

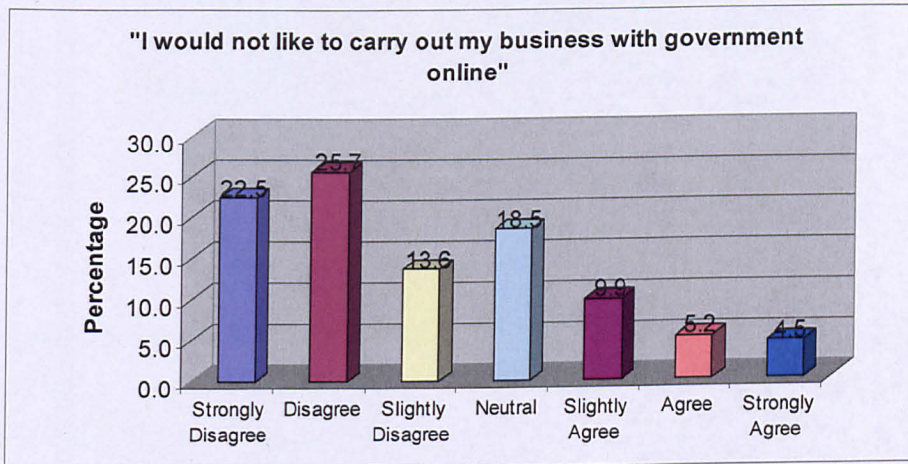


Figure 6.31 Do not like carrying out business with government online

Figure 6.32 indicates that over two thirds (68%) of respondents disagreed (from "slightly" to "strongly") with the statement "I would find it difficult to use online services due to lack of time", with 16% giving neutral answers. The Likert score was 2.80, suggesting that the respondents believed that time would not stand in the way of using online services.

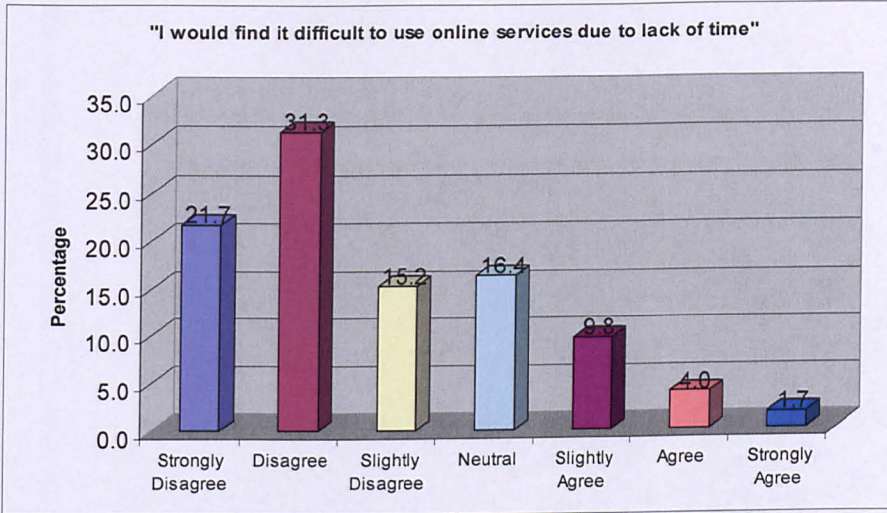


Figure 6.32 Finding it difficult to use online services due to lack of time

In respect of the statements “I think that using the online services would fit well with the way I like to get my business done” and “using online services would fit into my lifestyle”, Figures 6.33 and 6.34 show that just over three quarters (76% and 78% respectively) of respondents agreed (from “slightly” to “strongly”), giving Likert scores of 5.31 and 5.41 respectively. The results showed that the majority of respondents thought that using online services would fit the way they liked to conduct business and would fit well into their lifestyle.

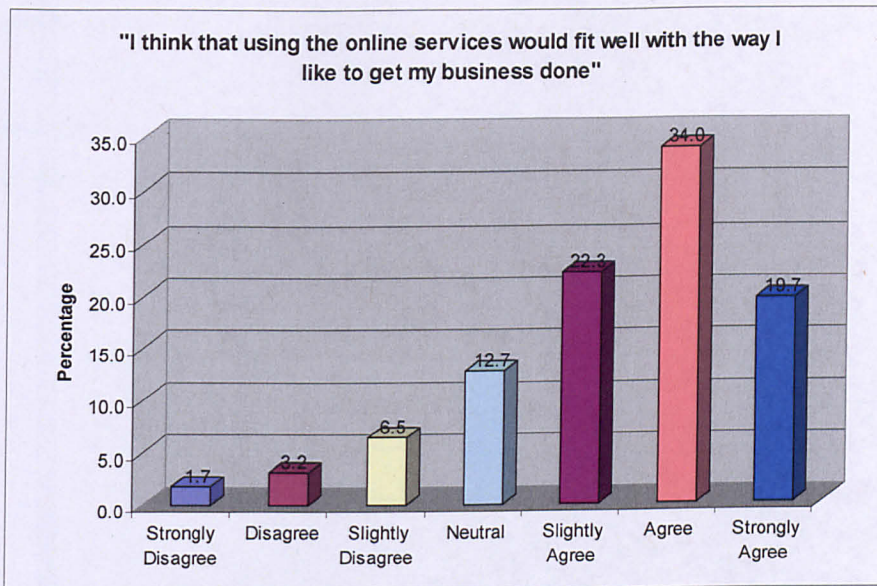


Figure 6.33 Fitting well with the way business is done

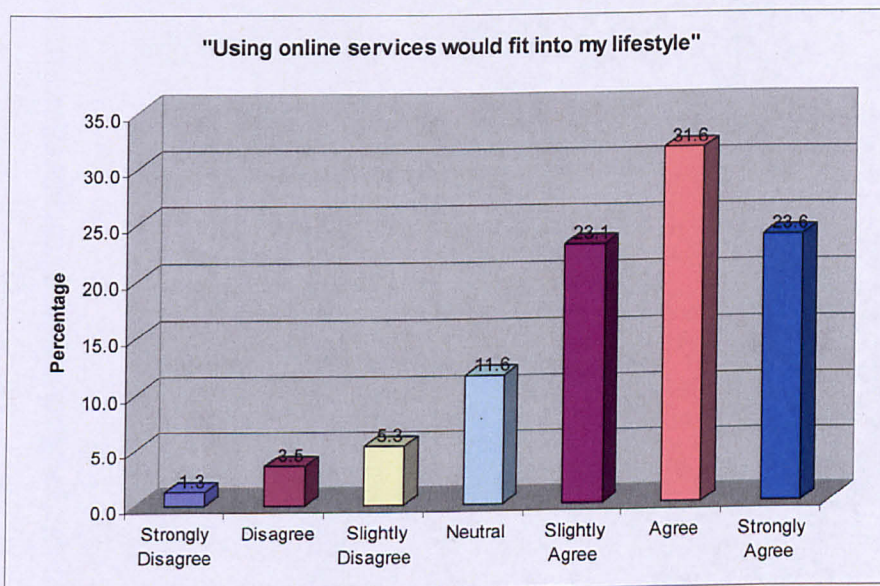


Figure 6.34 Fitting into life style

6.4.5 Behavioural intention

This section explores the respondents’ intentions to use e-government services in the future. Respondents were asked to indicate whether they intended to use the online services in the next four weeks. Figure 6.35 shows that nearly half (40.2%) of

respondents agreed (from “slightly” to “strongly”), whereas a quarter (27.4%) were neutral and 21% disagreed (from “slightly” to “strongly”). The responses to this statement gave a Likert score of 4.58, which suggests that respondents were uncertain whether they would use the services in the four weeks following the survey.

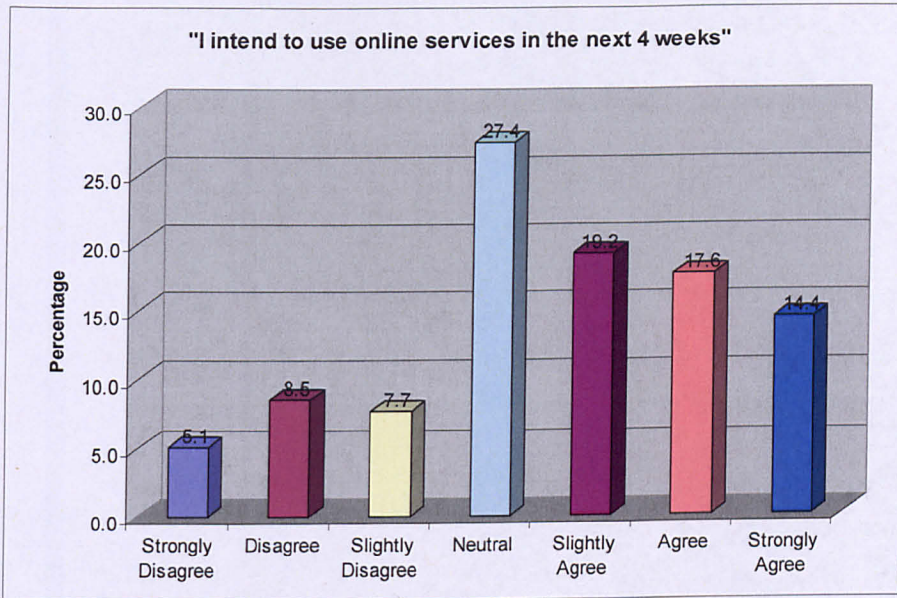


Figure 6.35 Intending to use online services in the next 4 weeks

Figure 6.36 shows that when asked about their intention to use online services within three months of the survey, over half (54%) of respondents agreed (from “slightly” to “strongly”), whereas about a quarter (21%) disagreed (from “slightly” to “strongly”) and another quarter gave neutral answers. The Likert score was 4.61, suggesting that regarding their intention to use online services within three months of the survey they were still uncertain whether they would do so.

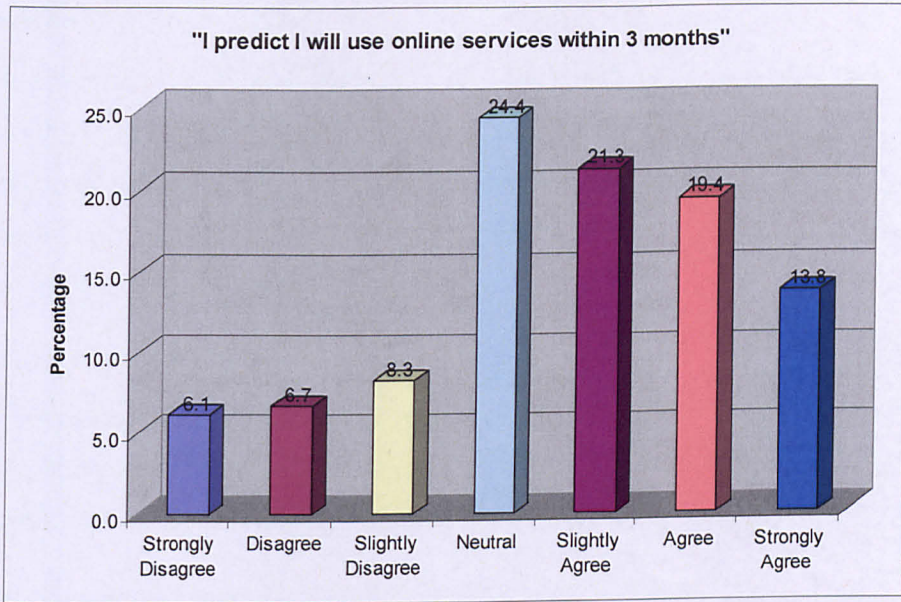


Figure 6.36 Predicting the use of online services within three months

When asked whether they planned to use online services in the future, Figure 6.37 shows that the overwhelming majority (86%) of respondents agreed (from “slightly” to “strongly”), giving a Likert score of 5.82. The results suggested that most of the respondents were planning to use online services at some time in the future.

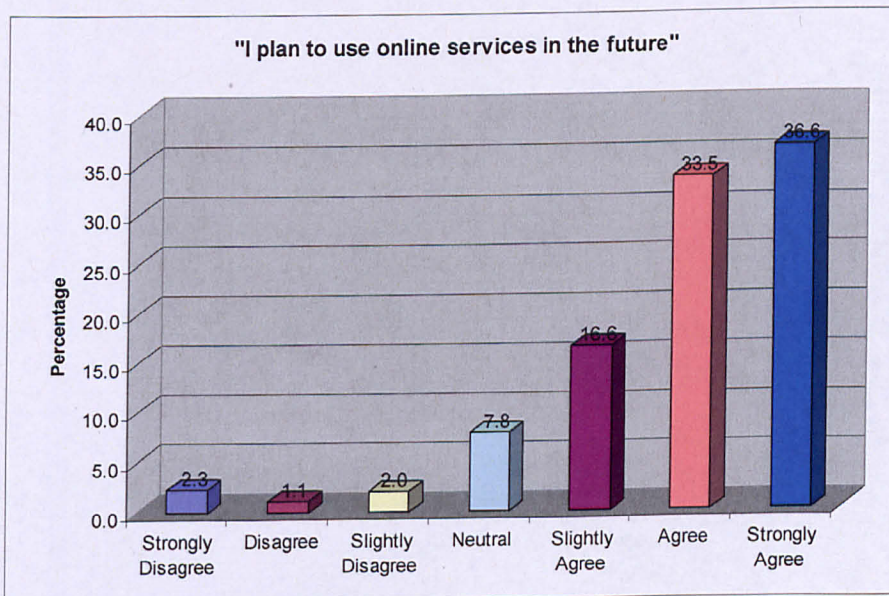


Figure 6.37 Planning to use online services in the future

6.5 Reliability of the UTAUT

Since the scales of UTAUT developed by Venkatesh *et al.* (2003) combined items from different models and were relatively new, it was necessary to check the reliability of the scale constructs by measuring the internal consistency of the scale using Cronbach's alpha coefficient. Pallant (2005, p.90) states that a Cronbach alpha coefficient of 0.70 and above is deemed acceptable.

According to Venkatesh *et al.* (2003), constructs constituting the UTAUT have good internal consistency, with a Cronbach alpha coefficient reported greater than 0.70. In this study, the UTAUT five constructs reported a reliability of 0.809 of the Cronbach alpha coefficient, with the reliability for each construct illustrated in Table 6.3.

Table 6.3 Cronbach alpha coefficient for the amended UTAUT constructs

Amended UTAUT subscales	Items No.	Cronbach alpha coefficient
Performance expectancy	8	0.78
Effort expectancy	7	0.74
Peer influence	3	0.13
Facilitating conditions	8	0.80
Behavioural intention	3	0.68

Only two constructs, peer influence and behavioural intention, had values of Cronbach alpha coefficient less than 0.70; however, they were acceptable for use in this study. This is because the behavioural intention value of 0.68 was very close to 0.70, whereas the low value of peer influence was justified in that it is common to have quite low values with short scales, in line with Pallant (2005, p.90); therefore, all constructs were deemed to be acceptable for use in this study.

6.6 Logistic regression analysis

In this study, a regression analysis process was undertaken based on the research framework (the amended UTAUT model), which includes predictors (independent)

variables, outcome (dependent) variables and moderators. As there are two binary outcome variables, behavioural intention and use, the analysis was run separately for each. Logistic regression, using SPSS software, was utilised to facilitate the analysis, which investigates the relationship of predictor variables to the outcome variables, as follows:

- Performance expectancy (PE): continuous predictor variable
- Effort expectancy (EE): continuous predictor variable
- Peer influence (PI): continuous predictor variable
- Facilitating conditions (FC): continuous predictor variable
- Behavioural intention (BI):
 - categorical outcome (intend/not intend)
 - continuous predictor variable
- Use behaviour (UB): categorical outcome (use/not use)
- Gender: categorical moderator (male/female)
- Academic course: categorical moderator (sciences/humanities)
- Internet experience: categorical moderator (novice/experienced)

Due to time constraints, it was not possible to conduct the study across different periods of time, as has been done by other studies using the UTAUT or other acceptance models, to discover the intentions of respondents over time; however, this study attempted to explore any changes in respondents' intentions through the "intention" question, which asked respondents whether they intended to use e-government services in the future: in "four weeks", "three months" or in the "future". Testing the amended UTAUT model for each time span found changes in factors that determine the intentions of the respondents for each of these time periods.

The logistic regression analysis was performed in two stages. In the first stage of the analysis, the main predictors PE, EE, PI and their interactions with the moderators (gender, academic course and Internet experience) were used to predict the respondents' behavioural intentions with regard to their use of e-government services in three phases, as indicated in Figure 6.38. The first investigation concerned the respondents' intention

to use e-government services within the four weeks following the survey; the second investigation concerned their intention to use e-government services within three months following the survey; and the third and final investigation concerned their intention to use the services in the future. In the second stage of the analysis, the predictor variables BI and FC and their interactions with the moderators (academic course and Internet experience) were used to predict the use behaviour for e-government services, but in only one phase.

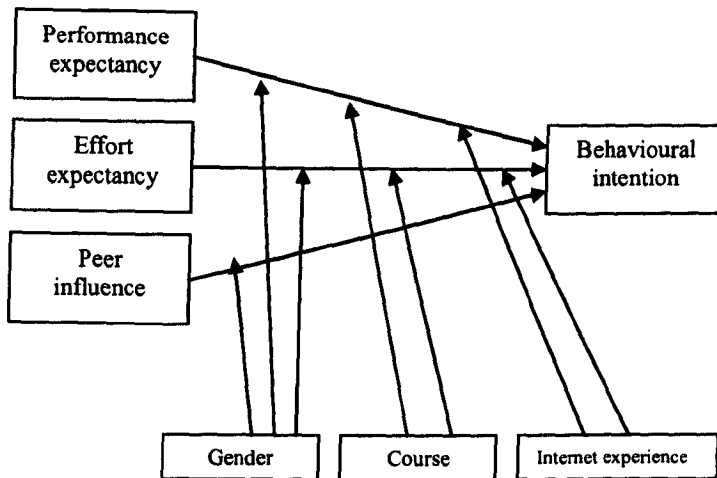


Figure 6.38 First stage of research framework (BI: criterion)

For the first investigation of predicting respondents' behavioural intention regarding their use of e-government services within the four weeks following the survey, a logistic regression model was conducted on BI, where 0=intend not to use within the next four weeks, and 1=intend to use within the next four weeks, using PE, EE and PI and their interactions with the moderators (gender, academic course and Internet experience). SPSS produced the regression model given in SPSS Output 6.1. The regression model was obtained by the forward stepwise method, adding predictor variables iteratively. As indicated in SPSS Output 6.1, the initial -2Log likelihood (-2LL) for no model was 1219.389. After adding predictor variables and the interactions with the moderators, the -2LL dropped to 1155.929, a change of 63.46. This value is a gauge of how much information cannot be explained by the model. A chi-square (χ^2) is

used to see if this change is significant, and in this case we find that the final model is a significant improvement on no model, $p < 0.001$, $df = 4$. The independent variables and the moderators, therefore, are considered significant predictors of behavioural intentions with regard to their use of e-government services.

The *Hosmer and Lemeshow's* goodness of fit test shows the significance of $\chi^2 4.949$ is $p < 0.763$. This tests the hypothesis that the observed data are significantly different from the predicted values of the model. The non-significant value is important for this test because it shows that the model does not differ from the observed data. This is an indication that the model is predicting the real world fairly well (Field 2000, p.195).

The parameters of the model are variables used as predictors shown in the table called *Variables in the equation* in SPSS Output 6.1. In this case, the significance values of Wald statistics for EE ($p < .001$), PI ($p < 0.011$), PE x Internet experience ($p < 0.010$) and EE x Internet experience ($p < 0.031$) suggest that these variables significantly predicted respondents' behavioural intentions with regard to their use of e-government services in the next four weeks. Otherwise, no significant effects on performance expectancy, and other interactions were obtained, as indicated in Figure 6.39. Further, the *Classification Table* in SPSS Output 6.1 shows that the model has correctly classified 60.2% of cases, compared to 51.3% correctly classified in the initial model, an increase of 8.9 percentage points.

The values of $exp(B)$ suggest that for every unit increase in EE, PI and PE x Internet experience, BI was more likely to be one. This is because $exp(B)$ is greater than one. The confidence intervals for such values range from 1.011 to 1.148, which means that one can be confident that the values of $exp(B)$ in the population lie between these two values. Therefore, the relationship between EE, PI and PE x Internet experience and BI found in this sample is true of the whole population of university students. The value of $exp(B)$ for EE x Internet experience, however, indicates that for every unit increase in EE x Internet experience, the BI was less likely to be one, as the $exp(B)$ is less than one. The confidence intervals for this value range from 0.920 to 0.996, which means that one can be confident that the values of $exp(B)$ in the population lie between these two values. Therefore, the relationship between EE x Internet experience and BI found in

this sample is true of the whole population of university students. This leads to the conclusion that there is a support for hypotheses H2, H3, H9 and H10 only.

Iteration History^{a,b,c,d}

Iteration	-2 Log likelihood	Coefficients					
		Constant	EE	PI	I PROF by PE	I PROF by EE	
Step 4	1	1156.178	-3.490	.060	.072	.042	-.041
	2	1155.929	-3.750	.064	.078	.044	-.044
	3	1155.929	-3.754	.064	.078	.044	-.044

a Method: Forward Stepwise (Wald)

b Constant is included in the model.

c Initial -2 Log Likelihood: 1219.389

d Estimation terminated at iteration number 3 because log-likelihood decreased by less than .010 percent.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 4	Step	4.711	1	.030
	Block	63.460	4	.000
	Model	63.460	4	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
4	1155.929	.070	.093

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
4	4.949	8	.763

Classification Table

Observed		Predicted			
		4weeks		Percentage Correct	
		0	1		
Step 4	4weeks	0	232	197	54.1
		1	153	298	66.1
Overall Percentage					60.2

a The cut value is .500

Variables in the Equation

Step 4		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
	EE	.064	.015	19.053	1	.000	1.066	1.036	1.098
	PI	.078	.031	6.449	1	.011	1.081	1.018	1.148
	I PROF by PE	.044	.017	6.600	1	.010	1.045	1.011	1.081
	I PROF by EE	-.044	.020	4.673	1	.031	.957	.920	.996
	Constant	-3.754	.575	42.650	1	.000	.023		

SPSS Output 6.1 Forward logistic regression results for BI (4 weeks)

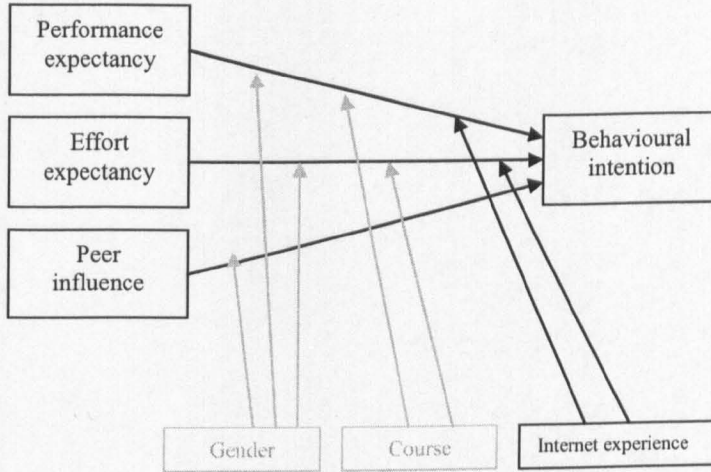


Figure 6.39 Research framework for BI (4 weeks)

For the second investigation of predicting respondents' behavioural intentions with regard to their use of e-government services within three months following the survey, where 0=intend not to use within three months, and 1=intend to use within three months, similar predictors and their interaction were tested using 0.54 cut-off value. This cut-off value, the division between the two groups in BI (0, 1) was defined according to its relation to the observed cases. The SPSS Output 6.2 shows that the final model is a statistically significant improvement on no model, $\chi^2 = 46.666$, $p < 0.001$. The *Hosmer and Lemeshow test* shows the significance value of $p < 0.14$, which means that the model has adequate fit. Further, the model correctly predicted 59.7% of the cases whereas there were 54.4% of cases correctly classified in the initial model, a small change of 5.3 percentage points. In the table called *Variables in the equation* in SPSS Output 6.2, something interesting has happened as EE is still a significant predictor of BI within three months, and PE has also become a statistically significant predictor of BI. PE, however, is no longer a significant predictor of BI for the next three months. In addition, the interactions of PE x Internet experience and EE x Internet experience appear not to make any significant contribution to the prediction of BI; see Figure 6.40. Therefore, for every unit increase in PE or EE, the BI is more likely to be one. Supported hypotheses for this time span were H1 and H2 only.

