



**To Analyze Behavior of Young Consumers toward the use of  
Digital Technology in Tajikistan**

By

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Ph.D. Dissertation in Business and Management Studies

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## DECLARATION

I, Siyovush Bobokhonov Gairatovish, declare that the Ph.D. thesis entitled “*To Analyze Behavior of Young Consumers toward the use of Digital Technology in Tajikistan*” is no more than 100,000 words in length, exclusive of tables, figures, appendices, references, and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Siyovush Bobokhonov Gairatovish

\_\_\_\_\_ / \_\_\_\_\_ / 2018

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## ABSTRACT

The easy access to digital technologies impacted meaningfully the society particularly youngsters who become wiser and in touch with a huge amount of information in real time. The youngsters are the main target segment for Internet and mobile phone devices and services.

Our main goal consists of analyzing the factors influencing youngster's digital technological behavior under a socio-cultural environment where religion rules people's lives. Within muslim dominant society the gender role – women – in using those technologies is the focus of our research.

To fully understand the Tajikistan cultural context we undertook a mix methodological approach collecting both qualitative data (focus group) and quantitative data (surveys).