Omnibus Tests of Model Coefficients				
Step		Chi-square	df	Sig.
Step 2	Step	4.398	1	.036
	Block	46.666	2	.000
	Model	46.666	2	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
2	1166.350	.052	.069

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
2	12.265	8	.140

Classification Table					
			Predicted		
			use		Percentage Correct
	Observed		0	1	
Step 2	3months	0	228	173	56.9
		1	182	297	62.0
	Overall Percentage				59.7

a The cut value is .540

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 2	PE	.028	.014	4.385	1	.036	1.029	1.002	1.056
	EE	.052	.016	10.593	1	.001	1.053	1.021	1.087
	Constant	-2.981	.486	37.636	1	.000	.051		

SPSS Output 6.2 Forward logistic regression results for BI (3months)

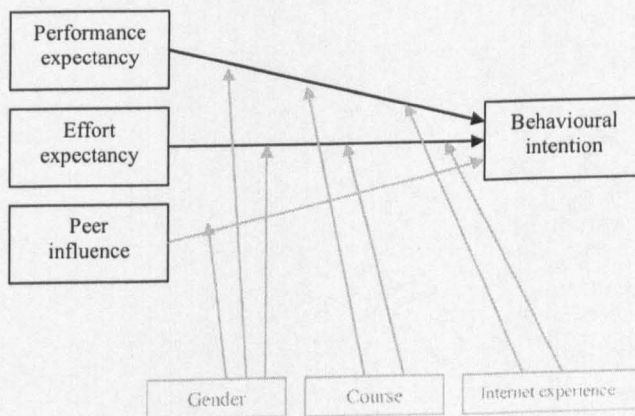


Figure 6.40 Research framework for BI (3months)

For the final investigation of predicting respondents' behavioural intentions with regard to their use of e-government services in the future, where 0=intend not to use in the future, and 1=intend to use in the future, using similar predictors and their interaction, these were tested using a 0.87 cut-off value. SPSS Output 6.3 shows that the model was statistically significant, $\chi^2 = 71.570$, $p < 0.001$. The *Hosmer and Lemeshow* test shows a significance value of $p < 0.828$, which means a good fit of the model. Further, the model correctly predicted 65.2% of the cases, whereas there were only 13.3% of cases correctly classified in the initial model, a change of 51.9 percentage points of cases classified. Interestingly, in the table *Variables in the equation* in SPSS Output 6.3, EE and PE were still significant predictors of BI in the future, and EE x Science (academic course) became a statistically significant predictor of BI as well; see Figure 6.41. For every unit increase in PE and EE, the BI was likely to be one, whereas for every unit increase in EE x Science, the BI was less likely to be one. Supported hypotheses for "in future" time span were H1, H2, and H13 only.

Omnibus Tests of Model Coefficients				
Step 3		Chi-square	df	Sig.
	Step	5.670	1	.017
	Block	71.570	3	.000
	Model	71.570	3	.000

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
3	618.288	.078	.144

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
3	4.308	8	.828

Classification Table				
			Predicted	
			use	Percentage Correct
	Observed		0	1
Step 3	in future	0	74	43
		1	263	500
	Overall Percentage			
				63.2
				65.5
				65.2

a The cut value is .870

Variables in the Equation									
		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Step 3	PE	.046	.019	5.671	1	.017	1.047	1.008	1.087
	EE	.096	.023	16.841	1	.000	1.101	1.051	1.152
	SIENCE by EE	-.016	.006	6.942	1	.008	.984	.973	.996

SPSS Output 6.3 Forward logistic regression results for BI (in the future)

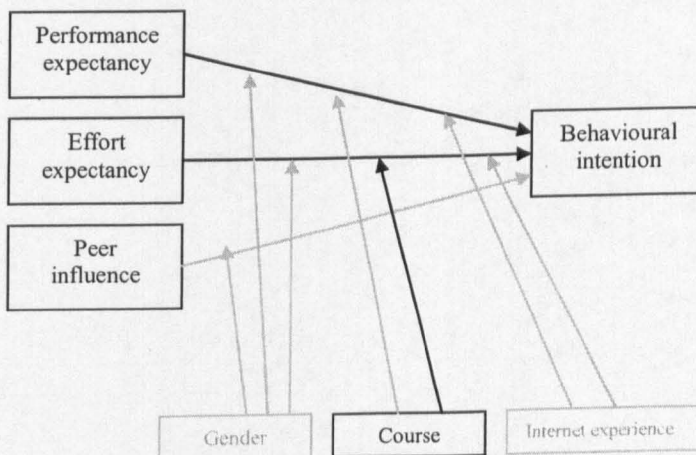


Figure 6.41 Research framework for BI (in the future)

In the second stage of investigation, respondents' use behaviour (UB) with regards to e-government services was investigated. A forward stepwise logistic regression model was also conducted on UB, where 0= not use, 1= use, using BI, FC and the interactions of the moderators (academic course and Internet experience) with FC. The cut-off value of the observed cases for the use behaviour was 0.23. SPSS Output 6.4 indicates that the model was statistically significant, $\chi^2 = 66.108$, $p < 0.001$. The *Hosmer and Lemeshow test* shows a good fit of the model at a significance value of $p < 0.949$. Further, the model correctly predicted 62.5% of the cases, whereas there were only 23.7% of cases correctly classified in the initial model, an extra 38.8 percentage points of cases were classified. The table *Variables in the equation* in SPSS Output 6.4 shows that BI and FC were significant predictors of UB; see Figure 6.42. Thus, for every unit increase in BI and FC, the UB was likely to be one; otherwise, no significant interactions were obtained. Supported hypotheses for use of e-government services were H4 and H5 only.

Omnibus Tests of Model Coefficients

Step 2		Chi-square	df	Sig.
	Step	18.850	1	.000
	Block	66.108	2	.000
	Model	66.108	2	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
2	895.812	.072	.109

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
2	2.750	8	.949

Classification Table

Step 2	Observed use		Predicted		
			use		Percentage Correct
			0	1	
0	408	263	60.8		
1	67	141	67.8		
Overall Percentage				62.5	

The cut value is .230

Variables in the Equation

Step 2		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
	TBI	.116	.027	17.839	1	.000	1.123	1.064	1.185
	TFC	.054	.013	17.832	1	.000	1.056	1.030	1.083
	Constant	-5.347	.587	82.967	1	.000	.005		

SPSS Output 6.4 Forward logistic regression results for use behaviour

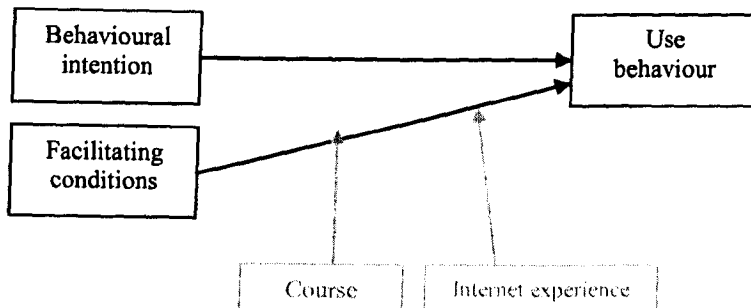


Figure 6.42 Research framework for use behaviour

6.7 Summary

The findings show that although the majority of respondents, with different Internet experiences, did not use e-government services, they had a positive attitude towards such services. A fairly large percentage of respondents showed their agreement with the performance expectancy for e-government services, which is that they may provide them with many advantages, in spite of their worries about carrying out their business online rather than face-to-face.

Similarly, the majority of respondents showed their agreement with the effort expectancy for e-government services. Again, they were hesitant about carrying out their business with the government online rather than face-to-face. While nearly half of the respondents indicated that peer influence could not affect their use of e-government services, few thought that such influence would be effective.

In relation to facilitating conditions, the majority of respondents indicated that they had the resources and the relevant Internet experience that would enable them to use the services; however, most were concerned that they did not have the requisite information about the e-government services on offer to use them efficiently. Most of the respondents indicated that these services would fit into their lifestyle if they had important qualifications as well as all necessary resources and information were provided.

The intention of the respondents to use e-government services within the next four weeks was uncertain and was in fact more likely to be negative. Their intention to do so in the next three months was also uncertain but was more likely to be positive. Their intention to use the services in the future was very positive, with the majority of respondents showing their strong agreement to the statement in the survey.

The logistic regression analysis performed well, with typically 60% of cases predicted correctly. The goodness of fit test showed that the model was valid, significant and reasonable for the data provided. In relation to the predictors and the interactions of the moderators in the amended UTAUT, the logistic regression analysis showed that for the time span of four weeks, there was a direct effect of effort expectancy and peer

influence on intention. The effect of performance expectancy on the intention was moderated by the respondents' Internet experience, such that the effect increased with greater experience. Moreover, the effect of effort expectancy on intention was also moderated by Internet experience such that the effect decreased with high Internet experience.

In relation to the time span of three months, the logistic regression analysis indicated that there were direct effects of performance expectancy and effort expectancy on the intention of respondents to use e-government services; no other effects were detected.

The logistic regression analysis for respondents' intention to use the services in the future showed similar results in the second phase of doing so within three months, where there was a direct effect of performance expectancy and effort expectancy on intention. In addition, the effect of effort expectancy on intention was moderated by academic course such that the effect decreased with students taking scientific majors.

Finally, the results of the logistic regression analysis showed that behavioural intention and facilitating conditions had a direct effect on the use of e-government services, whereas the moderating effects were not significant. Table 6.4 shows a summary of the findings and the results of the hypotheses across the three time spans.

Table 6.4 Summary of tested hypotheses

Hypothesis number	Dependent variables (outcome)	Independent variables (predictors)	Moderators	Next four weeks	Next three months	In the Future	Explanation
H1	Behavioural intention	Performance expectancy	None	Not supported	Supported	Supported	Not applicable
H2	Behavioural intention	Effort expectancy	None	Supported	Supported	Supported	Not applicable
H3	Behavioural intention	Peer Influence	None	Supported	Not supported	Not supported	Not applicable
H4	Use behaviour	Facilitating conditions	None	Not supported	Not applicable	Not applicable	Supported
H5	Use behaviour	Behavioural intention	None	Not supported	Not applicable	Not applicable	Supported
H6	Behavioural intention	Performance expectancy	Gender	Not supported	Not supported	Not supported	Not applicable
H7	Behavioural intention	Effort expectancy	Gender	Not supported	Not supported	Not supported	Not applicable

H8	Behavioural intention	Peer Influence	Gender	Not supported	Not supported	Not supported	Not supported	Not applicable
H9	Behavioural intention	Performance expectancy	Internet experience	Supported; effect increases with greater Internet experience	Not supported	Not supported	Not supported	Not applicable
H10	Behavioural intention	Effort expectancy	Internet experience	Supported; effect decreases with high Internet experience	Not supported	Not supported	Not supported	Not applicable
H11	Use behaviour	Facilitating conditions	Internet experience	Not applicable	Not applicable	Not applicable	Not applicable	Not supported
H12	Behavioural intention	Performance expectancy	Academic course	Not supported	Not supported	Not supported	Not supported	Not applicable
H13	Behavioural intention	Effort expectancy	Academic course	Not supported	Not supported	Not supported	Supported; effect decreases with respondents studying scientific majors	Not applicable
H14	Use behaviour	Facilitating conditions	Academic course	Not applicable	Not applicable	Not applicable	Not applicable	Not supported

Chapter Seven

Usability testing analysis

7.1 Introduction

In addition to data collected by means of a questionnaire survey, from which the main results were obtained, usability testing was conducted with four groups of students to evaluate the Kuwait e-government website. This evaluation aimed at identifying the strengths and weaknesses of the e-government website that may contribute to an increase or decrease in the potential adoption of e-government services. It should be noted that information provided from this evaluation is meant to supplement other results found through the other main methods, questionnaire survey and focus groups.

As mentioned in Chapter five, the usability testing consisted of three main sections. In section one, respondents were asked to perform different tasks on the e-government website. In section two, the QUIS instrument was administered to evaluate the website interface design, followed by respondents' comments. In section three, respondents were asked about their demographic characteristics, which are presented and discussed first.

7.2 Respondents' demographic characteristics

Twenty-four students participated in the usability testing, 15 male and nine female, distributed into four groups as shown in Table 7.1.

Table 7.1 Gender and the number of respondents in each group

Gender	Group 1	Group 2	Group 3	Group 4
Male	2	-	-	13
Female	3	2	4	-
Total	5	2	4	13
Grand total	24			

About two thirds (seventeen) of the respondents were undergraduate students, and the remaining one third (seven) were postgraduate students.

The majority (fourteen) of respondents claimed to be experienced in using the Internet; ten indicated that they had less experience; see Table 7.2. The differences in Internet experience could be useful in the evaluation of the user interface design as users with different levels of Internet experience will be using the e-government website.

Table 7.2: Respondents' Internet proficiency

Internet proficiency	Number of respondents
Fair	2
Good	8
Very good	10
Excellent	4

7.3 Task performance

In the first section of the testing, respondents were asked to perform a number of tasks while visiting the Kuwait e-government website for about 30 minutes. The tasks required the respondents to use the website as well as the links on the e-government website to other organisations to complete their tasks. This allowed respondents to familiarise themselves with the website and afforded the researcher an opportunity to observe real users performing real tasks, as suggested by Corry *et al.* (1997). It should be noted that users were allowed to take their time so that the observer could know how long respondents might spend in performing all tasks. Rubin (1994) points out that task completion time is a rough indication of how respondents perform as a whole. It can be compared to the original time benchmark developed for tasks to see if respondents in general performed better or worse than expected. In this study, time spent for task completion ranged from 35 to 55 minutes compared with the time originally allocated for tasks, which was 30 minutes. Generally, respondents' performance was good although they took longer than anticipated. This could be justified because the website was new to some respondents and they needed more time to become familiar with it. Moreover, based on the researcher's observations, respondents faced many difficulties in performing the tasks because they encountered some broken links, which made navigation difficult and confusing.

7.4 Evaluation of user interface design, QUIS Instrument

In the second section, the user interface design of the Kuwait e-government website was evaluated using the QUIS instrument. The instrument investigated three areas of the website design:

- Overall reaction to the website: eight questions
- Content: nine questions
- Website capabilities: seven questions

Before presenting the results of the website evaluation, it was important to verify the reliability of QUIS in general and its subscales in particular, as explained below.

7.4.1 QUIS reliability

Previous studies have indicated that different versions of QUIS reported high reliabilities using Cronbach's alpha ranging from 0.89 to 0.94 (for example, Chin *et al.*, 1987; Chin *et al.*, 1988; Ives *et al.*, 1983). In this study, all items together reported 0.91 Cronbach alpha, indicating high reliability of the instrument. Table 7.3 illustrates the Cronbach alpha coefficient for the three subscales of the questionnaire.

Table 7.3 Cronbach alpha coefficient for QUIS three subscales

QUIS subscale	No. of items	Cronbach alpha coefficient
Overall reaction to website	8	0.74
Website content	9	0.79
Website capabilities	7	0.80

After carrying out the tasks, respondents were asked to rate the website on 24 usability criteria using a 1-9 point scale, with 1-3 being negative, 4-6 being in the middle of the range between positive and negative, and 7-9 being positive. In addition, the Likert score for rating is given for each statement. The final question asked the respondents to rate the website in general and for this a 1-10 point scale was used.

7.4.2 Overall reaction to the website

Website loading

Respondents were asked to rate the loading speed of the website. As shown in Figure 7.1, two thirds (sixteen) of the respondents found that the website loaded fast; less than a quarter (four) of all respondents thought that the loading was normal; while only three judged the loading to be slow. The variance in ratings can be explained by respondents having different expectations as well as by the network connections the respondents used during the testing. The Likert score of 6.83 suggests that website loading was judged to be relatively fast.

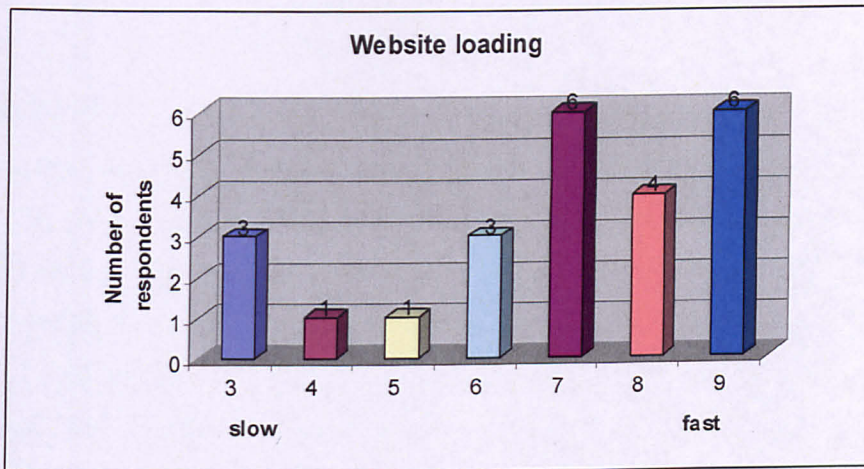


Figure 7.1 Website loading

Website navigation

Respondents were asked to rate the navigation of the website, whether it was difficult or easy to navigate. As shown in Figure 7.2, more than three quarters (nineteen) of all respondents found the website easy to navigate, while only five thought that navigation was not that easy, giving a Likert score of 7.42. These results could reflect the varying Internet experience of the respondents, suggesting that the e-government website was easy rather than difficult to navigate.

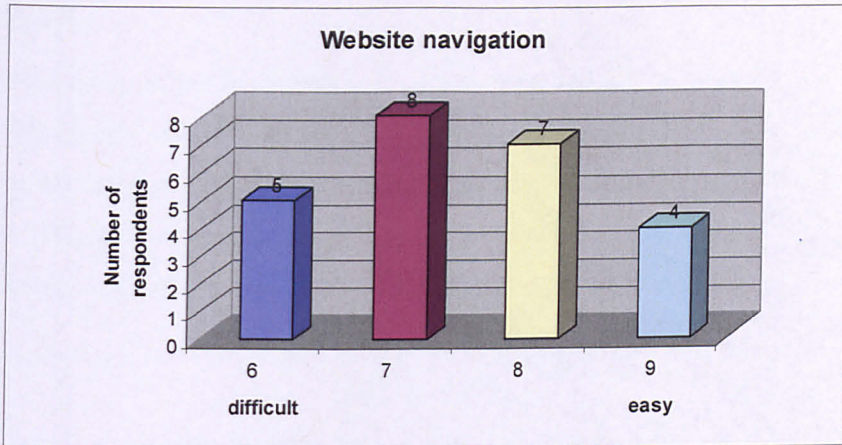


Figure 7.2 Website navigation

Website organisation

Respondents were asked to comment on the organisation of the website. As shown in Figure 7.3, about two thirds (fifteen) of the respondents thought that the e-government website was well organised; three thought that it was disorganised; while a quarter (six) of the respondents thought it was neither organised nor disorganised. The Likert score of 6.46 suggests that the majority of respondents thought that the website was reasonably well organised; whereas a substantial minority thought that it was less organised.

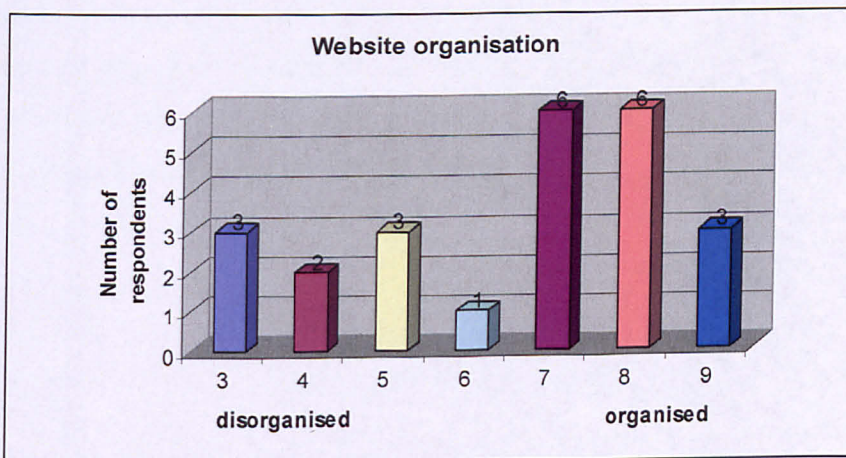


Figure 7.3 Website organisation

Website colours

Respondents were asked to comment on the colours used throughout the website. As Figure 7.4 shows, two thirds (sixteen) of the respondents found the colours were attractive; one quarter (six) of the respondents found them acceptable; while only three found the colours unattractive. The Likert score of 6.75 suggests that the colours used on the website were found to be relatively attractive.

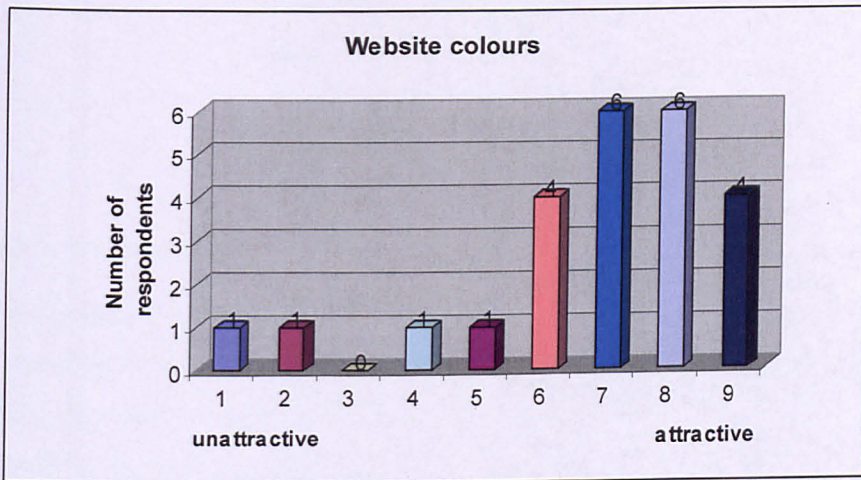


Figure 7.4 Colours used in the website

Moving around the website

Respondents were asked to rate how easy or difficult it was to move around the website. As shown in Figure 7.5, the majority (twenty-one) of the respondents found that it was easy to move around the different pages of the website, while three found that it was not that easy. The Likert score of 7.67 suggests that moving around the website was thought to be easy.

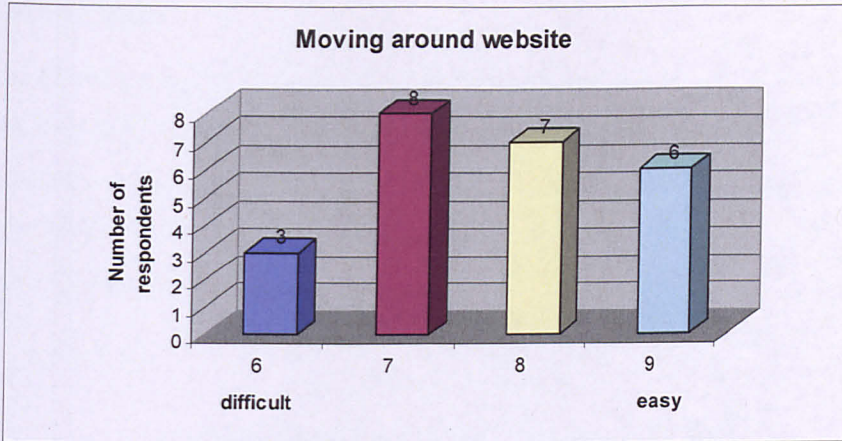


Figure 7.5 Moving around the website

Learning to use the website

Respondents were asked to rate whether it was easy or not to learn to use the website. As shown in Figure 7.6, the majority (twenty-one) of the respondents thought that using the website was easy to learn, whereas three thought that the website was neither easy nor difficult to learn. The Likert score of 7.54 suggests that respondents thought that using the website was easy to learn.

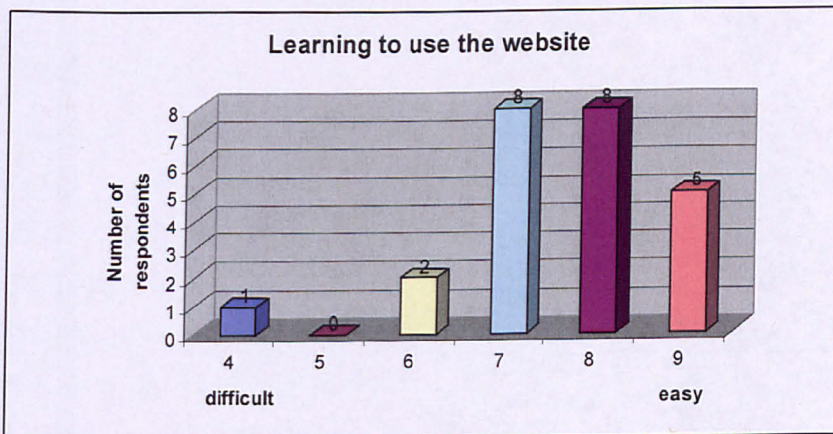


Figure 7.6 Learning to use the website

Overall website design

Respondents were asked to rate the overall design of the website. As shown in Figure 7.7, more than half (thirteen) of the respondents thought that the overall design was attractive; nine thought it was fairly attractive; while two thought it was unattractive. The Likert score of 6.71 suggests that the respondents judged the design of the website overall as relatively attractive.

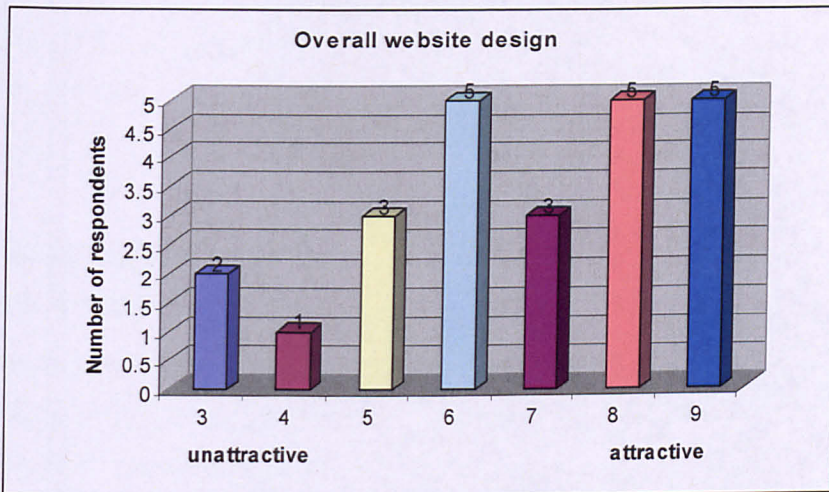


Figure 7.7 Overall website design

Overall website structure

The last question in this section investigated the respondents' rating of the overall structure of the website. As shown in Figure 7.8, two thirds (sixteen) of the respondents found that the overall structure was logical; seven found it fairly logical; whereas one found it illogical. The Likert score of 6.83 suggests that respondents thought that the overall structure of the website was reasonably logical, whereas a substantial minority thought that the structure of the website was flawed to some extent.

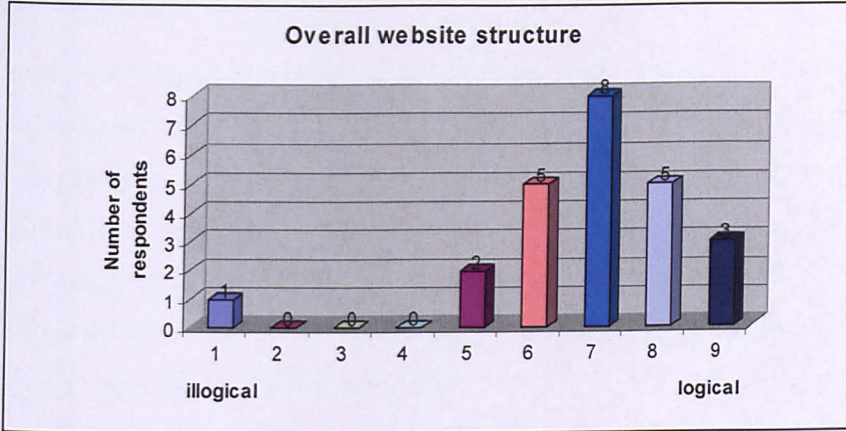


Figure 7.8 Overall website structure

7.4.3 Website content

Readability of content

Respondents were asked to rate the readability of the website content. As shown in Figure 7.9, more than half (fifteen) of the respondents thought that the website content was easy to read; one third (eight) of the respondents thought the content was normal to read; while one found it hard to read. The Likert score of 7.04 suggests that although the website content was easy to read for the majority of respondents, a considerable minority reported difficulties in reading the content.

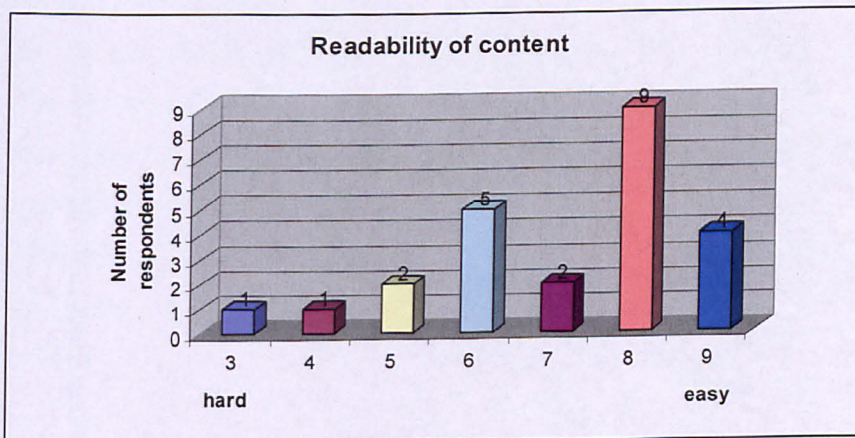


Figure 7.9 Readability of website content

Availability of information

Respondents were also asked to rate the availability of the information on the website. As shown in Figure 7.10, the majority (nineteen) of all the respondents thought that the information presented was clear, whereas five thought that it was relatively clear. The Likert score of 7.46 suggests that the information available to users on the website was clear to the majority of respondents, however, a few of them found information less clear. This could reflect opinions of individuals from other groups within society who are expected to have different needs and skills.

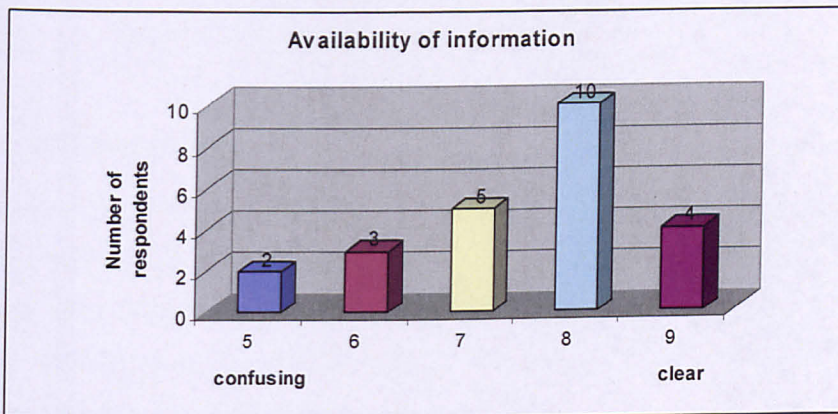


Figure 7.10 Availability of information

Highlighting of important information

Respondents were asked to rate whether important information was highlighted on the website. As shown in Figure 7.11, the majority (nineteen) of the respondents found that such information was highlighted, while only five thought that important information was not clearly highlighted. The Likert score of 7.13 suggests that the majority of respondents thought that important information was sufficiently highlighted on the website, however, a few indicated the opposite, reflecting other individuals with different needs.

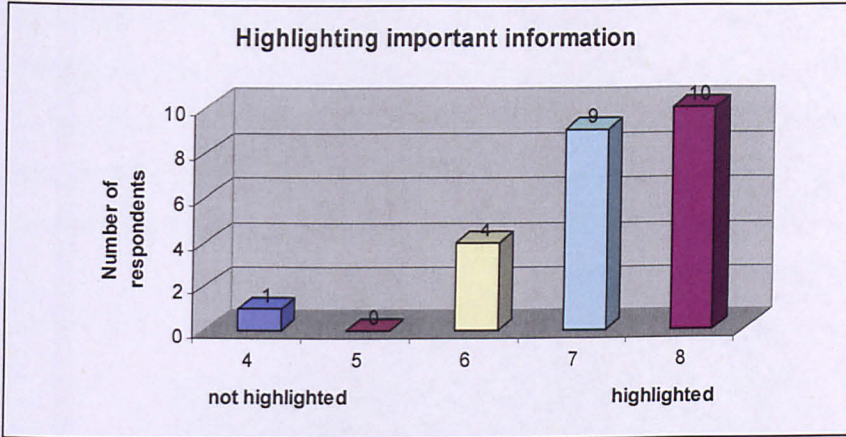


Figure 7.11 Highlighting of important information on the website

Relevance of topic and title

Respondents were asked to rate how relevant the topics and titles on the website were. As shown in Figure 7.12, the majority (twenty-three) of the respondents thought that topics and titles were relevant, whereas only one thought that they were somehow irrelevant. The Likert score of 8.17 suggests that titles and topics on the website were relevant and made sense to the majority of website users.

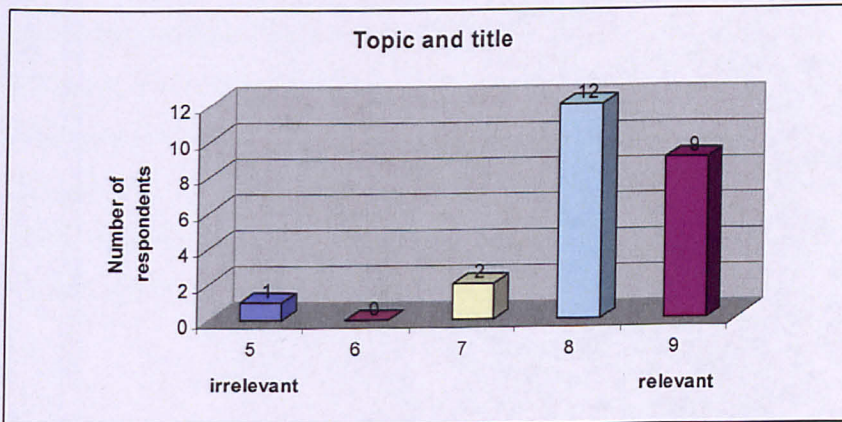


Figure 7.12 Relevance of topic and title

Font size

Respondents were asked to rate the fonts used on the website. As shown in Figure 7.13, more than half (fourteen) of the respondents thought that the fonts were medium in their

size; seven thought they were big; whereas three thought that the fonts were relatively small. Although the Likert score of 5.29 suggests that fonts used on the website were judged to be of an appropriate size, it is evident that a substantial majority of respondents thought that the fonts were not big enough, again considering other individuals with different needs.

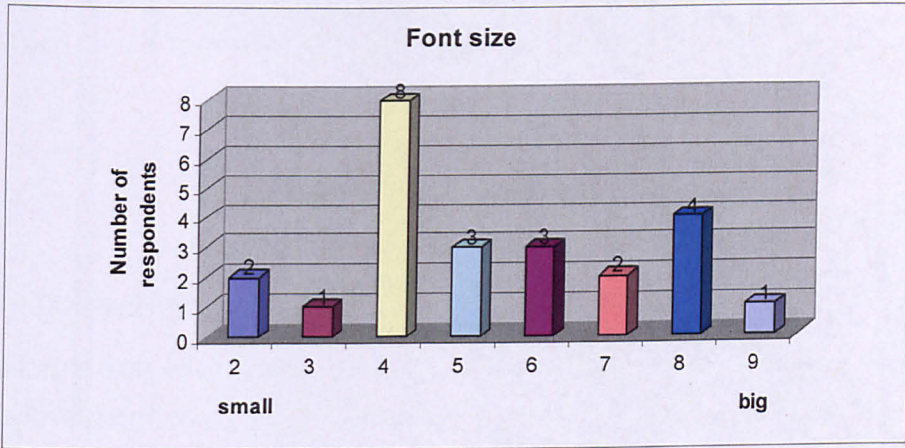


Figure 7.13 Font size

Images

Respondents were asked to rate the appropriateness of the images on the website. As shown in Figure 7.14, about two thirds (fifteen) of the respondents indicated that the images were appropriate; a third (eight) of the respondents thought that the images were relatively appropriate; while only one thought that they were inappropriate. The Likert score of 6.88 suggests that most respondents thought the images on the website were relatively appropriate to the content.

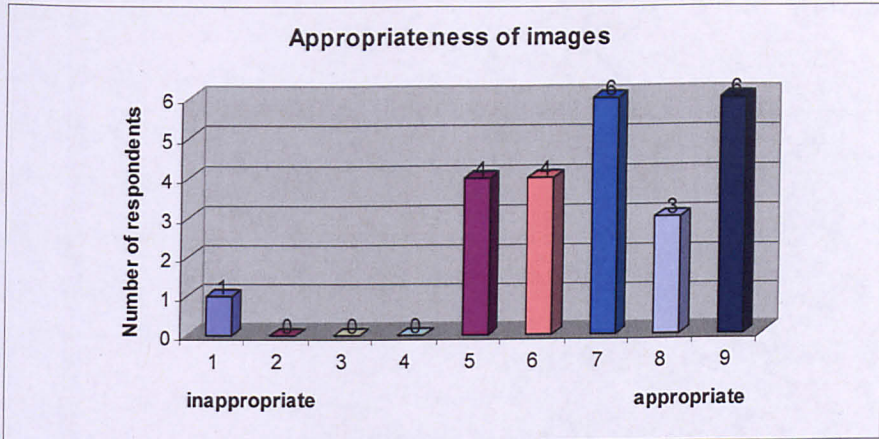


Figure 7.14 Appropriateness of images

Finding Information

Respondents were asked to rate how easy it was to find information on the website. As shown in Figure 7.15, about two thirds (fifteen) of the respondents thought that it was easy to find information, while one third (nine) of the respondents thought that it was not that easy. The Likert score of 6.96 suggests that although many respondents thought that finding information on the website was relatively easy, a substantial minority thought that finding information on the website was not easy for them.

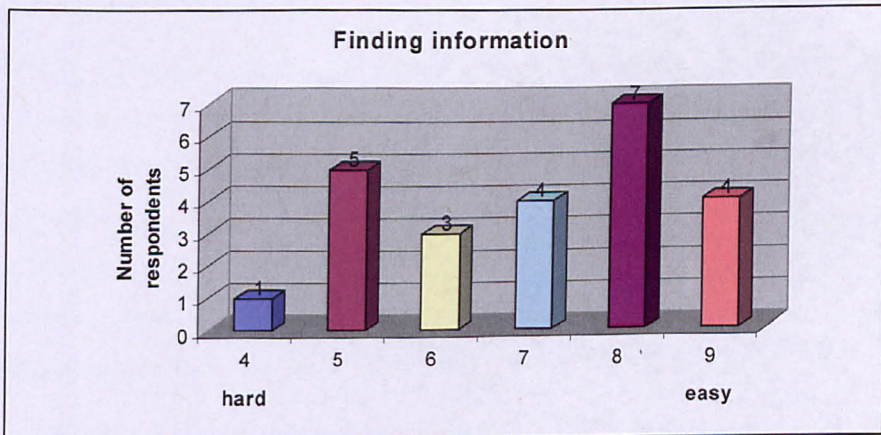


Figure 7.15 Finding information on the website

Usefulness of content

Respondents were also asked about the usefulness of the content of the website. As shown in Figure 7.16, two thirds (sixteen) of the respondents thought that the content was useful, whereas one third (eight) of the respondents thought that the content was only relatively useful. The Likert score of 7.21 suggests that the website content was generally considered useful to many users, but for others it could be less applicable to their needs.

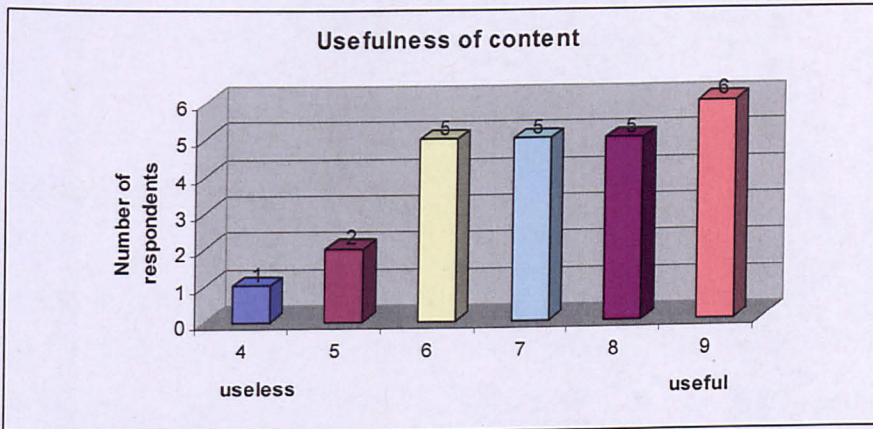


Figure 7.16 Usefulness of content

Currency of website information

Respondents were asked whether they thought the information on the website was current. As shown in Figure 7.17, the majority (seventeen) of the respondents thought that the information on the website was up-to-date, while three thought that it was only relatively up-to date. However, four respondents thought that the information was out-of-date. Despite the fact that the Likert score of 6.75 shows that information provided on the website was considered relatively current to many users, other users thought that information was not fully up-to-date.

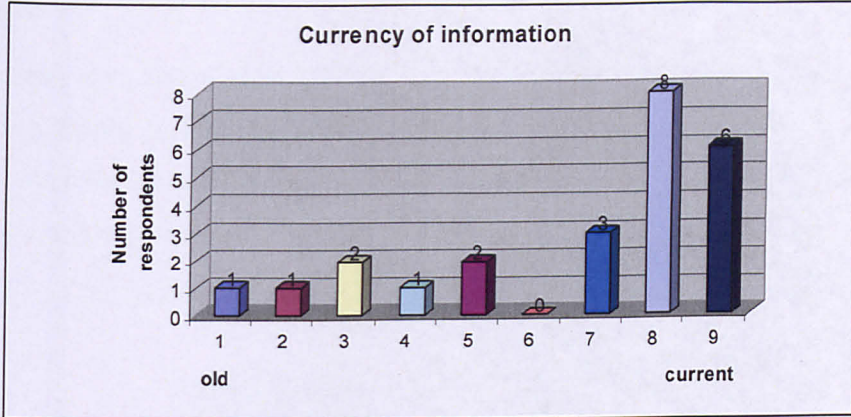


Figure 7.17 Currency of website information

7.4.4 Website capabilities

Site map

Respondents were asked to rate the usefulness of the site map on the website. As shown in Figure 7.18, three quarters (eighteen) of the respondents indicated that the site map was helpful; five thought that it was somewhat helpful; whereas one thought it was unhelpful. The Likert score of 7.42 suggests that the majority of respondents thought that the site map was fairly helpful, and thus using it would not be a waste of the users' time and effort.

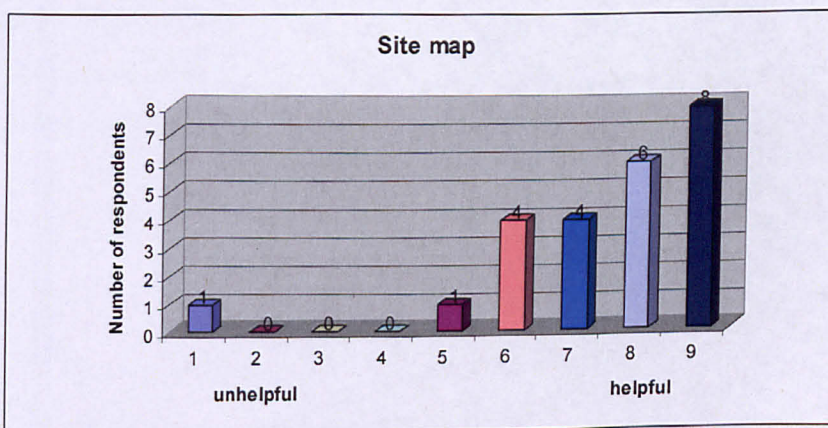


Figure 7.18 Site map

Site search

Respondents were also asked their views about doing site searches. As shown in Figure 7.19, the majority (seventeen) of the respondents indicated that it was helpful, while seven thought that it was somehow unhelpful. The Likert score of 7.00 suggests that the site search was thought to be relatively helpful to some people only.

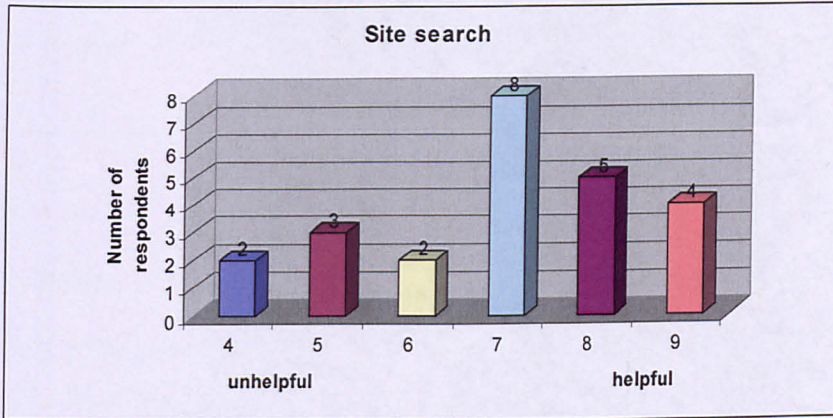


Figure 7.19 Site search

Website hyperlinks

Respondents were asked to rate the website's hyperlinks. As shown in Figure 7.20, the majority (fifteen) of the respondents indicated that hyperlinks worked, while nine experienced a number of broken links. The Likert score of 7.08 suggests that the majority of respondents found that most of hyperlinks were workable whereas a few experienced a number of broken links.

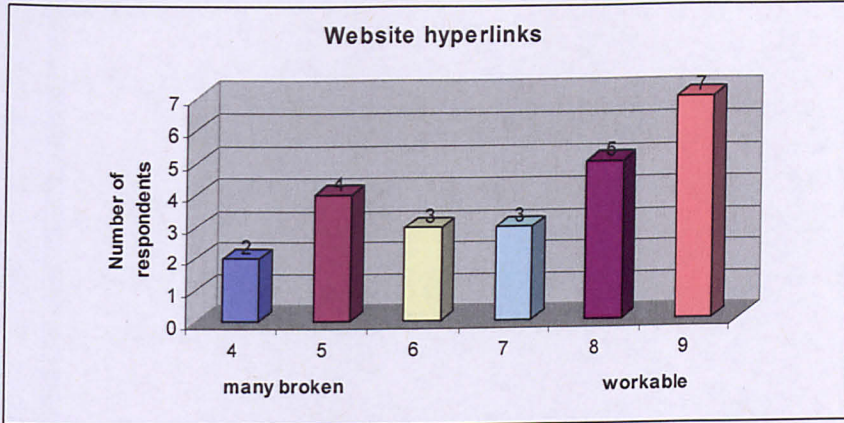


Figure 7.20 Website hyperlinks

Visited hyperlinks

Respondents were also asked to rate the hyperlinks they had visited. As shown in Figure 7.21, three quarters (eighteen) of the respondents indicated that visited links were able to be identified by them, whereas five indicated that not all visited links could be identified, and one claimed that visited links were unidentifiable. Although the Likert score of 7.42 suggests that most of visited links were identifiable to users, a few respondents found it difficult to identify the visited hyperlinks.

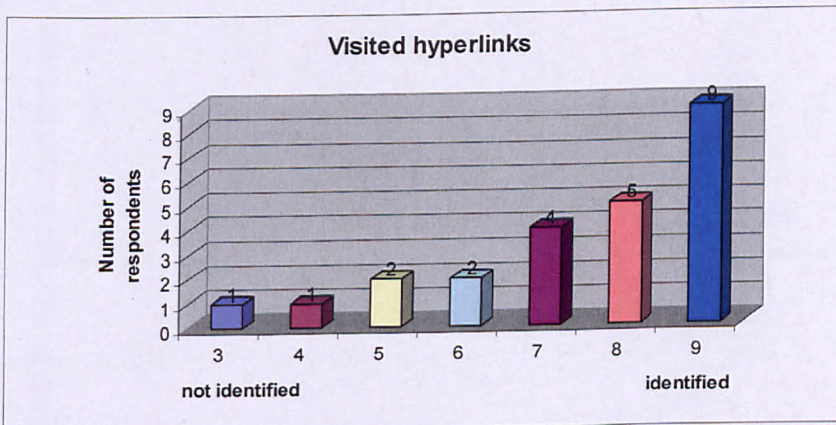


Figure 7.21 Visited hyperlinks

Website contact details

Respondents were asked to rate how adequate the contact details shown on the website were. As Figure 7.22 shows, three quarters (eighteen) of the respondents indicated that contact details were adequate, whereas a quarter (six) of the respondents thought that such details were not really adequate. The Likert score of 7.25 suggests that the majority of respondents thought that the contact details were mostly adequate, however to a minority of them contact details seemed inadequate.

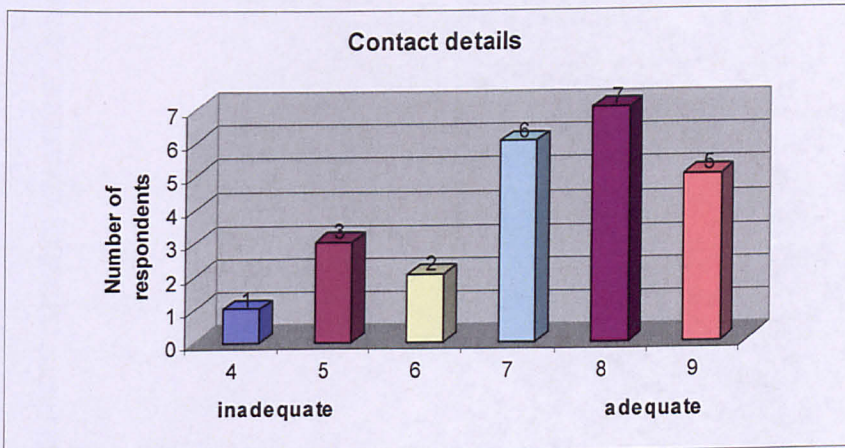


Figure 7.22 Website contact details

Privacy and security statements

Respondents were asked to rate whether privacy and security statements on the website were clear. As shown in Figure 7.23, the majority (sixteen) of the respondents indicated that the statements were clear; four indicated that they were not very clear; and another four found them unclear. The Likert score of 6.42 suggests that the majority of respondents thought that the privacy and security statements on the website were well stated and convincing, but a substantial minority thought that such statements were not clearly stated.

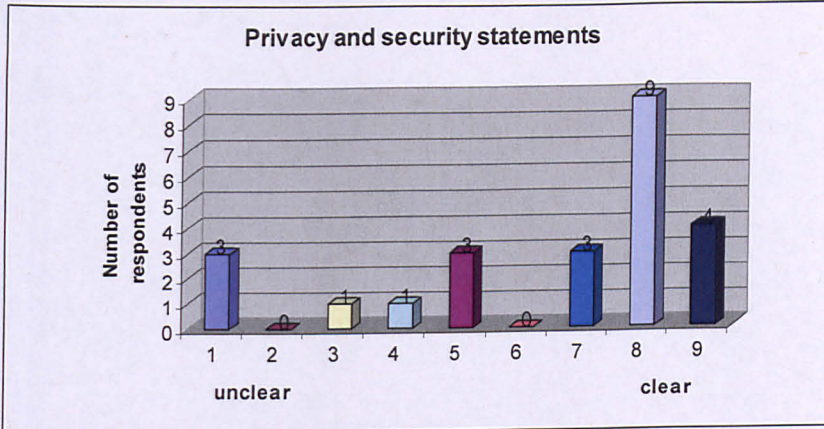


Figure 7.23 Privacy and security statements

Website design for all levels of users

Respondents were asked whether the website was designed to appeal to all levels of users. As shown in Figure 7.24, the majority (fifteen) of the respondents indicated that the website was suitable for all levels of users; five indicated that it was relatively suitable for different levels of users; whereas four thought that it was not designed for all levels of users. The Likert score of 6.23 suggests that the majority of respondents thought that the website was in part designed for all levels of users, however, a considerable minority of respondents thought that the website might be difficult for many users.

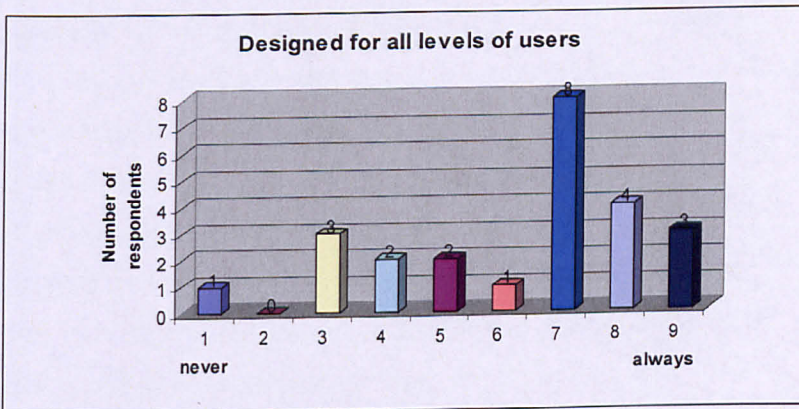


Figure 7.24 Website design for all levels of users

Overall evaluation of website

Finally, respondents were asked to rate their impression of the website overall on a 10-point scale, 1 being the worst to 10 being the best. As shown in Figure 7.25, a score of 7 was given by a quarter (six) of all respondents; while scores of 8, 9 and 10 were given by a total of nine respondents, and scores of 5 and 6 by the remaining nine. The Likert score of 7.13 suggests that the majority of respondents thought that overall the e-government website was relatively good, but others thought otherwise.

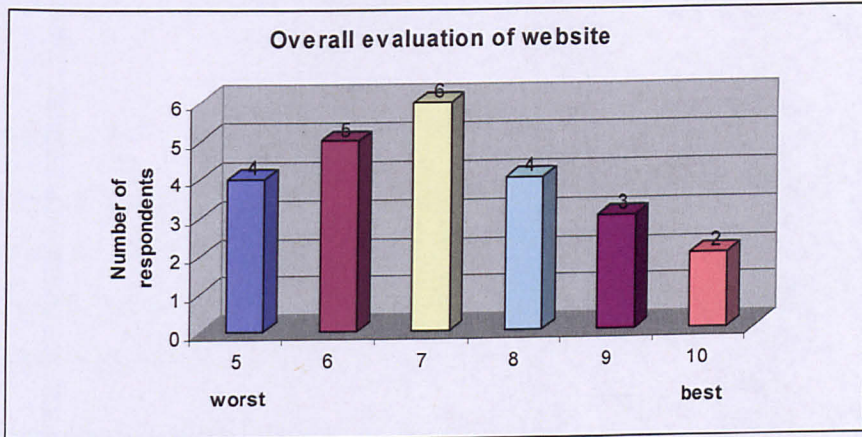


Figure 7.25 Overall evaluation of website

The differences in the Internet experience of the respondents necessitated performing a test that could capture any differences significant between respondents with adequate Internet experience and with those with less experience. A Mann-Whitney U test, which was found to be the most appropriate test, was performed to test the significance differences between two user groups on all usability criteria. For the results to be significant, the value needed to be 0.05 or smaller. The H_0 stated that there was no difference between the two groups with regard to their ratings and their Internet experience, whereas H_1 stated that there was a difference in respondents' responses depending on their Internet experience. The results showed that the significance levels for the usability criteria ranged from 0.175 to 0.976 for all usability criteria except for "readability of website contents", which scored a significance level of $p=0.029$. In this case, the values between 0.175 and 0.976 were larger than the alpha value of 0.05, meaning insignificant results and thus, we cannot reject the H_0 as there was no

significant difference between respondents' ratings and their Internet experience. However, the significant difference in scores ($p=0.029$) for "readability of website contents" between the two groups, Internet experienced ($M=211.00$) and less experienced ($M=89.00$) indicates that respondents with good Internet experience found it easier to read the website content than those with little Internet experience. This suggests that some qualifications, such as Internet experience, are linked to a number features in the e-government website that are considered necessary to be developed in all potential users of the e-government website.

7.5 Summary

The findings of the usability testing showed that the respondents' performance of the tasks was quite good although they took longer than expected. Such tasks gave the respondents the opportunity to become familiar with the website and enabled them to evaluate the website according to the criteria provided.

The respondents evaluated the e-government website against criteria adopted from the QUIS instrument. Despite the fact that the majority of respondents were familiar with the Internet, the majority had an adequate Internet experience, which might have had a bias impact on the evaluation results. In relation to their reaction to the website, the majority of respondents thought that the website loaded quickly, its navigation was easy and it was easy to learn and to move within the website. Moreover, most respondents thought that the website was relatively well organised, its colours and its overall design were moderately attractive, and its overall structure was considerably logical. However, a substantial minority of respondents thought otherwise.

Regarding the website content, similarly, the majority of respondents indicated that website content was relatively easy to read, important information was available and adequately highlighted, topic and title were related with each other, and content was considerably useful to them. Many respondents found that the fonts used in the website were relatively appropriately sized, images were relatively appropriate to content, finding information could be relatively easy, and most of information provided was up-

to-date. Again, a considerable minority of respondents, conversely, thought the website flawed to some extent.

In relation to the website capabilities, the majority of respondents thought that the site map and site search were helpful, not too many links were broken, visited links were clearly identified for them, privacy and security statements were relatively clear to them and the website was mostly designed for all levels of users. For the overall evaluation of the website, respondents thought that the e-government website was relatively good. However, to a few respondents, the website was a pitfall and could be difficult for many people to use.

Finally, the Mann-Whitney U test showed that no differences were detected between the respondents with good Internet experience and those with less experience in their ratings of the website, except for the readability of the website content, which showed a significant difference between the two groups. Respondents with good Internet experience found the website easier to read than those with little experience, suggesting the importance of some attributes and qualifications to be developed in potential users so that they would find it easy to use the website.

Chapter Eight

Qualitative data analysis

8.1 Introduction

In addition to the quantitative data collected via the questionnaire survey and QUIS instrument, qualitative data were gathered from respondents via focus groups and open-ended questions. Such data were intended to explain how potential users view e-government services and to identify factors that positively or negatively influence their adoption of the services. As stated in Chapter Five, four focus groups were conducted immediately after the usability testing. Data obtained were transcribed and translated into English.

Other qualitative data were also gathered through the open-ended questions added to the questionnaire and usability test. About three quarters (71.7%) of the respondents gave their views in response to the open-ended questions in the questionnaire, whereas nearly all respondents answered all the questions in the usability test.

ATLAS/ti software was used in the analysis of all the qualitative data, and a thematic analysis was adopted in the presentation of the data. The analysis of the qualitative data, which included respondents' comments, opinions and the like, explained the respondents' understanding of the problem under investigation. The results of the analysis of the qualitative data from focus groups and open-ended questions were combined under related themes. Conclusions have been drawn about the attitudes and perceptions of users, both actual and potential, towards e-government services in Kuwait.

8.2 Understanding e-government services

As "e-government services" is a new concept to many people in Kuwait, respondents were asked what they thought it meant. They gave a variety of answers, which ranged from claiming to know what "e-government services" stood for to having no idea of its meaning at all. Many participants in the focus group discussions, and respondents to the

questionnaire, showed a full understanding of the concept of e-government services, saying that it was about serving the public electronically and making it possible for people to carry out their business with government via the Internet instead of having to physically attend government organisations. For example, one focus group participant said:

It is about accessing government organisations electronically from one website. People can get their government business done via the Internet.

Thus, there is no need to visit any government organisations.

A few of the focus group participants indicated that they could guess the meaning of e-government services. Some mentioned that this concept reminded them of “globalisation”, while one participant thought that it could be anything electronic and related to government organisations. One respondent said, “*I understand that it is something electronic but I don’t know what it is exactly!*” The concept of e-government services was ambiguous to a few of the questionnaire respondents, who clearly did not understand what it meant.

The range of respondents’ comments shows that the concept of e-government is not widely known to the public in Kuwait. This confirms the quantitative data, where the majority of the respondents indicated that they did not use the e-government services.

8.3 Usefulness of e-government

The participants were asked about the advantages they could gain from conducting their business with government online. The responses obtained from both focus groups and open-ended questions provided some insights into the potential usefulness of e-government to its intended users, i.e. private citizens, businesses or government employees, and also to the country itself.

8.3.1 Users

The majority of questionnaire respondents and focus group participants indicated that e-government services were useful in several different respects. Several respondents praised the use of technology in projects that benefit the citizens of the country. They thought that it was time to utilise current communication technologies in the provision of government services since this would make the services more accessible to a large group of the population.

Compared with the current situation, where people have to visit government organisations to get their business done, some questionnaire respondents thought that the availability of useful information about government services on a website would save them time and effort, because this would enable them to check all the documents needed before starting any of the procedures usually required to access any government service. With regard to the full implementation of e-government services, where all services are performed online, the majority of focus group participants and questionnaire respondents agreed that such services might save a lot of users' time, removing the need to visit a government department. Those services would be convenient for many users, who could access them at any time of the day or night, especially as the majority of users were likely to be busy during the day, in study or work. A typical response by many respondents was that, *"Online services save time and effort and are always within our reach"*.

A large number of questionnaire respondents and focus group participants mentioned that the use of services electronically would also reduce the need to travel in hot weather and to wait in long queues, and obviate the need to deal with some uncooperative employees, all of which could be very stressful. For example, one respondent said:

I am a dental student, so I don't even have time to scratch my head, let alone drive all the way to a ministry for a service in this scorching heat. So, with the press of a button I would be very happy to complete any work I have to do online rather than dealing with some moody employees.

In addition, many questionnaire respondents and focus group participants thought that the usefulness of e-government services lay in the following:

- Being quicker than having to make appointments, which might take weeks.
- Being more efficient and accurate, since all services were used in one place with less chance of human error.
- The failure of government to staff departments to cope adequately with the demand for services from a rapidly increasing population .
- Fitting into the fast pace of life people currently live.
- Making life easier for many people and satisfying their needs by following up service transactions online.
- Increasing electronic awareness, which would help increase computer literacy in society.

Moreover, many respondents and participants thought that the usefulness of e-government services was associated with positive experiences they might have. For example, receiving appropriate responses to service enquiries would make their experience positive, whereas negative experience could be related to receiving incorrect responses to enquiries, which would put many users off using online services in the future.

Concerns were raised by many questionnaire respondents and focus group participants that if the e-government website was not usable and functional, the e-government services would be a waste of time and unresponsive to citizens' needs. For example, one respondent said, *"If the website is easy to use, then services will be done very quickly and easily"*. Others were also concerned about the procedures required to complete an interaction, for example, if citizens were still required to visit government organisations, this might make the online services futile. One respondent said:

I think with e-government we still have to physically attend government organisations and deal with employees for signatures, stamps, payments, etc.

8.3.2 Government employees

Similarly, many questionnaire respondents and focus group participants felt that e-government services would provide government employees with many benefits that would enable them to work more effectively, like reducing the pressure of work on them, enhancing their computer and Internet skills, and minimising their errors. One focus group respondent said:

Now, the overloaded employees make many mistakes and their views sometimes differ. However, providing government information and services online will help to relieve the load on employees and consequently, human errors will be minimised.

However, a few respondents were concerned that the use of government services online might give government employees the opportunity to work from home, which they thought was a bad idea.

8.3.3 Country (Kuwait)

The usefulness of e-government should be extended throughout the country according to many questionnaire respondents and focus group participants. They were optimistic about the project and indicated that the full implementation of e-government services could be a way of coping with the rapid technological developments currently taking place, and thus help in the development of the country. Other respondents thought that e-government services would help in the improvement of government performance, particularly in delivering government services:

If this project is fully implemented, I am sure that this will pave the way for a qualitative transition of Kuwait in government service.

There is no doubt that e-government services provide a variety of benefits for citizens, employees and the country itself. However, there is a need for full implementation of such services if people are to gain the benefits promised. One respondent said, *“In general e-government services are excellent.... If they are fully implemented, they will be practical, useful and successful”*1.

8.4 Ease of use

It is evident from the questionnaire results that the majority of respondents thought that it would be easy for them to use e-government services, reflecting respondents' Internet experience. The responses from the focus groups also support this to a great extent, as the majority of the participants thought that it would not be difficult for them to use services online. They mentioned that their familiarity and experience in using computers and the Internet would make using services online simple and easy. One respondent said, *“I have enough Internet experience that enables me to use e-government services”*.

8.5 Bureaucracy

As the delivery of current government services is associated with bureaucracy, focus group participants were asked whether they thought that offering services online would help in reforming the bureaucracy. The majority of the focus group participants as well as questionnaire respondents thought that the implementation of e-government services would be a huge development and a step forward in the delivery of government services. They thought that if e-government services were successfully implemented, then there would be a shift from bureaucratic services to online services, which would improve the quality of services provided to the public. Moreover, this shift would decrease the pressure on services delivered in a traditional or conventional way, which consequently would improve. Many questionnaire respondents and focus group participants criticised the bureaucratic procedures currently in place and expressed a

wish for the full implementation of online services, which they thought would lead to a decrease in many of the existing bureaucratic procedures. A typical response was this:

Finally, we will get rid of bureaucracy and the unnecessarily complicated procedures in government services.

However, some questionnaire respondents had no faith in the possibility of reducing bureaucracy in government work. Based on the current performance of government, they thought that similar bureaucratic procedures would be transferred from the traditional to online services. One respondent said:

It's an excellent idea, but I think in its actual application it will not be as successful as first envisaged. It makes me think that requests for service, instead of sitting for several weeks on employees' desks to be carried out, will take several months on the e-government website.

Criticism of government employees was voiced by many questionnaire respondents and focus group participants, especially for the way they interacted with the public. Those respondents and participants thought that some government employees could be described as lazy and irresponsible in their work performance. To those respondents and participants, using e-government services seemed far more preferable than face-to-face interaction with these employees.

8.6 Social influence

Collectivism is dominant in Kuwaiti culture, where people surround themselves with those who share a similar identity. Accordingly, social influence is expected to play an effective role in the adoption of e-government services. Therefore, focus group participants were asked if social influence might have any effect on their adoption of e-government services. A few of the participants indicated that they might be influenced by their peers if they said the system was good. Specifically, some of the male focus group participants thought that if e-government services were discussed in the “diwaniya” – a place where men gather – and their peers gave positive reviews

about using them, they would definitely be influenced and use such services. Moreover, a few of the questionnaire respondents indicated that both they and other members of their families had used the e-government services many times. One respondent said:

It's very good idea; I have used some of the online services and so have other members of my family.

Other respondents thought that the use of e-government services could be influenced by the number of people using them, saying, “*the more people use the system, the more we will be encouraged to use it*”. However, a few respondents thought that they would prefer to rely on their own experience to decide whether the system was good or bad. If the experience was good, then this would influence their decision to adopt it, regardless of its use by others. One respondent said:

I think using e-government services will depend on my experience. If they are good, then I will use them again, regardless of whether others have used them or not.

Another respondent mentioned that he looked for anything that made things easier for him; therefore, he had used the system even before many people knew about it, because it suited his lifestyle.

It is clear from the responses that social influence had little effect on most of the questionnaire respondents and focus group participants. This supports the questionnaire result, which showed that the majority of respondents made their decisions about adopting e-government services independently. However, using the new version of services needed to be easy and successful so that users have a positive experience of it and consequently influence others.

8.7 Gender issues

The limited role of women in interacting with government departments for services led to a small number of female questionnaire respondents and focus group participants

raising the issue of gender as part of the role of culture in the adoption of e-government services in Kuwait. Some thought that e-government services would be particularly useful for them, as they would become more independent. Other respondents thought that such services would avoid the embarrassment they might face in dealing directly with government employees. In addition, other female respondents thought that such services would be, “*very convenient since they make it unnecessary for us to mix with males*”.

Another female focus group participant thought that e-government services would enable women to perform many tasks online, thus helping to minimise the responsibilities of men within families. Therefore, e-government services might be used by both men and women, unlike traditional services, which were generally used by men. Also, two female respondents mentioned that although such tasks were men’s responsibilities, they could be undertaken by women in the future. One female respondent said:

Online services are one of the most excellent steps taken by government to improve the services; however, I do not need to make use of them now because someone else takes care of them.

By contrast, two questionnaire respondents showed a negative attitude and said they would refuse to use online services because they considered that using government services was the responsibility of males.

Supporting the questionnaire results to some extent, these findings clearly demonstrate that there are few gender differences in the adoption of e-government services. However, for some women developing experience in using e-government services would have real advantages.

8.8 Connections (Wasta)

Connections or “wasta” in Arabic culture is “a form of corruption that involves using one’s connections and influence in places of power to get things done outside normal

procedures” (Epyon 2005). The widespread use of *wasta* in Kuwaiti society, especially in conducting government business, leads to suspicions that government is unfair. Therefore, participants were asked if they thought that the implementation of e-government services would, to a great extent, limit the use of connections or “*wasta*” in service delivery. The majority of respondents thought that e-government services would restrict the use of *wasta*. They thought that with e-government, “*wasta would be greatly limited*” and “*any unusual procedures would be automatically rejected by the system*”.

It is evident from the questionnaire results that respondents expected e-government services to give the whole population equal chances when conducting government business. The qualitative data also support this view, with the majority of questionnaire respondents and focus group participants thinking that the most important advantage of implementing e-government services was to give all people an equal opportunity to carry out their business with government. This would be a kind of justice for those who did not have *wasta*. One respondent said:

Wasta will disappear, and justice will be achieved for all citizens, who will have equal chances in society.

However, other respondents thought that it was difficult to remove *wasta* from government work because “*it is part of the culture*”. One respondent said sarcastically:

Wasta in our society will be used in everything, even if it is electronic.

A few participants indicated that if e-government services were not properly implemented, *wasta* might move to electronic services. This view was supported by many focus group participants, who thought that government officials would definitely interfere in the system to keep their power. Another participant thought that limiting *wasta* would depend on the level of human interference in the system. She said:

If there is no human interference, wasta will be very limited; whereas, for example, if the interference is about 50% then wasta will still be there in the same percentage.

The results show that the majority of participants and respondents set their hopes on e-government services as a means of eliminating connections (wasta) from all of government business, in order to give people an equal chance in getting their business with government done.

8.9 Unemployment

Participants were asked whether they thought any disadvantages would result from the full implementation of e-government services. Many focus group participants expressed their concerns about the increasing rate of unemployment among citizens in Kuwait, due to the reasons explained in Section 4.2.6. They believed that if e-government services were fully implemented and worked well, all transactions currently involving government employees would be carried out by computers, and government employees would be redundant. Other focus group participants supported this line of argument and thought that e-government services might jeopardise many current government jobs, such as filing and archiving. This *“in turn would increase the rate of unemployment, which was already high”*. One participant said:

With e-government services, the government will reduce the number of its employees; instead of having 20 employees for different jobs, there will be two or three to work on computers. So, where are we going to work when we graduate?

Some questionnaire respondents and some focus group participants also mentioned that e-government services might minimise the chance of obtaining employment in the government sector, which was considered preferable to working in the private sector, as mentioned above.

However, other focus group participants argued an opposing point of view, thinking that more jobs would be created to follow up the services delivered online, in addition to maintaining traditional services. They added that this would encourage job candidates to enhance their computer and Internet skills before applying for government

posts, which in turn would improve the efficiency of potential government employees and their work. One respondent argued:

On the contrary, I think that the more people use online services, the more employees are needed to follow up actions on the online system, and therefore a number of new jobs will be created.

These findings suggest the unemployment issue might be a concern for many potential users and would deter them from using the e-government services.

8.10 Digital divide and social inclusion

Many questionnaire respondents and focus group participants raised another issue that might arise as a result of implementing e-government services. They thought that many people in Kuwait might be disadvantaged by such services, since large numbers of older people and many foreign workers do not know how to use computers, especially those on a low income who do not own computers or make use of government services available to them. A typical response was that, “*E-government services will be good for the new generation but the older generation will find it difficult to use them*”. The results of the QUIS questionnaire in the usability testing supported this view: a number of respondents thought that the website was not designed for users with different levels of computer and Internet experience.

Moreover, it is evident from the questionnaire results that respondents attributed ease of learning and using e-government services to experience with the Internet. The responses from the focus groups also support this view and most participants were concerned that many people would experience problems related to using e-government services.

A focus group participant was concerned about computer and Internet illiteracy among a large number of people in society, even though some of them hold higher degrees. He blamed the Ministry of Education for not promoting computer literacy programmes and teaching children, students in schools and universities, housewives and everyone who did not know how to use computers as a step to eliminate such illiteracy. However,

another participant argued that computer skills were taught in schools, showing that the government, or more specifically, the Ministry of Education, was serious about developing a new generation capable of using computers, but some people were not interested in moving beyond what they had learnt at school. In line with this view, some questionnaire respondents admitted that their failure to learn more about computers was their fault. These results reflect the digital divide in the Kuwaiti society, which consists of individuals with different levels of ICT literacy, and the need for an appropriate program that helps in making all people ICT literate.

According to some of the respondents, ownership of the necessary resources, like a computer and Internet access, was a hindrance to the adoption of e-government services for many people in Kuwait, especially those on a low income. Others thought that, although the ownership of the resources was not a problem, fear of change in carrying out their business with government by electronic means would prevent many people from using e-government services. Such fears could be related to age, resistance to ICT, lack of computer and Internet skills and technical problems. Other respondents added that just like any technology when first introduced, e-government services would intimidate many people, who would find them difficult to use, hence more time was needed for those people to accept the new system:

Most Kuwaiti houses have computers and Internet access as Kuwait is one of the richest countries, but the question is this: is it possible for everybody to accept the idea of using online services?

The results reflect the uncertainty, avoidance and fear of change that normally occur with the introduction of any new technology, where the need for communicating the e-government services as well as a proper training become crucial to overcome such concerns.

Other questionnaire respondents were also concerned about the different cultures of the foreigners in Kuwait, who constitute about two thirds of the population. This concern was shared by focus group participants, who thought that other cultures should be considered in the plans for e-government services in order to assist all people to be socially included and become part of the community. Moreover, the majority of

respondents thought that if the government failed to make the system accessible and relevant to all potential users of e-government services, the project might fail. One participant said:

E-government services should be obligatory. Therefore, all people in society should be able to use them, otherwise, the whole project might fail.

These results echo the heterogeneity of Kuwaiti society, which consists of individuals of different cultures. This therefore would raise the expectation of e-government to meet various needs of different people, to include all of them in society.

8.11 Government-public communication

Communication is among the benefits that e-government services offer to citizens. Therefore, focus group participants were asked what they thought about government-public communication through e-government services. They gave a variety of answers. Some focus group participants thought that using the Internet to communicate with government would be more convenient, as they could express their views *“freely, easily, and without revealing their identity”*. Other participants mentioned that e-government services would allow for the establishment of online communication channels with the government, which might make contact fast and easy. A typical response by many respondents was that, *“E-government website would facilitate the interaction and communication with government”*. Many questionnaire respondents supported these views and mentioned that the e-government website would provide a good opportunity for people to communicate and interact with the government and make their voices heard.

Moreover, the majority of focus group participants expressed positive attitudes towards online communication with government and thought that different issues relating to the welfare of society and of the country might be introduced online for the public to discuss and state their opinions and views. To be more effective, government officials

would need to take these seriously, reply and thus interact with the public; otherwise such communication would be pointless. As one respondent said:

There should be interaction with government to express our opinions on any topic under discussion, but there should also be people from the government side that read what has been written and reply to our comments and suggestions, otherwise such communication will be of no use.

One focus group participant supported this view and suggested that communication would be more powerful if the members of Parliament took part in public-government discussions so that different views were included. In contrast, for one respondent, public-government communications were illusionary because, *“this level of transparency has not yet been reached in Kuwait”*. She believed that even if there were some kind of communication, government officials would not listen to the public and would ignore all opinions and do what they wanted. Another respondent also thought that if government was obliged to discuss topics with the public, then, *“only trivial topics will be raised for discussion, which will make discussions very shallow and superficial”*.

According to these results, there is no doubt that the majority of participants and respondents are looking for government-public communication in order to express themselves freely and participate in society.

8.12 Technical issues

Technical infrastructure is considered an important prerequisite for the implementation of an e-government-type project in any country. Although all manual procedures in the work of the Kuwaiti government have been computerised, participants were asked what they thought about the readiness of the e-government services technically in light of their experience with government organisations. Many focus group participants and questionnaire respondents thought that the computerisation of manual procedures did not mean that the technical infrastructure for e-government services was fully

implemented. They mentioned that the full implementation of the technical infrastructure could be achieved by linking all government departments with each other using a database. They indicated that currently, each government department works in isolation from other departments, and that, “*similar documents are required for service by different departments*”. One respondent added:

Efficient employees with computer skills are an essential part of the technical infrastructure, but many employees working for government at present are not competent enough to use computers. This is reflected in the slow performance of the bureaucratic service.

Such issues, according to many respondents, needed to be addressed properly if government organisations were planning to have a comprehensive technical infrastructure, ready for implementing e-government services. One respondent said:

It's obvious that many government organisations need to build up their technical infrastructure before starting e-government services.

On the other hand, the general perception of many questionnaire respondents and focus group participants was that online services could be a nuisance to users when online service procedures were affected by technical problems, such as network and server malfunctions or downtimes, and access problems. Such technical problems might cause serious delays, not only in service transactions, which might, “*waste a lot of time and cause a lot of annoyance to users*”, but also in all government work in the country, which might take a long time to fix.

Service completion is promised within an estimated time. However, if any technical problem is encountered by the system, the response will not be given in the time specified. This will make it difficult to for us to follow-up the service procedure because we don't know to whom we should refer, and we would have to start from scratch.

Technical issues constituted a concern for many focus group participants and questionnaire respondents. Therefore, all such issues need to be resolved to ensure the smooth use of e-government services.

8.13 Trust in the Internet

Asked if they trusted the Internet as a vehicle for conducting business with government, the participants gave various answers. Many focus group participants, supported by the views of many questionnaire respondents, thought that advancements in security software, the supporting technology and the Internet itself had made the use of services online safe and secure. Other participants thought that there was no harm in having their personal information online because such information could be found in the existing systems in many government organisations already. One participant said:

I always shop online and haven't faced any problem regarding my personal information. Therefore, I think I will trust e-government services and use them when I need to.

However, many questionnaire respondents and focus group participants were concerned that any technical problems in the system would affect information sent or received via the Internet. Others thought that if there were no proof about the completion of a service transaction, such services might not be trusted. Therefore, many participants preferred dealing face-to-face with government employees to ensure the safety of their personal information as well as the success of service completion. One participant said:

Online services are not secure enough to trust because a service transaction depends on good networks, properly working equipment, and proof of service completion. If those are not assured, we would be worried about the completion of the service and we would prefer face-to-face contact to ensure the success of the service.

In addition, a few participants were concerned that their personal data might be, “played with by hackers”. They thought that no laws had been developed in Kuwait that would

protect users' privacy rights and consequently the way might be open for intruders to corrupt official information. One participant said:

It's an excellent idea. However, in my view, it's not secure enough because hackers could break into the website and play with our personal data. In this case, my personal data could be corrupted and no one would help me to put this right again. Therefore, I am very cautious in using the e-government website and I use it only for finding information.

As indicated by the above results, trust in the Internet varies from one person to another depending on their positive or negative perceptions of it and the performance of e-government website. Moreover, many respondents thought that trust could be related to the IT skills government employees have which would enable those employees to handle services electronically.

8.14 Trust in government

To ascertain if government was trusted, the focus group participants were asked whether they had adequate faith in government to enable them to use e-government services. Many of the participants agreed that they were prepared to use the services online, showing their trust in the government. However, a few respondents indicated that they would not use the online services due to lack of faith in the government. They thought that the bureaucratic attitudes found in the work of government might be mirrored in the electronic environment. One participant said:

Bureaucracy characterises government work even if it is provided online. Therefore, I think that e-government services would be no better than the traditional services.

Other respondents thought that such lack of faith in government was a result of the performance of some government officials, who delayed the implementation of the e-government project for their own benefit. One respondent mentioned:

Large budgets are allocated for each government organisation to implement the project; however, some government officials are hindering the project's progress in order to keep their power in government.

A focus group respondent mentioned that trust in e-government services would be determined by experience. She thought that prior to such experience:

People do not have any bias. Therefore, a good experience would lead them to trust the system, whereas a bad experience would drive them away from the system.

The results show that the majority of focus group participants and questionnaire respondents had faith in the government. However, a few lacked such faith, for reasons related to government performance.

8.15 Awareness

The majority of questionnaire respondents and focus group participants complained about the lack of awareness of the e-government project in general, and about online services in particular. They asserted that nobody had heard about the project and it was almost unknown to many people in Kuwait. This was supported by the questionnaire results, which showed that the majority of the respondents said they did not use the e-government services. Many participants blamed the media and thought that such an important project should be highlighted by different media and good advertisements to make people fully aware of it and of its benefits. For example, one participant said:

There is no awareness of e-government. If you ask anyone in the street about it, he or she might not know about it or even about its meaning. So, who is responsible for that?

Other respondents refused to provide answers to the open-ended question on the questionnaire, and stated that they could not provide their views because they did not

have any idea about the topic, and did not have enough information to state their opinion. Comments such as, “*I have no information about it to state my opinion*” were common in questionnaire responses. Some respondents mentioned that the questionnaire had made them aware about e-government and this had prompted them to find out more about it.

Other focus group participants thought that lack of awareness about e-government services included lack of instructions on how to use the services, which might discourage potential users from using the online services. One participant said:

I think e-government will be good. However, I've noticed that there is ignorance in Kuwaiti society about it and about online services; and also about the way such services are used. And this goes back to awareness.

The above results indicate that awareness of e-government services and the benefits they provide to stakeholders was considered the most important factor that would encourage large numbers of people to adopt the new form of services. This, again, reflects the need to inform all individuals within the society about these services and what benefits they might get from using them.

8.16 Website design

As additional information, many respondents to the questionnaire, and participants in the focus groups and usability testing, evaluated the e-government website as the “face of government” from the users’ perspective. Respondents identified the strengths and weaknesses of the website as follows.

8.16.1 Strengths

A few respondents mentioned the following strengths of the website:

- The website was comprehensive, with different types of information included on one website.
- Home page was clear and easy to use.
- Access to information about different government authorities was easy.
- Government services available were easily accessed.
- Online services were relatively easy to use.
- Different pages on the website were easy to browse.
- Site design was attractive.
- Images helped in browsing the website.
- The site map covered all topics on the website.

One respondent said:

The URL address of the website is very good. The website is attractive and easy to learn and use, although it needs to include more information about Kuwait as well as interactive services.

8.16.2 Weaknesses

Many respondents with different levels of Internet experience, however, thought that the website had a number of weaknesses that would hinder many potential users from using the e-government services. The weaknesses cited were as follows:

- Not enough information was available on the website.
- Some of the information available was out of date.
- Links were not clearly classified.
- Few images were included.
- The font used was too small.
- Website was not well organised.

- Not all government services were included.
- No FAQ used.
- Site contained a number of broken links.
- Some of the information was unclear.
- Users could be easily lost when browsing the website.
- Arabic and English versions were mixed up with each other.
- Website could not be used by different users with different levels of Internet and computer experience.

One respondent said:

There is some information on the website that is hard to understand. Some services need a username and password. This is very confusing as we don't know whether such services are for public use or for official use.... This should be clarified and more instructions should be provided.

The results identified the strengths and weaknesses of the e-government website that would contribute to encouraging or hindering the adoption of services available online.

8.17 Suggestions

Not surprisingly, most of the focus group participants and many questionnaire respondents wanted improvements to e-government services, to enable them to be used by large numbers of people. They provided some suggestions that might help in enhancing such services, such as the following:

- The technical infrastructure of government should be fully implemented so that all government organisations are linked with each other.
- Successful e-government experiences of other countries should be adopted to improve Kuwait's e-government.
- Awareness campaigns should be conducted to inform the public about the e-government services and how useful such services could be for them. One

participant said: *“An e-government course should be taught in high schools to make the new generation aware of its importance and usefulness, and the way in which services are used.”*

- Polls, surveys and e-mails should be created and provided online for people to communicate with the government and to provide their views regarding different issues. One participant said: *“Before introducing any project, public views and needs should be investigated because at the end of the day, this project will be for people, so their needs should be met.”* This suggests the importance of analysing the needs of different individuals so that e-government services become responsive to such needs.
- Incentives should be provided to encourage the use of online services.
- Computer and Internet courses should be provided to the public so that they are able to use the e-government services.
- Technical, educational and informative support concerning the use of online services should be provided continuously to the public.
- Privacy and security laws should be developed to preserve users’ rights.
- The cultural differences in society should be considered in the design of the e-government website.
- Collaboration with the private sector in the management of the website would ensure the quality of services provided. One participant said: *“Applying B.O.T⁷ to the e-government website would make use of private sector resources in the improvement of government services”*.
- To bridge the digital divide, centres equipped with workstations in community centres in each area should be provided for people to access the e-services; and Internet access should also be provided for the public at reasonable prices. *“There should be stations in all co-op societies, as the most convenient place, to provide online services for all those who do not have PCs or Internet access, as*

⁷ B.O.T. is the involvement of the private sector in the development and funding of public facilities and services, and techniques for a given period, with the public sector acquiring operational control at the end of that period.

well as full support for using the services". This suggests that it is also important to provide human support for users to ensure that they have completed the services correctly and thereby enhance their confidence in the services.

- The website should be improved in the following areas:
 - More appropriate images should be added.
 - Some fonts should be enlarged considering other users, especially older people.
 - Colours should be more attractive.
 - The website should be better organised.
 - More information should be added about the services.
 - A tutorial on how to use the services should be provided.
 - Services should be made uniform.
 - All information on the website should be up-to-date.
- Website evaluation should be continuously carried out for improvement to satisfy all users' needs.
- There should be a balance between offering traditional and online services.

These suggestions reflect the gaps in the provision of e-government services from the users' perspective. There is a need for improvements in various areas, such as website, technical infrastructure and awareness.

8.18 Summary

In this chapter, qualitative data drawn from focus group sessions and open-ended questions were presented according to their themes. The respondents' adoption of e-government services was linked to various issues related to the usefulness of e-government, ease of use, social influence, bureaucracy, technology, privacy and security, unemployment, communication with government, trust and website design. Finally, a number of suggestions made by many respondents that would aid in the improvement of the adoption of e-government services were presented.

Chapter Nine

Discussion

9.1 Introduction

This chapter discusses the results presented in Chapters Six, Seven and Eight in light of Chapter Two and Three (Literature Review) and Chapter Four (Research Background and Context), addressing the research aims and objectives stated in Chapter One. Factors that determine the use of e-government services by students at Kuwait University as identified through an amended version of the UTAUT model, and other factors that influence their adoption (factors not addressed in the UTAUT model) are discussed in this chapter. The evaluation of the e-government website, issues related to social inclusion and public interaction with government are also discussed in this chapter. Finally, a systemic approach is adopted and explained to provide some understanding of the factors underlying the adoption of e-government services as identified in this study.

9.1.1 Background

The aim of the research was to explore the adoption of e-government services by citizens. Objectives 2, 3, 4 and 5 were shown to be partially met in Chapters Three, Six, Seven and Eight and are further explored in this chapter.

In order to explore factors that determine the adoption of e-government services by students at Kuwait University, the UTAUT model was adopted and amended to suit the context of this study, as mentioned in Chapter Three. Due to time constraints, it was not possible to conduct the study across different periods of time, as has been done by other studies using the UTAUT or other acceptance models, to discover the intentions of respondents over time; however, this study attempted to explore any changes in respondents' intentions through the 'intention' question, which asked respondents whether they intended to use e-government services in the future: in "four weeks", "three months" or in "the future". Testing the amended UTAUT model for each time span found changes in the factors that affect the intentions of the respondents for each

of these time periods. The results found are discussed in this chapter in light of results drawn from usability testing and other qualitative data.

The exploration of other factors affecting the adoption of e-government services by respondents is also discussed to create a complete picture of the factors affecting the respondents' adoption of e-government services.

9.2 Determinants of adoption of e-government services

The amended UTAUT model was empirically tested in order to identify the constructs that determine Kuwait University students' intention to use e-government services. The effects of moderators on the relationship between determinants and outcomes were also tested, and these tests are discussed below.

9.2.1 Performance expectancy

In general, the majority of respondents showed positive attitudes towards gains expected from using e-government services. In relation to their behavioural intentions, performance expectancy was significant only for the time spans "next three months" and "future". For the time span "next four weeks", the direct relationship between performance expectancy and behavioural intention was not significant. However, it became significant when the relationship was moderated by the respondents' Internet experience; the effect of performance expectancy on behavioural intention was shown to increase with greater Internet experience. This indicates that respondents with greater Internet experience have already realised the benefits to be obtained from using the Internet and related such benefits to their intention to use e-government services. The significant and strong influence of performance expectancy on students' intention suggests that university students tended to focus on the usefulness of e-government services and specifically on what they would gain from using such services. Therefore, for e-government services to be accepted by the public, it will be necessary to demonstrate the advantages and benefits they are likely to provide for users. These findings agreed to some extent with those reported by Venkatesh *et al.* (2003) and

Rosen (2005) who found that performance expectancy was significant to the intention to use technology at different times of measurement.

9.2.2 Effort expectancy

Similarly, the majority of respondents had positive attitudes towards the ease of use of e-government services. People favoured a system that would be easy to use and demanded little effort on their part. The direct relationship between the effort expectancy and behavioural intentions of respondents was significant for all three time spans. The relationship was also moderated by their Internet experience for the time span “next four weeks” in that once Internet experience increased, effort expectancy became less important. This is because many students were confident in their Internet abilities, enabling them to use the e-government services. With regard to the “future” intentions of respondents, the relationship was also moderated by the type of course respondents were taking, such that when they were taking science courses, effort expectancy became even less important to their intention to use e-government services. This can be attributed to the significant differences that exist between the skills and intellectual demands of different academic subjects; science courses place a great emphasis on practice rather than the cognitive theories emphasised in humanities courses. The significant influence of effort expectancy suggests that respondents intended to use e-government services if they were easy to use, so that they would have more time for other activities. In the case of students, since they were busy with their studies, they would have little time to spend on using the services. Although effort expectancy becomes less important for those with greater levels of Internet experience and for those who are studying science courses, it will be necessary to provide simple e-government services, taking into account that the target population will have different levels of Internet experience and different educational backgrounds. These results are similar to those found by Venkatesh *et al.* (2003) and Rosen (2005), who indicate that effort expectancy was significant during the first measurement periods. Although the results of Venkatesh *et al.* (2003) and Rosen (2005) also showed that effort expectancy became non-significant over periods of extended and sustained use, such findings cannot be applied here because this study was undertaken at one point in time only.

9.2.3 Peer influence

The results showed that to some extent the majority of respondents were not influenced by their peers; instead, they independently formed their intention to use e-government services. In terms of testing the amended UTAUT model, peer influence was found to be significant only in the “four weeks” time span. This suggests that peer influence is more significant and important when individuals have limited experience of online services. Therefore, it is essential that government bodies ensure that users have a positive experience while using their e-services as their experience might influence their peers and other people important to them. While these results are in accordance with those by Hung, Chang and Yu (2006) who found that peers’ opinions about e-government services influenced non-adopters, and with those by Taylor and Todd (1995) who found that a subjective norm was significant for behavioural intentions in the early stages of a system’s implementation, they contradict those reported by Rosen (2005), Davis, Bagozzi and Warshaw (1989) and Mathieson (1991) who found that social influence and subjective norm did not have any significant effect on behavioural intentions relating to study contexts, since the use of a system was considered to be personal, individual and less driven by social influences.

9.2.4 Facilitating conditions

The majority of respondents indicated that the resources required to use e-government services were not a problem; however, the requisite information regarding the use of such services did concern them. They also showed a preference for using e-government services if all necessary resources and information were provided, simply because using e-services fits into their lifestyle. The test of the amended UTAUT model showed that the facilitating conditions were significant for the use of e-government services. As at the time of data collection, the majority of respondents did not use e-government services. It is apparent that the necessary resources, support and awareness are essential prerequisites for using e-government services, since such resources provide users with the information and tools that enable them to know how to use the services. These

results were similar to those reported by Venkatesh *et al.* (2003) and Hung, Chang and Yu (2006), but are in contrast to those reported by Rosen (2005) who found that facilitating conditions were not significant to the use of the software.

9.2.5 Behavioural intention and use behaviour

The results of the question about the intention of respondents to use e-government services show that respondents were uncertain of their intentions over the “next four weeks” and more likely to be negative about the use of services. In the time span “three months”, they were also uncertain but more likely to be positive; however, their intention was very positive for the “future” (see Section 6.4.5). Consistent with the findings by Venkatesh *et al.* (2003) and Taylor and Todd (1995), behavioural intention had a significant direct effect on the use of e-government services. This suggests that students required more time to find out about the services which they considered using in the future.

Both behavioural intention and facilitating conditions were found to be significant factors in students’ intended adoption of e-government services, suggesting that the factors of performance expectancy, effort expectancy and peer influence as well as the provision of essential resources and information and of continuous support need to be addressed to encourage citizens to use services that are congruent with their current lifestyle.

In summary, the logistic regression analysis indicated that the research model performed well, with typically 60% of cases predicted correctly. The analysis also showed the validity of the model through a goodness of fit test, which indicates that the model was significant and reasonable for the data provided. The analysis also showed that for short time periods, such as “four weeks”, where the experience of using the system is limited, effort expectancy had a significant influence on students’ intention to use e-government services. Peer influence was also shown to play an important role in determining students’ intention, as positive experience with the system might influence the attitudes of their peers towards using the services. The performance expectancy of e-government services was also significant but only for respondents with greater levels

of Internet experience, whereas effort expectancy became less important for those with a similar level of Internet experience. For longer periods of time, such as “three months”, only performance expectancy and effort expectancy influenced the students’ intention to use e-government services. Similar results were found for prospective unspecified periods of times, such as “future” use; however, effort expectancy was less important for respondents taking particular types of courses, such as scientific courses. Moreover, behavioural intentions and facilitating conditions were significant to the use of e-government services. The results of the model are explained in greater detail below, under the relevant subheadings.

9.3 Factors influencing adoption of e-government services

The qualitative findings confirmed the quantitative ones. These findings identified other factors that are likely to influence the adoption of e-government services. These factors are discussed below.

9.3.1 Usefulness of e-government services

E-government services were considered to be useful for users, government employees and the country implementing them.

9.3.1.1 Users

According to the qualitative results, supported by the quantitative findings, the majority of respondents thought that e-government services would be useful to them. They favoured e-government services over traditional services because of convenience of access, savings in time, money and effort, and efficient service delivery. Many respondents also thought that such services would prevent them encountering stressful situations, such as waiting in long queues, and dealing with uncooperative employees. These findings confirm the results of performance expectancy in the amended UTAUT model, which were significant for respondents’ behavioural intentions. The findings

also suggest that the intention to use e-government services is likely to increase if citizens perceive the usefulness of the services. Respondents in this study viewed e-government services as a great change from traditional services, which are associated with inefficiency and wasting of time. They expected that services would be rendered more efficient and delivered with fewer errors. The literature emphasises the usefulness of e-government services that might be provided to users, for example, Gilbert, Balestrini and Littleboy (2004, p.290) and Edmiston (2003, p.22). Moreover, while these results are in accordance with those reported in a number of studies, for example, Graafland-Essers and Etedgui (2003), Carter and Belanger (2003, 2004), Dimitrova and Chen (2006) and Phang *et al.* (2005), they contradict results reported by Carter and Belanger (2005).

The small percentage of respondents with a negative attitude towards the usefulness of e-government services were comprised of those who had some experience of e-government services. Since the e-government services project is not yet fully implemented, such users often encountered problems using the services online, and therefore thought that such services were ineffective and a waste of time, and that their experience would deter them from using online services in the future. Other respondents showed some concerns about the usefulness of online services, indicating that such services might still require them to visit government buildings for further procedures such as signatures, stamps and payments.

9.3.1.2 Government employees

As discussed in the literature review, the implementation of e-government services provides the opportunity for government employees to become more highly skilled (Pascual 2003). This view reinforces the view of the respondents in this study, that e-government services are likely to provide government employees with many benefits, enabling them to work more effectively, enhancing their computer and Internet skills, and minimising their errors. In fact, this is already occurring in Kuwait, as the Kuwaiti e-government team offers training sessions to the workforce along with the implementation of ICT in Kuwaiti ministries and government departments that helps

them to use PCs, productivity tools and systems, databases and various other information system applications⁸, as indicated by an official in the Kuwait e-government project.

9.3.1.3 Kuwait – the country of e-government services implementation

All the benefits gained from the implementation of e-government services and the efficient delivery of services attract investors and help businesses grow and markets expand worldwide, yet also have the advantage of being “local”, as indicated by Pascual (2003), thereby contributing to the economic growth of the country (Pascual 2003). These facts emphasise the qualitative findings of this study that many respondents thought that the complete implementation of the e-government project could be a way of coping with fast growing technological developments, and thus help in the development of Kuwait. Such findings are reinforced by the adoption of the e-government project by the Emir of Kuwait, Sheikh Sabah Al-Ahmad, who considers this project to be one of the government’s top priorities, with the aim of executing a great transformation of government work (e-Kuwait 2006). Moreover, the implementation of this project is considered a medium-range objective through which further objectives will be achieved, such as the e-Kuwait project and the e-government project for the Gulf Co-operation Council (GCC) countries.

9.3.2 Ease of use

The overall perception of the respondents was that online services are easy to learn and use, especially when support is provided. These perceptions were formed as a result of the respondents’ ability to use the Internet, as most had adequate Internet experience. However, while respondents with greater Internet experience considered online services to be very easy to use, those with little Internet experience might find it difficult to become skilful in using online services (see Section 6.4.2), and therefore, ease of use becomes essential for the adoption of e-government services. These findings indicate

⁸ Interview with official in Kuwait e-government (April, 2006)

that the greater one's Internet experience, the easier it is to learn and use e-government services. Such a relationship between ease of use and Internet experience suggests that e-government services should be straightforward and easy to use, and should take account of the different levels of Internet experience of all potential users, since without these attributes it might be very difficult for inexperienced users to use the services. These findings are not surprising as they are similar to those reported by Carter and Belanger (2003, 2004), who found that complexity and ease of use were not significant in the intention to use e-government services of undergraduate students with adequate Internet experience. However, Carter and Belanger (2005) and Phang *et al.* (2005) found that ease of use is apparently a significant determinant of the intentions of people with limited Internet experience.

Many respondents also thought that ease of use was related to the simplicity of an e-government website in terms of its functionality and usability. This indicates that the more functional and usable an e-government website, the easier one finds it to adopt and use services online. These findings are highlighted by Pearrow (2000), who believes that usability is geared towards improving how easily users can use a website to accomplish specific tasks. Interestingly, this has been considered by the Secretariat Team responsible for the Kuwaiti e-government website, and as a result, the website maintains simplicity in the display of information and in the conduct of service transactions.

The overall results regarding ease of use suggest that it is imperative that e-government services should be intuitive, taking the various levels of citizens' education and Internet experience into consideration. The website should include well-organised information based on citizens' needs, allowing users to use and navigate the website easily. Such a website would allow these users to locate information and complete transactions quickly and effortlessly, which would consequently help in increasing users' intentions to adopt e-government services, as suggested by Carter and Belanger (2005).

9.3.3 Bureaucracy

The qualitative data show that the majority of respondents were optimistic about the e-government services in terms of reforming the bureaucratic procedures currently followed in the delivery of government services. Respondents expressed a cynical attitude towards government bureaucracy that requires them to follow unnecessary and complicated procedures in order to conduct their business with the government. They also criticised some government employees for their interaction with the public, describing them as, at times, lazy and irresponsible in their work. This corresponds to Ho's (2002) assertion that the bureaucracy is commonly criticised for being too rigid, as strict procedures have to be followed and it is often incapable of serving "human clients" who have preferences and feelings.

Although many members of government in Kuwait admit that inefficiencies and routine paperwork are associated with the delivery of services in the Kuwaiti ministries, many respondents to this study expressed their hope that e-government services would bring about radical changes in the conduct of government business, such as speedy service and efficient procedures. These desired changes are related to a "customer-centric" approach where production is efficient, and services are flexible, time- and cost-effective, and tailored to personal needs and preferences, as claimed by Ho (2002).

Other respondents, however, were sceptical as to whether e-government services would be the solution for solving the problems currently besetting the bureaucracy. They thought that the current inefficient performance of government shows that the bureaucracy might simply be transformed from its current traditional form to providing a similar service online. This view has also been put by Silcock (2001), who expects that e-government information and services will be no better than traditional services, and that in many cases the bureaucracy will simply be moved to e-government services and that it will probably take as long for services to be transacted. These findings contribute to negative beliefs about the current performance of government, which is expected to move into electronic systems.

The above results suggest that respondents suffer from bureaucratic government procedures in the performance of services. The bureaucracy requires citizens to visit

government buildings many times to carry out one service, official documents to be obtained from various government organisations, and similar information to be presented to different government departments. This causes many people stress and wastes a lot of time that could be invested in work or study. The hope, of course, is that e-government services will be the means by which the government can make a positive difference that ends or, at least, reduces, such inconvenience.

9.3.4 Unemployment

Worries among respondents mounted as they thought that the success of e-government services might contribute to increasing the unemployment rate, with little chance of employment being offered in the government sector. They also thought that many applicants for government positions would be rejected and computer systems would be used as an alternative, thus contributing to unemployment. Recently, unemployment has become an issue in Kuwait on account of the relatively high rate of unemployment among Kuwaiti people. As stated in Chapter Four, the number of people out of work is estimated to be 20,000 (Oteifa 2007), out of a total number of about 470,000 Kuwaiti people aged 18-60 entitled to work. Other respondents were also concerned about current government jobs, believing that many jobs, such as archiving and filing, would be abolished. These views were formed on the basis of people's experience of "employee replacement" occurring as a result of the introduction of technology. Employees would be replaced by customers who could perform their work through the application of new technology and without the involvement of current employees. This is evident in the use of technology that performs the functions previously performed by employees such as ATMs in banks and self-service gas stations (Halbesleben & Buckley 2003, p.354).

However, these views are contradicted by another view, namely that with the introduction of e-government services more jobs will be created, and that job seekers will be encouraged to enhance their computer and Internet skills in order to apply for government positions, which in turn would improve the efficiency of potential government employees and their work. These findings are reinforced by Deloitte

Research (2000), indicating that e-government, even using the best technologies and processes, does not work without quality employees. The implementation of e-government demands a new set of skills, training and work practices rather than simply offering potentially large cuts in staff numbers. Moreover, “if e-government renders some positions obsolete, governments will likely need to retain and redeploy displaced workers to help fill shortages in other service delivery channels” (Deloitte Research 2000, no page number). The findings of this study have also been confirmed by one of the Kuwaiti e-government officials, who promised that the implementation of e-government would not affect human resources or recruitment, and that instead it will rehabilitate the present workforce and open up new job opportunities (Al-Shayji 2005).

These results indicate that respondents were confused whether e-government would increase or decrease the unemployment rate, suggesting lack of communication and adequate knowledge about e-government and what benefits citizens would gain from its implementation.

9.3.5 Cultural and social influences

The analysis of data in this study reveals that there are cultural and social influences affecting the adoption of e-government services.

9.3.5.1 Positive experience and social influence

The results of the questionnaire survey indicate that the majority of respondents would use e-government services when the need arose, even if no one else used them. However, other respondents indicated uncertainty about the influence of their peers (see Section 6.4.3). Similarly, the qualitative results revealed that the experience of many respondents with online services would influence their adoption, regardless of use by others. However, other respondents mentioned that if they did not use the services, a number of factors might influence their views. For example, several respondents showed the effects of social influence on their intention to adopt e-government services when they indicated that they and other members of their families had used some of the

online services available. A few other respondents also mentioned that peers might influence their views about using online services if their experience was successful. While a few respondents were influenced by large numbers of people using the services, others said they would adopt any technology that made life easier. These findings confirm those deduced from testing the amended UTAUT model, suggesting that users' experience with online services would determine whether there would be any social influence on the adoption of e-government services, since good experience was likely to encourage users to recommend the services to others. Also, several respondents indicated that they might use the services if their peers recommended them. Again, lack of experience might increase the effect of social influence. This is in accordance with findings reported by many researchers, such as Venkatesh, Morris and Ackerman (2000) Hung, Chang and Yu (2006) and Taylor and Todd (1995), who found that social influence can play an important role in determining intentions to use a system when there is little or no experience with it. However, their interaction with the system permits individuals to judge the gains attained and to formulate their perceptions of the system.

The study also found that social influence was unimportant to many respondents, especially postgraduates. These findings suggest that those students who have adequate experience of their chosen professions are able to think sufficiently independently and normally place less weight on others' opinions. This explains the non-significant effect of peer influence on the behavioural intentions to use e-government services over the two time spans investigated in this study ("three months" and "in the future"). Such findings are consistent with those reported by Chau and Hu (2001), who found a non-significant effect of peer influence on the behavioural intentions of others.

9.3.5.2 *Connections (wasta)*

The qualitative results show that the majority of respondents might be encouraged to use e-government services if the importance of connections or "wasta" was likely to be decreased in Kuwaiti society. As explained in Section 8.8, wasta is used as a "force in interpersonal networks, every significant decision, and connections that pervade all

aspects of business and social life” (Hutchings & Weir 2006, p.273). The majority of respondents in this study thought that this kind of practice, which is found widely in government departments, helps to maintain corruption in society and increase inequality between individuals. Therefore, they thought that the use of e-government would be the means through which *wasta* would be greatly limited and that all people would be given an equal chance to carry out their business with government. This is confirmed by the quantitative results, showing that the overwhelming majority (86%) of respondents agreed with the statement “E-government would give all citizens an equal chance to carry out their business with government”. These findings are also confirmed by a study conducted by the Arab Archive Institute in 2001, which revealed that 87% of respondents viewed *wasta* as “divisive and symptomatic of corruption”. According to the Arab Archive Institute, many respondents stressed the need to eradicate *wasta*; however, more than 90% indicated that at some point in their lives they might use it. Further, a study investigating Kuwaiti public opinion conducted by the Kuwait Economic Society in 2006, reveals that an overwhelming majority of respondents believe that corruption prevails in Kuwait and *wasta* is one of the reasons for this.

Many respondents, in contrast, were less optimistic and indicated that it is difficult to limit *wasta* in governmental work, even if such work is electronic, because it has become part of the culture. Other respondents thought that the level of human interference in the system is likely to determine the level of *wasta* in service transactions. These findings suggest that the extensive use of *wasta* in Kuwait made respondents doubtful about the ability of government to eradicate *wasta* and provide services fairly to the public. The findings correspond with Cunningham and Sarayrah (1994), who argue that the *wasta* system will continue to flourish in Arab nations and will not be eradicated until the time comes for significant social changes. However, an official on the Kuwait e-government project refutes these views, arguing that e-government services will be fully executed by the system without any human interference, and that thereby *wasta* will be restricted to a great extent.⁹

⁹ Interview with an official in Kuwait e-government (April, 2006)

Similarly, lack of communicating what e-government might achieve is evident in the case of connections or “wasta”. Again, this caused confusion and misunderstanding for many respondents.

9.3.5.3 Face-to-face interaction

The qualitative and quantitative results of the study also reveal that although it would be easier for many respondents to use online services, many preferred face-to-face interaction with government employees to get their business done, explaining that the relationship with government should be live and tangible and that human judgement was necessary to understand the various views and feelings expressed. One respondent said:

It's a good technology, but it will reduce the live interaction with government more and more. So I don't think that everything in our life should be reduced to simple electronic exchanges – I prefer a tangible relationship with government.

These findings are explained in the collectivism that characterises Kuwaiti society, where relationships between people are strong and long-lasting, and usually overlap between work, family and friendship. Such relationships and face-to-face contact are important in Kuwaiti culture and usually add value to individuals' dealings with government for conducting service transactions. Another respondent said:

In many cases where human judgement is involved, dealing with employees will help me in expressing my views and feelings much better than the system.

These findings are similar to those reported by Li (2003), who found that a perceived lack of “warmth” or personal interaction, and the preference by different people for different channels at different times and for different types of transactions, is one of the barriers to citizens' take-up of e-government services. Similarly, Jaruwachirathanakul

and Fink (2005) discovered that personal relationships play an important role in the low take-up of Internet banking in Thailand.

9.3.5.4 Cultural differences

The results of the study also reveal that a number of respondents thought that the cultural differences in Kuwaiti society might affect the adoption of e-government services by the majority of its adult population, especially as more than two thirds of the population are non-nationals. These results are confirmed by one of the results of usability testing which indicates that a number of respondents thought that the e-government website was not designed for different levels of users. This suggests that if the heterogeneity of cultures found within Kuwait's borders relating to cultural variations, such as gender, age, profession, education, ethnicity, religion and social class, are not considered in the design of e-government services, the adoption of the services will be limited to certain groups in society and thus undermine the strategy of social inclusion adopted by the government. These findings are in line with Deakins and Dillon (2002) and Evans and Yen (2005), who assert that e-government should respect and consider various cultural differences within society.

The qualitative and the quantitative data did not show any agreement with the findings by Chen *et al.* (2006) and Evans and Yen (2005), which indicate that the development of e-government initiatives faces opposition in many countries because of citizens' religious and other beliefs that resist certain activities that are common in or imported from developed countries. On the contrary, the results show that the respondents in this study were enthusiastic about the implementation of the e-government project. This suggests that respondents would welcome any activity from any country that would contribute to the development of various areas in Kuwait. This also indicates that Kuwaiti people, living with large numbers of foreigners (about two thirds of the population) are more interactive and open to other societies and cultures than people in many other Arab nations. Moreover, Kuwait has always supported dialogue between civilizations through practical activities in order to create ongoing communication with other nations. According to a report of the United Nations (2002), Kuwaiti society is

also tolerant and open to an international community that offers cooperation and the exchange of various programmes, such as educational and cultural programmes.

9.3.5.5 Gender issues

Unexpectedly, the quantitative results obtained from the test of the amended UTAUT model did not reveal any significant gender influence on the relationship between performance expectancy, effort expectancy and peer influence on the one hand and the intention to use e-government services on the other hand. These results contradict results reported in many other studies, which indicate gender differences in the adoption of technology, for example, Venkatesh *et al.* (2003), Nysveen, Pedersen & Thorbjørnsen (2005), Venkatesh, Morris and Ackerman (2000) and Akman *et al.* (2005).

The qualitative findings confirm the quantitative ones to a great extent. They reveal that a large number of female respondents were enthusiastic about e-government services, thinking that they would be advantageous to them. Such services were thought to enhance their independence and their equality with men, and thus improve their status within Kuwaiti society. The absence of gender differences is reflected in the participation of both males and females in this study, and in the fact that they were receiving similar educational and learning opportunities. Historically, gender had a significant impact on the roles discharged by women and men respectively, with women mainly carrying out domestic roles and men any roles that took them outside the house. This distribution of roles still fits the conservative characteristics of Kuwaiti society. For example, doing business with government in Kuwait requires people to visit many government departments, stand in long queues and deal with government employees. Consequently, until recently only males used to visit government departments. However, with the advancement and the opening up of society, many females are now getting involved in the community, becoming more independent and starting to take an active interest in the roles and responsibilities traditionally undertaken by men, including interaction with government departments. Despite this, government services are still mainly used by males because females are unwilling to

mix with males, which is a feature of traditional society. However, the new generation, represented in those students, belong to a new Kuwaiti society which attempts to offer equal social, political and economic status to both genders within its cultural and religious traditions. One example of this is that women have recently been granted the right to vote, similar to men. Therefore, providing services online would help a large number of women, especially from younger generations, to feel more independent, equal to men and able to carry out business with government, even if they are planning not to use such services at the present time but may perhaps do so in the future, and without violating society's traditions. The insignificant findings of gender differences are consistent with those reported in Arab Human Development Reports, which found that Kuwaiti women experience less gender inequality than women in any other Arab country (Bohnet, Herrman & Zechhauser 2005). Similarly, Levy (2002) found that gender differences have no effect on the use of the Internet or of e-government services, and that the traditional gender disparity has almost disappeared in many countries.

However, one peculiar finding of this study was that two female students would apparently refuse to adopt online services because such tasks are considered by them to be part of male responsibilities. This suggests that some women are accepting their traditional social status and that certain cultural practices might cancel out any advancements in society that might change their lives for the better.

9.3.6 Technical issues

The results of this study reveal several technical issues that might influence the adoption of e-government services.

9.3.6.1 IT infrastructure

The results from the focus group discussions reveal that many respondents thought that the incomplete implementation of the technical infrastructure of government departments would result in a number of problems that might discourage them from using e-government services. Such problems are related to the lack of links between

government departments, which requires citizens to submit similar information and documents to different departments. This reflects bureaucratic procedures that waste users' time and effort and render e-government services less responsive to their needs. These results are consistent with the literature, which reveals that an adequate communicative infrastructure, capable of integrating information systems within and between government organisations, is one of the challenges encountered in the implementation of e-government projects. Therefore, sufficient funding should be allocated to enable the infrastructure layer included in the framework of e-government architecture suggested by Ebrahim and Irani (2005) to be implemented correctly.

9.3.6.2 IT skills

Despite the fact that much of the manual work carried out by government employees has been computerised, many respondents thought that the present work of some government employees proves that they lack the skills necessary to use computers and handle online service transactions in the future. These results suggest that government employees are not receiving the proper training in capacity building to help them deal with the system used to conduct services online. These results, consequently, might affect the perceptions of many potential users that government employees are not capable of dealing with services electronically. The results are similar to those found by Ho and Ni (2004), Kumar and Best (2006) and Eyob (2004), who found that the lack of IT skills and inadequate training are the main reasons for the failure of e-government initiatives. The literature also decries the shortage of IT skills responsible for managing and developing web-based government work as a barrier confronting governments' abilities to provide e-government services (Ho 2002).

9.3.6.3 Technical problems

Qualitative data also reveal that a number of respondents were worried about technical problems, such as network and server malfunctions and access problems, that might interrupt service transactions and cause serious delays not only in service performance

but also in all government work. Such worries were confirmed by the findings of the usability testing where respondents experienced a number of broken links; see Figure 6.20. These results suggest that technical problems might cause a great deal of annoyance to users who might be frustrated if they find it difficult to conclude their transactions successfully since this would lead to them having to start all over again. Apparently, the literature found that technical problems are common in the challenges confronting the implementation of e-government; accordingly, McClure (2000) recommends providing an adequate network capacity capable of handling the amount of electronic traffic expected.

The findings related to technical issues account for the preference of many respondents for conducting their business with government face-to-face rather than online, by respondents' insufficient confidence in aspects of IT infrastructure and systems, and the IT abilities of government employees to deal with people online.

9.3.7 Trust in the Internet

The findings of this study show that trust in the Internet is likely to determine the adoption of e-government services. Many respondents indicated their trust in the Internet is due to the applicability of advanced security solutions and technologies in cyber space which are capable of protecting inter-operations and electronic transactions against fraud and hacking at all levels. The results also reveal that respondents' levels of Internet experience play an important role in enhancing trust in the Internet. As the majority of respondents were frequent users of the Internet, their trust in the Internet was such that a number mentioned that they shopped online and used Internet banking. This indicates that trust in e-commerce would lead to trust in e-government as similar procedures are involved in e-transactions in both domains. These findings are similar to those found by Dutton and Shepard (2003) and Carter and Belanger (2004).

However, other qualitative data revealed that many respondents thought that security and privacy issues were other factors that might prevent them from trusting e-government services. Many respondents thought that if e-government services are not secure enough, their personal data would be under threat and could be altered or

misused by hackers. These perceptions were gained from stories about hacker attacks, Internet crime and theft of credit card details. Similar concerns are highlighted in the literature, for example, by McClure (2000), Pons (2004), Udo (2001), Kim and Kim (2003) and West (2002), while Ebrahim and Irani (2004) reported that more than three quarters of respondents were concerned about the security of their credit card information and nearly two thirds were worried about the privacy of their personal information. These findings relating to the use of government services online suggests the increase of uncertainty avoidance by many respondents as face-to-face contact is reduced. This is evident from their perceptions of threats from the Internet as a means of avoiding the use of government services online and their needs for security assurances, as claimed by Bagchi, Hart and Peterson 2004).

Moreover, many respondents were concerned that the lack of laws concerning Internet crime might lead to a violation of their rights. Most participants in the usability test asserted that privacy and security statements on the e-government website were not clear enough to encourage users to use online services. This, in fact, reflects the current situation regarding such laws in Kuwait – they are largely absent. Although it is hard to stop Internet crime, having laws on the statute might deter many hackers from illegal intrusions into government websites and would provide users with confidence in the security of service transactions.

Other findings also reveal that many respondents thought that the technical problems, discussed in Section 9.3.6, affected their trust in the Internet. They were concerned that service transactions and citizens' personal data could be subject to interruptions, loss and misuse. They also thought that lack of proof or confirmation that a service transaction has been (successfully) completed might also shake their trust in using services online. Such findings account for the respondents' preference for dealing face-to-face with government employees rather than via the Internet, to ensure the safety of their personal information as well as successful service completion. These findings are consistent with the findings of Jaruwachirathanakul and Fink (2005), West (2004) and Deakins and Dillon (2002), who believe that users' trust of e-government services is associated with security and privacy assurances provided to users. They also confirm Li's (2003) claims that people have feelings of confidence and more control over using

traditional services in case “something happens”. Moreover, the literature echoes the above findings and recommends a number of strategies that ensure the security and privacy of service transactions through an e-government website; see, for example, McClure (2000) and Ebrahim and Irani (2005).

The qualitative results also indicate that a small number of respondents thought that an experience with services online might determine the level of trust in e-government services because prior to such experience, individuals do not have any bias one way or the other. These results suggest that users with positive experience and satisfactory use of online services are more likely to develop a positive attitude and trust and thus adopt the e-government services offered than those with a negative experience. These results are in accordance with AME Info (2002), Brinck, Gergle and Wood (2002), Elliot and Fowell (2000), van Riel, Semeijn and Janssen (2003) and van Riel, Liljander and Jurriens (2001), who found that users’ trust of online services is determined by prior experience of the technology and performance of the services delivered by e-government.

9.3.8 Trust in government

The qualitative and quantitative results of the study indicate that a large number of respondents had an absolute trust in government which underlies their willingness to use e-government services. Such trust is gained from feeling certain about their own situation and future where free services are provided to all citizens, such as education, employment, housing and other social services, without government imposing taxes or duties in return. This, therefore, is said to bring about people’s loyalty and trust in government (Bohnet, Herrman & Zechhauser 2005; Wheeler 2006).

However, other findings of this study reveal that several respondents were reluctant to use online services due to their lack of faith in government. This resulted from fear that overly bureaucratic procedures and inefficiency in government work might be mirrored in the electronic environment, and that consequently e-government services would be no better than the traditional delivery of services, as discussed in Section 9.3.3. Moreover, the sustained conflict between the Kuwaiti Government and the Kuwaiti

Parliament since the creation of the Parliament in 1963, having many times lead to the dissolution of the Parliament (CBS News 2006), contributes to citizens' growing suspicions about the performance of the government. The decline of respondents' trust can be attributed to the fact that the government is not providing open and transparent information about itself which, if well communicated, would increase citizens' trust and thereby lead to greater adoption of e-government services. A few respondents also thought that the actions of some government officials indicate that they are opposing the implementation of the project of e-government services, as they wish to keep their power in government through making use of their position, which effectively is a way of using connections (*wasta*), to further their interests, as discussed in Section 9.3.5.2. These findings are highlighted by the literature, which reveals that administrative corruption and inefficiency along with the ineffectiveness of government performance are the main factors that undermine trust in government; see Moon (2003), Evans and Yen (2005), West (2004), Fors and Moreno (2002), Parent, Vandebeek and Gemino (2004), Lollar (2006) and Welch and Hinnant (2003).

9.3.9 Lack of awareness

The literature reveals that awareness campaigns have been undertaken in Kuwait regarding e-government services through organising exhibitions, conferences and seminars, the e-Kuwait periodical bulletin and through TV, radio and press interviews (Al-Shayji 2005). However, the qualitative results of this study indicate a lack of awareness, as the majority of respondents complained about a lack of awareness of the e-government project in general, and online services in particular. They blamed the media and those who are responsible for its implementation for not highlighting such an important project that could be beneficial to a large group of people. Many respondents also mentioned that lack of awareness of e-government services was essentially a lack of knowing about the benefits to be gained, and of how to use the services. These results confirm the quantitative results, which show that nearly half (49%) of the respondents agreed on finding it difficult to use online services because of their lack of knowledge. Further, a very large majority (90%) of respondents agreed that online services would be easy to use if resources, opportunities and knowledge were provided

for them, suggesting the necessity of enhancing knowledge, skills and confidence in using government services online. These findings are reflected in the results regarding facilitating conditions in the amended UTAUT model on use behaviour, which indicate the necessity of awareness in the use of e-government services. These findings are similar to those reported by AlShihi (2005), Mellor (2006), NOIE (2003), Charbaji and Mikdashi (2003), Baker and Bellordre (2004), Beynon-Davies (2005) and West (2004), as discussed in Chapter Three.

It is also worth mentioning that lack of awareness about e-government services caused misunderstanding about their benefits to many respondents. For example, although the implementation of e-government opens up a number of job opportunities for citizens, the lack of communicating these benefits led many respondents to think that the implementation of e-government will reduce jobs in the public sector and thereby increase unemployment in Kuwait.

The overall results of this study regarding the awareness of e-government services indicate that despite the awareness campaigns conducted by the media team in the Central Technical Body of the Kuwaiti e-government project, people's awareness of the services is very low. This suggests that such e-government services and their benefits were under-marketed and the awareness campaigns conducted were not effective and did not correctly target different groups of people. This agrees with findings reported by Salman (2004) who argues that awareness of ICT use in some developing countries is limited. It is understandable that "making the public aware of available services is sometimes a challenging task", as admitted by some government officials (Chen & Dimitrova 2006, p.62); however, potential users need to be aware of online services to be able to use them. Awareness in the early stages of the implementation of e-government services also contributes to a willingness to adopt them, as suggested by Jaruwachirathanakul and Fink (2005). Moreover, attractive presentations in various media, such as newspapers, radio, television and the World Wide Web, are useful for introducing such services to a large number of potential users and for teaching users how to use the services, as well as informing them about the benefits the new technology might offer that would satisfy their primary needs. In order to achieve this, a

national strategy should be established to enhance skills, knowledge and confidence in citizens, which will be explained in the Recommendations section in Chapter Ten.

9.4 The e-government website

The literature reveals that the use of web portals by governments is a major step towards making e-government work. These web portals serve as specific tools for public governance, management and improving communication with citizens (Criado 2003), and for the provision of comprehensive information and the delivery of integrated services round-the-clock to serve different categories of society such as citizens, government and business (Government of Mauritius 2005). Additional results of usability testing and focus group interviews concerning website evaluation show that generally respondents found that the Kuwait e-government web portal is relatively comprehensive, and that different types of information and links are included which make it easy to access information and services from various government and non-government websites.

The literature also reveals that user interface design is the fundamental element in building e-government web portals that are easy to use and capable of meeting users' needs. Usability, functionality, accessibility and a number of other features are considered the elements of excellence that provide the backbone to the user interface of e-government websites. The complementary findings of this study are discussed in the following subsections, comparing them against the above features.

9.4.1 Usability features

The results of usability testing and the qualitative data indicate that many respondents found it easy to learn how to use and move around on the e-government website. They were satisfied with the content, which was useful to them, and with a great deal of the information available, which was adequately and clearly highlighted. Many respondents also found that the site content was organised in a way that enabled them to find information or services easily. The results also reveal that the Kuwait e-government

website is usable, to some extent, as it reflects many desirable usability features, such as ease of use, usefulness, memorability and learnability, as referred to by Pearrow (2000) and Brinck, Gergle and Wood (2002). The results also suggest that the usability of the website might positively determine the quality of a user's experience while navigating and interacting with the website such that it will bring user loyalty and trust as well as higher credibility for government, in line with Brinck, Gergle and Wood (2002) and Elliot and Fowell (2000). These findings are consistent with Al-Srayea (2005), who mentions that in accordance with the objectives of e-government, the site maintains its goal of simplicity in the display of information and in the conduct of service transactions. However, other respondents disagreed with Al-Srayea's claims and thought that although they found the website usable, it was not designed for all levels of users, who may belong to diverse cultural groups within Kuwaiti society, as discussed in Section 9.3.5.4.

9.4.2 Functionality features

The findings indicate that a number of respondents thought that the Kuwait e-government website is limited in its functionalities such that users are unable to carry out actions that cut across different government departments. Despite the lack of integration of information and the underlying processes across different functions of government, many respondents found that the website achieves "openness" through posting large amounts of government information. These findings provide evidence that the Kuwaiti government is moving towards transparency where open access to government information gives citizens a better sense of involvement. While transparency is achieved, interactivity fails to be attained because the website is still in its early stages and the services on offer are limited. These results are not surprising because similar results have also been reported by West (2006) in an annual study evaluating global e-government websites (see Section 4.3.2). West found that the availability of online services on the Kuwait e-government website scored only 17 out of 100. Moreover, the results are similar to those reported by West (2004) in a study of citizens' attitudes to e-government, which found that 42% of respondents ranked interaction with government by telephone highest, 29% of respondents ranked the use

of a government website second, and 20% and 18% of respondents ranked in-person visits and email correspondence respectively lowest (West 2004). These results are attributable to only limited interactive services being provided on the website.

9.4.3 Accessibility features

The literature reveals that accessibility features are crucial in user interface design to enable equal access for all users, including the disabled; see Jakob (2002), Pearrow (2000) and Stowers (2002). Al-Srayea (2005) states that the Kuwait e-government website is provided in both Arabic and English in an attempt to be accessible by both the Arabic-speaking population and those potential users who do not speak Arabic but have some knowledge of English, which may in fact be the largest group of potential users. West's (2006) global study confirmed that foreign language provision in Kuwait's e-government website scored 67%. Many respondents in this study commended the English version of the website; however, they found that some Arabic web pages were in the English version of the website and thus were likely to confuse users browsing the website. These results suggest that the use of more than one language on an e-government website is potentially of benefit as it will thereby reach many more people.

Although this study did not investigate the disability accessibility features of the website, West's (2006) global study found that the Kuwait e-government website scored only 8% in disability accessibility, suggesting that disabled people are not considered in the design of the website. Similar results were obtained by Abanomy, Al-Badi and Mayhew (2005), when they evaluated the accessibility of Saudi Arabia's and Oman's e-government websites using the "W3C Web Content Accessibility Guidelines"; they revealed that neither website is accessible by all people, especially those with special needs. The researchers assert that governments in Gulf countries, of which Kuwait is one, do not recognise the importance of providing services to segments of their population with special needs.

Other results of usability testing and the qualitative data regarding accessibility features indicate that many respondents thought that the overall design and the colours of the

website were relatively attractive. However, some participants thought that some fonts used were relatively small, which could be a critical barrier to readability, especially by older people and those with visual impairment. The results of the Mann-Whitney U test, used in the analysis of the QUIS survey, indicate that respondents with greater Internet experience found the website more readable than those with little Internet experience. It is this result which may account for the finding that somehow the website content was still considered easy to read. Since these findings were obtained from respondents who were familiar with using the Internet, one can imagine how people who have never used the Internet might judge the web site's usability. It is therefore concluded that accessibility features should be carefully considered in the design of any e-government website.

The literature also reveals other barriers related to accessibility features, including lengthy homepages, broken links and visited links not being identified. The qualitative data indicate that many respondents thought that the homepage of the e-government website was clear, easy to navigate and of a suitable length that did not require users to scroll down the page. The usability testing also indicates that most respondents found visited links were identified by a change of colour, which distinguished them from links not yet visited and thus helped a user to browse the website faster. However, many respondents encountered many broken links while navigating the website to perform tasks, suggesting that these might jeopardise task completion.

9.4.4 Other features

9.4.4.1 User help

The results reveal that many respondents found that the site map and site search facilities were helpful and included all topics available on the website. However, help features such as FAQs (frequently asked questions) and help pages were not found on the website. The results suggest that not all people with different levels of education and Internet experience will be able to use the website due to the lack of help features that are designed to assist them in finding information and finding their way around the website.

9.4.4.2 *Information architecture*

The results indicate that many respondents thought that the website was not well organised, that web pages were not well interlinked and that the site's structure was not very logical. These findings suggest that lack of structure or organisation of a website might lead to many respondents getting lost while browsing different pages and causing difficulties in retrieving information, in line with Brakel (2003) and Brinck, Gergle and Wood (2002).

9.4.4.3 *Legitimacy features*

The results of usability testing and the qualitative data indicate that many respondents found that the website was not frequently updated, some information was out-of-date, and privacy and security statements were not clearly visible on the website. These results suggest that the accuracy and reliability of portal content are not ensured, thereby making it hard for government to win the trust of citizens when accessing government information and services online. These results are similar to those reported by West (2006) in the annual survey of global e-government, indicating that the Kuwait e-government website was not updated regularly, and that it did not include privacy and security statements, with both features scoring only 8%. These results are also confirmed by Al-Sharaf (2006), who admits that laws covering e-transactions and e-business in Kuwait are still undergoing a revision and approval process. Similarly, Choudrie and Ghinea (2005), in a study which evaluated accessibility, quality and privacy issues for a small sample of e-government web portals in Canada, Australia, Hong Kong, Finland and Singapore, using a series of standard web diagnostic tools such as WebXact, found that in the first phase of e-government (web presence), accessibility, quality and privacy were neglected by some governments.

The evaluation of the Kuwait e-government website in this study shows that the website is still at an early stage and its web instruments need to be developed in order to improve in various areas, such as online services, updating information and privacy and security. The overall results of the website evaluation, which could be affected by the respondents' familiarity with the Internet, suggest that inequality in education, age,

ability, Internet experience, economic and cultural resources should be considered in the user interface design to allow universal access and use by people with different needs. Moreover, an attractive and comprehensive website might help establish links with potential users, which will make it imperative for government organisations to provide web-enabled services that meet users' expectations to make the website more usable.

9.5 Social inclusion and the digital divide

The qualitative results of this study indicate that many respondents thought that e-government services might not be appropriate for all people, especially the elderly, based on respondents' observations of old people who do not know how to use computers or the Internet. Other respondents revealed that e-government services would also not be appropriate for some other people, especially those on low incomes who might not own a computer, know how to use the Internet or make use of government services currently available to them. These findings suggest a digital divide in Kuwaiti society. They also confirm the quantitative results, in which the majority of respondents (90%) indicated that it would be easy to use e-government services if resources and opportunities were provided, suggesting a direct relationship between the availability of resources and opportunities and the adoption of e-government services. The results also suggest that if e-government services are not provided to all people, disadvantaged people would not be able to achieve the kind of equality and equity that would enable them to participate in the social and economic life of their communities. Such participation promotes social inclusion, as disadvantaged people in Kuwait, such as (some) disabled, (some) elderly, (some) women and (some) people with low income, are enabled to access government information and services, interact with government and thereby become civically engaged.

The digital divide in developing countries in general and in Kuwaiti society in particular, as indicated by the results of this study, contradicts the fact that the digital divide is generally narrowing rather than widening as shown by very fast Internet usage growth in low and middle income countries since the 1990s (Finance and Economics

2004). Although in many cases some individuals are blamed for failing to enhance their ICT skills despite great efforts by government, which is serious about developing a new generation of citizens capable of using computers by teaching computer skills at schools, the main blame should be placed on the Government of Kuwait, which does not have a clear strategy or a national program aiming to bridge the digital divide existing between different people within the country.

On the other hand, Warschauer (2003, p.5) argues that the cause of a digital divide is not limited to a lack of hardware or Internet connection, but is instead “embedded in a complex array of factors encompassing physical, digital, human and social relationships”. Warschauer’s (2003) argument highlights other findings of this study, where many respondents revealed a fear of change in carrying out business with government from traditional to electronic ways that would prevent many people from using e-government services. This fear of change by many people could be explained by the psychological problems that arise when change is undertaken. Such problems could be related to age, resistance to ICT, undermining of skills and general issues of new technology. Although it is human nature to feel intimidated by any new technology and resist change since such resistance is embedded in thinking, language and beliefs, other factors might create resistance, such as fear of the unknown and fear of insecurity, as found by Chawla and Kelloway (2004), Fors and Moreno (2002) and Morris and Dyer (1998).

The above results suggest that factors such as education, income and beliefs contribute to the low uptake of e-government services as well as reinforcing a digital divide and inequality among citizens, since privileged individuals are better served by the government.

9.6 Government-public interaction

The qualitative results of this study reveal that many respondents thought that e-government would provide a good opportunity for people to communicate and interact with the government through the establishment of online communication

channels which would make such contact fast and easy. These results are in accordance with McIvor, Mchugh and Cadden (2002), who claim that the nature of the Internet as an open system facilitates greater co-operation, communication, problem solving and cross-fertilisation of ideas not only across organisational departments but also across public service users, businesses and suppliers.

The majority of respondents also thought that online communication with government would be convenient as it would help them become better informed about government, suggesting that this type of communication provides citizens with a sense of involvement and a feeling that their interests are not completely divorced from the system's objectives. These results were confirmed by the qualitative results which showed that about two thirds of the respondents thought that online services would make communication with government easy. Further, such communication is likely to increase openness and transparency and thereby decrease corruption and collusion among bureaucrats in the public sector. These findings support Heeks's (1999b) view that the online representation of government information and services is a one-way communication approach which helps reduce the uncertainty of users and ensures that their expectations are reasonable.

The results also reveal that many respondents believed that for more effective communication with government, officials would need to take these issues seriously, reply to contacts and thus interact with the public, since otherwise such communication would be pointless. Other respondents supported these views and suggested the involvement of members of Parliament in government-public communication. This multi-way communication that a number of respondents in this study were looking for suggests that more powerful and effective discussions are needed, where different conflicting views are raised, to make Members of Parliament aware of different issues in the country and enable them to become more involved in various aspects of society. This would increase transparency and interactivity with government, which are both positively related to increasing citizens' trust in government.

In contrast, some of the respondents believed that government-public communications might be illusory because of the low level of transparency shown by the Kuwaiti

government on various issues. Other respondents thought that if any type of communication were to be undertaken, only trivial topics would be raised and superficial arguments made and that there was a high probability that the public's views and opinions might be ignored. This view is attributable to the way in which the government has managed to control Parliament and has passed laws against the will of the majority of Members of Parliament by relying on the executive, such as the new media law which restricts freedom of speech in the country (The International News 2007; Wikipedia 2007).

The majority of respondents set their hopes on online communication with government through the e-government website to engage in public debate, make their voices heard and discuss different issues relating to the welfare of the country and its citizens freely, easily and without revealing their identity. These hopes are the result of the current style of communication with government, represented by the Members of Parliament and various forms of media, such as newspapers, which are controlled by "forces of corruption" in government; for example, numerous newspaper writers have been taken to court for criticising the performance of the government or of specific ministers (The International News 2007). Respondents thereby seek to achieve the dimension of e-democracy as stated in Dawes's (2002) definition of e-government, where the use of electronic communications is meant to lead to citizens' participation in the public decision-making process. Such results are in accordance with Carvin *et al.* (2004), Panayiotou (2003), Cohen and Eimicke (2003), Edmiston (2004) and Pascual (2003), who claim that e-government is designed to increase the level of citizens' participation in the affairs of society and make governments more responsive to the needs and desires of communities.

9.7 Lack of capacity building

All the above findings of this study reveal that citizens have a very limited participative role in the development of e-government in Kuwait. This appears to be generally the case in the implementation of e-government, with Olphert and Damodaran (2006, p.34) claiming that although citizens are key stakeholders in systems of e-government, they

appear to be having little input into the creation and development of e-government projects, except perhaps in the area of website design. This is because they have not been afforded an opportunity for “capacity building”, as suggested by Damodaran and Olphert (2006, p.114), defined as “change and development which takes place in individuals and thus in their communities as they participate in projects, learning new skills of many kinds and growing in confidence as a result”. Such capacity building is essential for the success of any ICT project, in this case the e-government project, as it aims to elicit all information relevant to individuals’ needs regarding the e-government project. This provides a foundation for citizens’ empowerment, and in many cases enables disadvantaged groups to become aware of a technology that can improve their lives. Such empowerment potentially leads to the creation of mutual respect and understanding between different groups, individuals and government, which are usually in conflict because of a lack in communicating citizens’ needs.

In order to achieve capacity building, Damodaran and Olphert (2006, p.155) propose a number of objectives for decision makers responsible for achieving and managing civic engagement. These objectives are related to promoting an understanding of the need for change, the benefits of participation and engagement of individuals, and the skills and knowledge necessary for utilising the new technology of e-government services by individuals as well as giving individuals the confidence to ask “know why” questions rather than taking them straightaway to “know how”. Moreover, Damodaran and Olphert (2006) suggest a number of strategies to be undertaken in order to achieve capacity building. These strategies are described in the Recommendations section in Chapter Ten.

9.8 Systemic approach to the adoption of e-government services

In order to provide some insight into and understanding of the factors underlying the adoption of e-government services, as identified and discussed in this study, a systemic approach was introduced to model the adoption behaviour of people in developing countries. It is seen as a powerful problem-solving approach to understanding the nature of current situations and the way in which results could be improved (Bellinger 2004).

This approach identifies the systemic “structure” of a situation, which is often invisible, as a “pattern of interrelationships among key components of the system” (Senge *et al.* 1994, p.90).

The systemic approach uses tools, such as archetypes, causal loop diagrams and computer models, to allow for identifying interrelationships between elements more easily as they are based on feedback processes (Senge *et al.* 1994, p.88). Such tools are based on a general methodology called “system dynamics”. This methodology has been developed by Jay Forrester and his colleagues at the Massachusetts Institute of Technology (MIT) over the past forty years to describe dynamic complexities and interdependencies. They are “concerned with creating models or representations of real world systems of all kinds and studying their dynamics (or behaviour). In particular, they are concerned with improving (controlling) problematic system behaviour” (Wolstenholme 1990, p.2).

The archetype tool, which is one of system dynamics’ effective tools, is able to “reveal insights into the structure that already exists or prospectively to anticipate potential problems/ and or problem symptoms” (Braun 2002, p.25). It has been adopted in this study in order to understand how complex feedback processes can generate problematic patterns of behaviour within systems, as claimed by Senge *et al.* (1994, p.90). Moreover, from any element in a situation “links” can be traced that represent influence on another element. These in turn reveal cycles that repeat themselves, making situations better or worse. Such links never exist in isolation, however, as they always comprise a circle of causality, a feedback loop, in which every element is both “cause” and “effect”, influenced by some and influencing others positively or negatively (Senge *et al.* 1994, p.113).

The “accidental adversaries” is an archetype that offers “insights into the dynamics of relationship breakdowns and provides leverage points for strengthening healthy relationship loops while weakening dysfunctional ones” (Bellinger 2004, no page number). It is normally used to explain how various groups of people who ought and want to be in partnership with each other, end up bitterly opposed (Senge *et al.* 1994, p.145). This archetype states that “when teams or parties in a working relationship

misinterpret the actions of each other because of misunderstandings, unrealistic expectations or performance problems, suspicion and mistrust erode the relationship” (Braun 2002, no page number). Therefore, this archetype is considered to be the most appropriate pattern for this study as it is able to sum up the behaviour leading to the adoption or non-adoption of e-government services through dynamic relationships between various groups (citizens and government) and variables; see Figure 9.1.

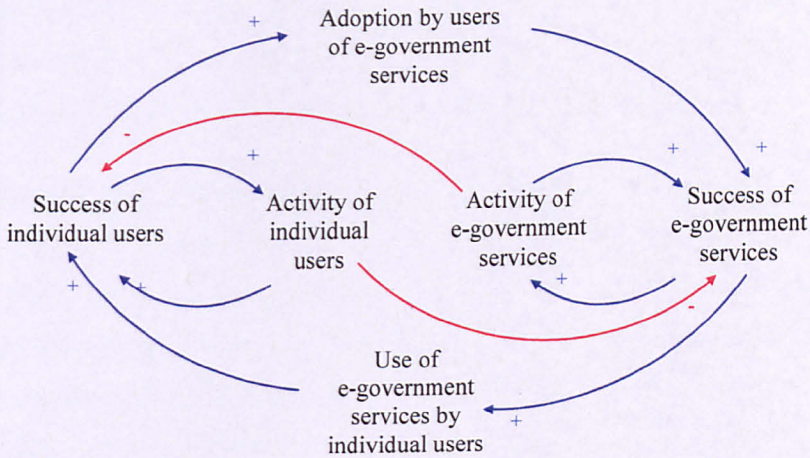


Figure 9.1: “Accidental adversaries” archetype for adoption of e-government services

Basically, there are two building blocks to all system representations, both of which are loops: reinforcing and balancing loops. A reinforcing loop is “one in which an action produces a result which influences more of the same action thus resulting in growth or decline”, whereas a balancing loop “is representative of any situation where there is a goal or an objective and action is taken to achieve that goal or objective” (Bellinger 2004, no page number). The “accidental adversaries” structure is composed of three reinforcing loops and two balancing loops. Overall system growth is driven by a global reinforcing structure. Two local reinforcing structures create balancing structures which then limit the growth of the overall system (Bellinger 2004).

In relation to the results of this study regarding the adoption of e-government services, the external loop of the structure in Figure 8.1 forms a “virtuous reinforcing structure” (Bellinger 2004) where the adoption by users of e-government services adds to the success of e-government services. The success of e-government services then adds to

the use of e-government services by individual users, which in turn adds to the success of individual users. The success of individual users then adds to the adoption by users of e-government services. This structure supports the premise that the success of e-government services is determined not only by government support, but also by the acceptance and adoption of such services by individuals, which is usually based on building their capacity.

Various factors, such as lack of trust in the Internet and government, cultural issues, lack of awareness of e-government services, lack of capacity building and technical problems, contribute to derailing this “virtuous reinforcing structure”.

Individual users work on activities that enable them to use e-government services, such as having adequate levels of education, Internet experience and awareness, in order to promote their own success, and to the extent that they perceive that it succeeds, it encourages them to engage in more of the same activity. However, if they fail to do so, then the activity of individual users tends to detract from the nature of using e-government services, which will have a negative impact on the success of e-government services.

The government, on the other hand, tends to focus on providing a large number of government services online, rather than providing secure and quality services, which is perceived to contribute to or even underlie the eventual success of e-government services. To the extent that this appears to result in the success of e-government services, it encourages even more focus on providing other services. This activity of e-government services detracts from the success of individual users as they are constrained in using the e-government services that are provided for them and which might not meet their needs. This lack of variety reduces the success of individual users.

9.8.1 Strategies for “accidental adversaries” of the adoption of e-government services

The “accidental adversaries” archetype serves to point out that the adoption of e-government services depends on strengthening the understanding of the fundamentals of supply and demand needs in order to identify the reasons that they unintentionally undermine those needs. It also serves to show how government and individuals could support each other by removing or weakening any constraints that hinder the adoption

of e-government services. However, a shared vision can also be pointed out through this archetype. This refers to the degree to which e-government services and individuals hold a vision in common and have articulated their deep needs and expectations, which in turn is significant in identifying what e-government services could provide and match this to individuals' needs in a collaborative effort.

9.9 Conclusion

The use of the amended UTAUT model has identified factors that affected students' intention to use e-government services. Other factors relating to intended adoption were also identified by respondents who showed mixed attitudes towards such factors. For governments to get people to use and adopt e-government services, these services must be genuinely useful to the intended users, they must be efficient and they should meet the specific needs of users. For an effective use of the services, widespread and attractive awareness campaigns should be conducted targeting potential users properly to inform them about the real benefits they would gain from the use of these new types of services. These benefits include lower costs, savings in time and effort, reduction in bureaucratic procedures, the minimisation of the influence of connections (*wasta*) and an increase in job opportunities. Therefore, the government needs to pay attention to the concerns raised by respondents. Neglected aspects at present are an issue of relevance. Technical issues must be taken seriously to restore public trust in government and the Internet. The cultural diversity of many developing countries, Kuwaiti society in particular, should also be considered in order to include all people in society. Regarded as a contributing factor to the adoption behaviour, the e-government website should have usability, functionality, accessibility and other features reflected in its interface design to make it easy for users with different levels of Internet experience and education and coming from various cultures to navigate the website and use the services provided.

The government should move seriously towards government-public communication and force officials who might not likely to happily undertake this communication to discuss different issues with the public, who should be given the opportunity to speak and make

their voices heard and so provide them with a sense of involvement. It is also important to mention that government needs to work on bridging the digital divide to give all people an equal chance of accessing government information and services online. Moreover, the government should work on capacity building of all individuals to ensure their participative role in the society. Finally, the “accidental adversaries” archetype was used as an effective systemic approach for developing an understanding of the adoption of e-government services.

Chapter Ten

Conclusions

10.1 Introduction

This final chapter presents the main findings of this study in relation to the aims and objectives and to their significance and contribution to the field of the adoption of e-government services. The appropriateness of the research design and limitations of the study are also discussed. Finally, a number of recommendations concerning the development of e-government services, which lead to their adoption, as well as suggestions for further research are made.

10.2 Main findings

This research has examined the progress made in Kuwait in providing e-government services. It has also explored the attitudes of students at Kuwait University towards e-government services by identifying the determinants of their behavioural intentions and use behaviours as well as the factors that influence their potential adoption of e-government services. These findings are summarised in relation to the aims and objectives stated in Chapter One.

10.2.1 Kuwait e-government

The first objective of this study was to examine the progress made in Kuwait in providing e-government services to the public. The interview conducted with a member of the CTB on the Kuwait e-government project and the little available literature suggest that the Kuwait e-government services are still in stage one or stage two of their implementation, where government information is simply posted on the Internet and a limited number of services are offered electronically. The overall examination indicates that the current state of the Kuwait e-government project is still primitive in its website design, scarce in laws related to e-business and not well publicised to the people in Kuwait.

10.2.2 Adoption determinants

The second objective of this study was to identify factors that are likely to determine students' adoption of e-government services using an amended measurement questionnaire, the UTAUT model. The logistic regression analysis of the questionnaire data revealed that performance expectancy, effort expectancy and peer influence are significant determinants of students' intention to use e-government services, and that over a short period of time, with limited experience of the system, effort expectancy and peer influence are important, whereas over longer periods of time, when users have more experience of the system and know about its benefits, only effort expectancy and performance expectancy are important.

In relation to the use of e-government services, facilitating conditions and behavioural intentions, derived from performance expectancy, effort expectancy and peer influence, were found to be significant to the use of e-government services.

10.2.2.1 Moderators

The third objective of this study was to investigate the potentially moderating influences of gender, type of academic course taken by the study participants and Internet experience on the respondents' intended adoption of e-government services. The findings revealed the following:

- **Internet experience:** Internet experience was found to have a moderating influence on the determinant factors investigated in this study. Performance expectancy, over a short period of time, was found to be significant only with greater levels of Internet experience. Effort expectancy was found to be generally significant but its importance grew less with greater levels of Internet experience.
- **Type of academic course:** Type of academic course was also found to have a moderating influence on effort expectancy, over longer periods of time. While effort expectancy was significant, it became less important for students studying scientific courses.

- **Gender:** Unexpectedly, gender was not found to have any moderating influence on any of the determinants of intention to adopt e-government services. Therefore, no significant relationships were detected via the logistic regression analysis.

10.2.3 Factors influencing adoption

The fourth objective of this study was to identify factors that influenced students' positive and negative attitudes towards the adoption of e-government services. This objective was met by analysing data gathered with qualitative and quantitative methods, such as focus group interviews and a questionnaire survey. The study identified a number of factors that might encourage a large number of potential users of e-government services to adopt them, while other factors were identified that might discourage other users.

10.2.3.1 Positive factors

The study identified a number of factors that positively influenced the attitude of respondents to the adoption of e-government services. These factors are related to bureaucracy, usefulness, connections (*wasta*), government-public communication, social influence, gender, and social inclusion.

- **Reforming bureaucracy in government services:** The study found that e-government services are expected to be a solution for reforming the current bureaucratic procedures followed in the delivery of government services.
- **Usefulness of e-government services:** The study found that e-government services were considered useful, providing citizens with a number of benefits, such as convenience of access, savings in time and effort and efficient transactions of service. Online services were also considered to be useful for government employees in terms of enhancing their computer skills, and keeping errors into a minimum. Moreover, the implementation of such services was

thought to contribute to the development of Kuwait in various fields, both locally and regionally.

- **Connections (wasta):** The findings indicate that e-government services were thought to be the means by which justice and equality will be achieved for citizens in Kuwait in carrying out government business. This would minimise the influence of “connections” to a great extent.
- **Government-public communication:** The findings reveal that the availability of government information and services online would be the path by which the public would become better informed about government. Moreover, people were thought to be able to communicate with the government, engage in public debate and discuss different issues easily, freely and without revealing their identity.
- **Positive experience and social influence:** Although peer influence was not significant on the intention of those respondents who had wide experience of using e-government services, the influence of peers combined with other types of social influence could be effective if users had positive and beneficial experiences of such services.
- **Gender differences:** Although there was no significant moderating relationship found for gender in the amended UTAUT model, a large number of female respondents expressed their enthusiasm about e-government services, which they thought would be beneficial to them, enhancing their independence and moving them closer to achieving equality with men.
- **Social inclusion and the digital divide:** Respondents thought that if resources and opportunities were provided to use e-government services in an attempt to bridge the digital divide, all people in Kuwait would be able to access government services and information, interact with government and thereby achieve social inclusion.
- **Ease of use:** Although the majority of respondents had adequate Internet experience, they anticipated that e-government services would be simple and easy for individuals with different levels of Internet experience and education.

10.2.3.2 Negative factors

The overriding sense of negativity towards the adoption of e-government services appears to be related to respondents' fears and concerns about the issues concerning technology, lack of awareness, lack of capacity building, trust in government, unemployment and online interaction.

- **Technology issues:** The majority of the respondents had concerns about technical issues, such as incomplete IT infrastructure, lack of and/or untrained IT staff, and network and server malfunctions. They were also worried about security and privacy issues, especially with the lack of laws that would protect their rights. Such issues were unsettling to many respondents and contributed to the decline of their trust in the technology used in the delivery of e-government services, which in turn made them reluctant to adopt the services.
- **Lack of awareness:** The findings show that lack of awareness would cloud the benefits and the value of e-government services to the public. Therefore, a very large majority of respondents (90%) thought that e-government services would be adopted only if enough information were provided.
- **Lack of capacity building:** The study reveals that citizens have a very limited participative role in the development of e-government in Kuwait. This is because they have not been afforded an opportunity to build their capacity by the provision of essential information about e-government, enhancing the skills essential for using e-government services and enhancing their confidence by eliciting their specific needs.
- **Trust in government:** The decline of trust in government due to government performance, the widespread use of connections and other reasons, has contributed to many respondents' negative attitudes towards adoption of e-government services.
- **Unemployment:** Negative attitudes amongst respondents were also related to the perceptions that e-government services would replace government employees and thereby increase the number of unemployed citizens.

- **Online interaction vs. face to face interaction:** As collectivism is the dominant cultural mode in Kuwaiti society, respondents expressed their reluctance to use online services, believing that face-to-face interaction would add value to their dealings with government.

10.2.4 E-government website

The fifth objective of this study was to identify the strengths and weaknesses of the e-government website that contribute to an increase or decrease in the potential adoption of e-government services. This objective was considered an additional evidence regarding the adoption of e-government services. To meet this objective, a usability testing was conducted, as a supplemental method, for evaluating the Kuwait e-government website. The results of the usability testing, supported by qualitative data, suggest that the website is still at an early stage and that its web instruments need to be improved in various areas. The website was found to be usable; however, it is not designed for users with different levels of Internet experience and education, and for those bringing other cultural elements to its use. The functionality of the website has achieved openness, with large amounts of information displayed; however, it lacks any integration of government information as well as of its underlying processes and it does not operate across different functions of government.

Regarding accessibility features, the weaknesses of the website lay in particular areas, such as some small fonts, Arabic and English language pages being mixed, disabled people not being considered in the design and having a number of broken links, whereas design and colours are attractive. The website is good in providing user help features, such as a site map and site search facilities, but it lacks help pages and FAQ features. The logical structure of the website was considered relatively poor. Other issues concerned out-of-date information and lack of a clear statement on security and privacy.

10.3 Systemic approach for the adoption of e-government services

The sixth objective of this study was to model the adoption of e-government services using a systemic approach. The “accidental adversaries” archetype was used as an effective tool for developing an understanding of the adoption of e-government services, by individuals and by government providing the services, in the light of the findings of this study. This tool has identified insights into the underlying problems concerning the adoption behaviour. It has also offered a number of strategies, such as understanding the fundamentals of supply and demand needs for further developing and constructing the adoption model.

10.4 Recommendations

The last objective of the study was to recommend strategies and practical solutions for the improvement and success of the provision of e-government services in developing countries in general and Kuwait in particular, which in turn would encourage the public to adopt them. A number of recommendations are presented in relation to the findings which negatively influence the adoption of e-government services. These recommendations relate to the effectiveness of e-government, trust enhancement, bridging the digital divide and fostering social inclusion, improving the website, capacity building and increasing the level of awareness in society.

- **Providing effective e-government services:** E-government services should be seen as a successful and effective initiative that is capable of being responsive to users’ needs. This success and effectiveness needs to be enhanced by moving towards a higher level of e-government development requiring commitments of a technical, personnel and financial kind. The development of e-government services is also achieved by collaboration with other government and non-government authorities. Integration, collaboration and information sharing between government departments, achieving interoperability as well as interactive operations with stakeholders, are also required to deliver efficient and effective online services. Moreover, it is recommended that the framework

of e-government architecture suggested by Ebrahim and Irani (2005) and the framework of e-government change management, suggested by Burn and Robins (2003), are adopted to increase the likelihood of e-government being successful and effective and to achieve a smooth transition between the various stages of e-government implementation.

- **Trust enhancement:** To restore public trust and satisfaction in government, government departments should improve administrative transparency, efficiency and effectiveness of performance. Further, more opportunities should be provided to the public to participate and engage in public debates related to society in general and to citizens' affairs in particular. The importance of citizen engagement is emphasised by Damodaran and Olphert (2006). In relation to trust in the Internet as a means for accessing and using e-government services, government authorities – with the contribution of Parliament – should quickly pass e-business and e-transaction laws, which have already been drafted, to solve many technical issues and protect users' rights. Security and privacy solutions should also be provided through sophisticated technological solutions for encryption, information sharing and interactive communication.
- **Bridging the digital divide and social inclusion:** The existing digital divide in the developing countries should be taken into account. The government should work on bridging this divide and include all people in society in order to achieve the aim of e-government. This requires different approaches, including the enhancement of digital literacy through learning environments, such as public schools, libraries and community centres, as suggested by Evans (2003) and Mutula (2005). In addition, low-cost public access to computers and the Internet at the community level in public places, such as co-op societies, especially in areas where less advantaged people of low socioeconomic status are found, should be provided, in keeping with Deakins and Dillon (2002) and Teicher *et al.* (2002).
- **Improving the website:** Despite the fact that the e-government website is a complementary issue that contribute to the adoption, web designers and policy makers responsible for designing the e-government website should follow

recognised guidelines and tools such as WebXact, to ensure a usable, functional, more accessible and secure website that is more responsive to users' needs. More specifically, the following elements should be considered in the Kuwait e-government website:

- Providing a more interactive rather than passively informative website.
 - Considering cultural variations within Kuwaiti society, such as Internet experience and education.
 - Providing “help” features to demonstrate the use of the services and to outline the procedures to be followed to cope with problems when they occur.
 - Providing both electronic and documentary proof of service transactions.
 - Clearly stating security and privacy information to indicate the trustworthiness of the transactions.
 - Improving accessibility features, such as enlarging some small fonts used, having complete and separate versions of the website in Arabic and English, providing features for disabled people and minimising the number of broken links.
 - Providing a more logical structure.
 - Updating the information and services provided more frequently.
 - Making the use of services provided uniform and consistent.
- **Awareness:** It is highly recommended that attractive and effective marketing campaigns be carried out to promote e-government services, especially in the early adoption stages. The benefits that online services provide should also be promoted, including convenience of access, savings in time and effort, ease of use, reduction in bureaucratic procedures, ease of communication with government, security of transactions, increase in job opportunities, increased social inclusion and others. This would address any misunderstanding about e-government and what it offers to individuals. Further, teaching potential users how to use the services should be part of the awareness campaigns to make it easier for them to adopt the services. It is also important to make the

e-government services and their benefits part of the curriculum in high schools to make new generations ready for the future use of the services.

- **Capacity building:** Finally and most importantly, it is highly recommended that governments work on capacity building of various groups within the community to enable them to make use of e-government services. Following strategies recommended by Damodaran and Olphert (2006), it is essential for the government to provide the different techniques needed to inform, train and empower individuals in society who have different skills, knowledge and cultures, rather than adopting a “one size fits all” approach. These techniques are expected to meet the different needs of different individuals and thereby are powerful ways of changing perceptions and expectations. In other words, an effective action programme needs to be established to educate the citizens about the concept of e-government, as suggested by Damodaran *et al.* (2005). Some practical examples of recommended actions include:

- Respond to the need to educate and inform about the e-government concept by providing core educational materials that can be tailored to the different needs of different groups (Damodaran *et al.* 2005).
- Provide appropriate mechanisms that enable a dialogue between individuals and government officials and that enable the co-creation of decisions and thereby, achieve the active engagement of different segments of society, such as older citizens, young people, women and lower income groups (Damodaran *et al.* 2005).
- Design and develop an innovative national programme tailored to enhance the various skills and abilities of different segments of society to use e-government services. For example, an intensive training program should target those older people who lack ICT skills, whereas more relaxed programs should be aimed at younger people who are expected to have Internet skills through formal education or through experience in the workplace (Olphert, Damodaran & May 2005).

- Incorporate continuous redesign, review and evaluation to meet the changing needs of the society and to alleviate further “failed” or “disappointing” e-government initiatives (Damodaran *et al.* 2005).

10.5 Contribution of the study

The findings of this study have contributed to the e-government services literature by highlighting factors that determine and influence adoption behaviour. These contributions are as follows:

- The results from the application and adaptation of a reliable and valid IT acceptance model, namely UTAUT, revealed that constructs such as performance expectancy, effort expectancy, peer influence, facilitating conditions and behavioural intentions determined the adoption behaviour in developing countries. When compared to the literature, these results are consistent, to some extent, with the results in some previous studies that investigated the adoption of e-government services in developed countries. This agreement emphasises that the implementation of e-government in the case of Kuwait, as a developing country, is improving and developing in the same direction as undertaken by developed countries. This can be seen as a major contribution to the available body of knowledge concerning the determinants of adoption behaviour in developing countries in general and in Kuwait in particular.
- The findings of this study have also provided empirical insights into the factors that encourage or discourage the adoption of online services in a developing country. The encouraging factors which could be considered as positive ones are related to reforming the bureaucracy in government services, gaining many benefits, minimising the influence of connections (*wasta*), improving communication with government, revealing gender disparities, including disparities affecting all other people in the society, whereas the negative factors likely to discourage adoption behaviour are related to technology issues, lack of awareness, lack of capacity building, declining trust in government and unemployment issues. Although these findings could be applicable to

developing countries sharing similar contextual and cultural feature with Kuwait, when compared with the previous studies in the context of developed countries, it was found that some of these findings confirmed some of the studies which had reached similar conclusions, but simultaneously opposed other studies; and that many findings were unique in the context of developing countries. Within the specific context of this study (Kuwait) and considering the scarcity of literature concerning factors influencing adoption behaviour, these findings make an original contribution by providing an understanding of which factors can influence attitudes (both positively and negatively) towards the adoption of e-government services in developing countries. Moreover, such findings are seen as foundation for further investigation of other factors that may influence and even determine adoption behaviour.

- Considering the scarcity of adoption studies both in this particular research context (Kuwait) and in its wider context of developing countries, this study provides an original contribution to the IT adoption literature in terms of the particular techniques and methodologies used in this study. The relatively large number of participants, the use of a mixed-method approach and the predictive analysis used in analysing the data have improved the validity as well as the reliability of the results cited. This, therefore, will assist in the examination and validation of the results of future studies in this area.
- Based on the findings of this study, the suggested recommendations will provide guidelines for officials working on e-government projects concerning possible courses of action that may be required to improve e-government services and thereby increase their likely adoption. Such guidelines could be adopted not only in the particular context of the study (Kuwait), but also in the wider context of developing countries.
- Through exploration of the attitudes towards the adoption of e-government services, this study provides evidence of the factors that determine and influence adoption behaviour in addition to certain demographic characteristics. This enabled the researcher to model the overall findings of the study using a systemic approach, which thereby contributed to modelling the adoption of

e-government services that provided insight into and understanding of the factors underlying the adoption behaviour. This understanding can avoid any problems that might result from a misunderstanding between the demand and supply sides as well as enhancing the implementation of e-government services, making them more effective and reliable and better meeting users' needs.

10.6 Usefulness of UTAUT model

The use of a theoretical research model in this study, namely the amended UTAUT model, has proven to be useful in providing some insights that helped explain the intention to use and the actual use of e-government services. Its use in this empirical study proved its worth, yielding statistically reliable results. The changes made to the original version of the UTAUT model, normally used in business settings, to suit the specific context of the study led to it being able to predict the intention and use behaviour of potential users on the basis of a set of constructs (predictors) and moderators, and do so for different points in time. Performance expectancy, effort expectancy and peer influence predicted intention behaviour whereas facilitating conditions and intention behaviour predicted the use of e-government services. Also, the amended model identified moderators with significant influence, i.e. type of academic course and Internet experience, on the relationship between predictors and outcome variables. These findings are expected to contribute to an understanding and explanation of use behaviour in the implementation of e-government. These understandings and explanations should be taken into account by decision-makers and thus contribute to improving the provision of e-government services, making them more responsive to citizens' needs. Further, this might also help officials on the e-government project to determine the problems that have inhibited the development of e-government services and their use in the country.

10.7 Further research

Based on the literature review and the findings of this study, further research is required to accomplish other desirable aims:

- The study was limited to one group of potential users of e-government services, namely students at Kuwait University, chosen for being convenient to access. Student subjects might limit the generalisability of the results to the whole adult population expected to use e-government services. Students' demographic characteristics, such as age, education and Internet experience, are different from those of the overall population, many of whom are on the other side of the current digital divide. Future research, therefore, should try to survey other groups of potential users within Kuwaiti society in order to identify other factors that are likely to determine and influence the adoption of e-government services.
- Despite the fact that the amended model used in this research performed really well and identified factors that determine adoption behaviour, future research should build on this research and by amending the UTAUT model to further produce a more comprehensive model. The new comprehensive model, which would include other variables, such as trust and cultural influences, can be expected to better predict the intention to use e-government services.
- Data collected at only one point of time made it difficult to reassess the significance of findings in light of any change in respondents' attitudes towards the adoption of e-government services. Therefore, conducting a longitudinal study is necessary to monitor potentially changing attitudes of users since this would assist decision makers on an e-government project to provide online services that are more responsive to users' needs.
- An in-depth investigation of the provision of e-government services which identifies the factors that prevent many people from using the new mode of service delivery is necessary to improve the quality of the services currently provided.
- An examination of the implications of collaboration between public and private sectors could lead to better provision of online services.

10.8 Concluding remarks

This study was conceived as a single piece of research that aimed to deepen understanding of the most fruitful approaches to improving the provision of e-government in general and the adoption of e-government services in particular. As the literature review confirmed, e-government in developing countries is under-researched. This in-depth study is the first of its kind that attempted to explore the adoption of e-government services in a developing country, namely Kuwait, using a mixed-method approach. In this sense, this study represents the first empirical research to contribute to the literature on the adoption of e-government and a major addition to the discourse and literature on IS research in general. Accordingly, there is the great hope that the findings of this study will have some impact not only at the local level but also at national and international levels. It is hoped that many of the findings and recommendations will be translated into concrete action and implemented by e-government services providers in order to ensure the success of e-government services.

Although this study has chiefly focused on e-government in the Kuwaiti context, the value of conducting it exceeds the boundaries of its specific context. The findings of this study should be able to inform e-government systems worldwide, especially those newly implemented in developing countries. In particular, this study is an illuminative piece of research that provides insights and guidelines for the small states in the Gulf region as they share similar contextual and cultural features with Kuwait. This adds to the significance of the study.

Despite the fact that this study uses an amended version of the UTAUT model in an e-government context – rather than in a business context as most other studies using it have done – the amended model performed well and has proven useful in providing insights into potential users' intentions to use (or not use) e-government services as well as current users' practices. The research model has been able to identify factors that determine both intention and use behaviour, such as performance expectancy and effort expectancy. In addition, the study identified factors that influence the adoption of

e-government services, such as technological and cultural factors. This also makes a contribution to the literature on acceptance and adoption.

Last but not least, this research is submitted in the hope that it has contributed to the literature on e-government in particular and the literature on IS in general. In addition, it is hoped that decision-makers, government leaders and researchers in the field of e-government will find it an invaluable resource.

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Appendices

Appendix 1: E-government: Attitudes and Perceptions Survey

E-government: Attitudes and Perceptions Survey

This survey is carried out on behalf of the Department of Information Science at Loughborough University. It aims to identify the attitudes of students at Kuwait University towards the adoption of e-government services. Your contribution is highly appreciated and critical to the success of this research. All information provided will remain confidential and only the researcher has access to completed surveys. If you have any inquiries or comments relating to the survey please contact me either by telephone 9079155 or by email: s.alawadhi@lboro.ac.uk

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Loughborough University, United Kingdom

Section One: General Information

Please answer the following questions with one tick(✓) only for each question . You may provide any additional information where requested.

1. Please indicate your gender

- Male
- Female

2. What is your age?

- 18
- 19
- 20
- 21
- 22
- 23
- 24 -29
- 30 -35
- 36 - above

3. With which college of the university are you registered?

- College of Graduate Studies
- College of Law
- College of Arts
- College of Science
- College of Medicine
- College of Engineering and Petroleum
- College of Pharmacy
- College of Allied Health Sciences
- College of Dentistry
- College of Business Administration
- College of Social Sciences
- College of Education
- College of Women
- College of Shari'a and Islamic Studies

4. In which department are you located?

Please specify

5. Please indicate your year of study

- First year
- Second year

- Third year
- Fourth year
- Post graduate
- Other (please specify)

6. How long have you been using the Internet?

- 1 - 6 months
- 7-11 months
- 1-1½ years
- 1½ - 2 years
- 2-3 years
- More than 3 years

7. How often do you use the Internet?

- Daily
- Two or three times a week
- Once a week
- Two or three times a month
- Once a month
- Less than once a month

8. How would you rate your proficiency with the Internet?

- Poor
- Fair
- Good
- Very good
- Excellent

9. For what purposes do you use the Internet?

(Please tick all that apply)

- Email
- Information search
- Shopping online
- Entertainment
- Other (please specify).....

Section Two: e-government and services online

E-government is defined as “the use of information technology to support government operations, engage citizens, and provide government services online” (Dawes 2002). You can access online services through the Kuwait e-government website: <http://www.e.gov.kw/>

10. Have you ever used any Kuwait e-government service, such as Civil ID renewal?

- Yes
 No

The following statements provide an indication of attitudes towards e-government services. Please indicate your opinion by circling the number which best represents your choice.

- 1= Strongly Disagree
 2= Disagree
 3= Slightly Disagree
 4= Neither Agree nor Disagree
 5= Slightly Agree
 6= Agree
 7= Strongly Agree

11. Performance Expectancy Statements

	Strongly Disagree							Strongly Agree
a. E-government website would enable me to access government information and services when I need them- 24 hours/day, 7days/week.	1	2	3	4	5	6	7	
b. Using online services would enable me to carry out my business with government quickly and efficiently.	1	2	3	4	5	6	7	
c. Online services would make my communication with the government difficult.	1	2	3	4	5	6	7	
d. I think interacting with the government face to face would be preferable to interacting online.	1	2	3	4	5	6	7	
e. I would find online services useful as there are a wide range of information and services available on e-government website, just 'one click' away.	1	2	3	4	5	6	7	
f. The online services would improve the quality of traditional services provided.	1	2	3	4	5	6	7	
g. The e-government website would give all citizens equal chances to carry out their business with government.	1	2	3	4	5	6	7	
h. I don't think that using online services would save me time.	1	2	3	4	5	6	7	

12. Effort Expectancy Statements

a. I would find it easy to learn how to use online services.	1	2	3	4	5	6	7
b. I would find it easy to use online services if support is provided.	1	2	3	4	5	6	7
c. I would find it difficult to become skilful in using online services.	1	2	3	4	5	6	7

Strongly
Disagree

Strongly
Agree

d. I would find online interaction with government clear and easy.	1	2	3	4	5	6	7
e. I would find it easier to talk face to face with someone rather than use online services.	1	2	3	4	5	6	7
f. I would find carrying out my business with government online too time consuming.	1	2	3	4	5	6	7
g. Overall, I believe that online services are easy to use.	1	2	3	4	5	6	7

13. Peer Influence Statements

a. I would only use online services if I needed to.	1	2	3	4	5	6	7
b. I would be prepared to use online services even if no one else I knew was using them.	1	2	3	4	5	6	7
c. I would use the online services if my friends used them.	1	2	3	4	5	6	7

14. Facilitating Conditions Statements

a. I have enough Internet experience to use online services.	1	2	3	4	5	6	7
b. I have the resources necessary to use online services, like PC, Internet...etc.	1	2	3	4	5	6	7
c. I would find it difficult to use online services because of lack of knowledge about them.	1	2	3	4	5	6	7
d. If I have been given the resources, opportunities and knowledge for online services, it would be easy for me to use such services.	1	2	3	4	5	6	7
e. I would not like to carry out my business with government online.	1	2	3	4	5	6	7
f. I would find it difficult to use online services due to lack of time.	1	2	3	4	5	6	7
g. I think that using the online services would fit well with the way I like to get my business done.	1	2	3	4	5	6	7
h. Using online services would fit into my life style.	1	2	3	4	5	6	7

15. Behavioural Intention Statements

a. I intend to use online services in the next 4 weeks.	1	2	3	4	5	6	7
b. I predict I will use online services within 3 months.	1	2	3	4	5	6	7
c. I plan to use online services in the future.	1	2	3	4	5	6	7

16. Generally, what is your opinion about e-government services?

.....
.....
.....
.....

Practical Sessions Using E-government

My study will also examine practical aspects of using e-government services. I shall therefore be arranging sessions that give you more opportunities to navigate through the e-government website to tryout various services useful for you.

Would you be interested in taking part in the these sessions to discuss various issues arising from using e-government services? Please indicate if you wish to be considered by entering your email address or any other contact.

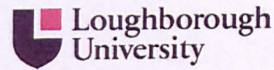
.....
.....

Thank you for your time and participation.

Appendix 2: Letter of Introduction

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uri:<http://www.lboro.ac.uk/departments/dis/index.htm>

Thursday, February 23, 2006

Dear Sir

Suha Al-Awadhi

Ms Al-Awadhi, a scholarship student from your university, is currently studying for a PhD in Information Science with our Department. As part of her studies, she would like to undertake field-work at Kuwait University. In particular, she would like to survey students about their attitude towards e-government services. She would also like to conduct a focus group with a small number of students on the university premises.

I would be most grateful, therefore, if you would give her the necessary permission to do this work and also, to facilitate this, to acquire statistics of registered students.

Thank you in anticipation of co-operation in this matter.

Yours sincerely

A handwritten signature in blue ink that reads 'Anne Morris'.

Dr Anne Morris
Reader

Appendix 3: Kuwait E-government Web Site – A Practical Session

Following provide practice for the use of the Kuwait e-government web site, created to enhance access to and delivery of government information and services to the public, business and government entities. This practice is designed to investigate how well the website functions and how effectively users can navigate it and use the e-services provided.

The practice is divided into three sections. In section one, participants will be asked to perform a series of usability tasks on the Kuwait e-government web site. In section two, participants will be asked to rate various aspects of the website and answer a number of questions based on their experience in using the web site. Finally, in section three, background information about the participants is be provided.

Section one: Usability task list

Task No.	Task description	Time to complete task
One: Browsing the website	Browse Kuwait e-government website and its web pages	5-8 Minutes
Two: Locating information	a. Locate information on business in Kuwait	1 Minute
	b. Locate Al-Watan recent press release about factors that control e-government success.	1 Minute
	c. Locate the contacts of Kuwait Lawyer Society	1 Minute
	d. You have a suggestion/ comment, please use the form provided and send your suggestion/comment.	2 Minute
	e. Search the word 'history' in the website search engine	1 Minute
Three: Using online services	a. Check if your civil ID is valid	2 Minutes
	b. Check the status of your passport	2 Minutes
	c. Locate your house in the electronic guide of Kuwait.	5 Minutes
	d. Search for any book about Kuwait through the Library of Ministry of education	3 Minutes
	e. Check whether you are prevented from travelling or not	4 Minutes

Section two: Evaluation of User Interface Design

Please rate the following aspects based on your experience using the Kuwait e-government web site. Please indicate your opinion by circling the number which best represents your choice

Overall reaction of the website																				
1. Loading of pages										slow	1	2	3	4	5	6	7	8	9	fast
2. Website navigation										difficult	1	2	3	4	5	6	7	8	9	easy
3. Website organisation										disorganised	1	2	3	4	5	6	7	8	9	organised
4. Colours used throughout the website										unattractive	1	2	3	4	5	6	7	8	9	attractive
5. Moving around the website										difficult	1	2	3	4	5	6	7	8	9	easy
6. Learning to use the website										difficult	1	2	3	4	5	6	7	8	9	easy
7. Overall website design										unattractive	1	2	3	4	5	6	7	8	9	attractive
8. Overall website structure										illogical	1	2	3	4	5	6	7	8	9	logical
Content																				
9. Readability of content										hard	1	2	3	4	5	6	7	8	9	easy
10. Information available										confusing	1	2	3	4	5	6	7	8	9	clear
11. Important information										not highlighted	1	2	3	4	5	6	7	8	9	highlighted
12. Topic and title										irrelevant	1	2	3	4	5	6	7	8	9	relevant
13. Fonts used										small	1	2	3	4	5	6	7	8	9	big
14. Use of images										inappropriate	1	2	3	4	5	6	7	8	9	appropriate
15. Finding information										hard	1	2	3	4	5	6	7	8	9	easy
16. Usefulness of content										useless	1	2	3	4	5	6	7	8	9	useful
17. Currency of information										old	1	2	3	4	5	6	7	8	9	current

Section three: General Information

Please answer the following questions with one tick(✓) only for each question. You may provide any additional information where requested.

1. Please indicate your gender

- Male
- Female

2. What is your age?

- 18
- 19
- 20
- 21
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- 24 -29
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Please specify

5. Please indicate your year of study

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- Fair
- Good
- Very good
- Excellent

9. For what purposes do you use the Internet?

(Please tick all that apply)

- Email
- Information search
- Shopping online
- Entertainment
- Other (please specify).....

Thank you for your time and participation

Appendix 4: Focus Group Guide

Introduction/Aims and objectives

Good morning/ afternoon, welcome to this session.

My name is Suha AlAwadhi and I am a PhD student at Loughborough University. Thank you for taking time to participate in the focus group. I understand that your time is valuable, therefore this interview will take only one hour. Would you mind if I tape record this session? Please be assured that these tapes will not be shared with anyone except those involved in the research (me as the researcher, my supervisor and director of the research).

The aim of this focus group is to investigate your perceptions and opinions about e-government, online services and other issues related to the benefits and barriers that help in making e-government a success or failure. Usability of and satisfaction with e-government website will also be discussed. As this research has never been done before, there is no right or wrong answer – it is just about your personal opinion that we need to understand. If you would like to know the findings of this interview, I'll be happy to send them to you. Any questions before we start?

Opening question (ice breaker)

Can you please tell us your name, age, the college and the department you are joining and in which year you are.

Key questions

1. When you hear the words e-government, what comes to mind?
2. What makes you go online? What advantages, in your opinion, would you get from e-government?
3. Can you think of any disadvantages?
4. Do you think that e-government will help in limiting bureaucracy and connections (wasta) in government work and in the delivery of services to citizens?
5. How far do you trust online services?
6. What role that culture plays in adopting e-government services?
7. How do people around you influence your view about using services online?
8. What are your impressions of the e-government website? What would you suggest to improve it?

9. Will you adopt online services? Why?

10. Which other services do you think should be online?

11. What do you suggest that government should do in order to encourage the adoption of e-government?

12. Is there anything anyone would like to add?

Close / thank you for your time and participation.

Appendix 5: Interview Guide

1. To what extent does the Kuwaiti government support the e-government project?
2. What are the practical steps that have been undertaken towards implementing e-government?
3. Do you think that the public sector is well prepared to implement e-government? How?
4. The successful implementation of such project needs the cooperation of different public organisations within the country. How far this is applied?
5. Are there any barriers that hinder the development of e-government?
6. How concerned are you that the budget crisis will lead to a slowdown in the development of new technologies and investment in e-government?
7. Do you think that e-government will affect the way government operates? How?
8. Which services are provided online? Will there be more of them?
9. Have e-services been used by the public? If yes, how do you evaluate their use?
10. Are there any obstacles that prevent the public from using e-government services?
11. Do you share the public's concern about privacy and security?
12. What are the security measures that have been undertaken to protect private information?
13. Is there any plan for bridging the digital divide within the society?
14. Are there any accessibility standards that ensure access of e-government services by all members of society? If yes, what are they?
15. How do you evaluate the e-government website in terms of user friendliness and ease of use?
16. To what extent are different cultures considered in the design of the e-government website?
17. Do you think that different members of society are aware of e-government services?

18. What is the plan for informing the public about the benefits of e-government services?
19. What are the plans for e-government services?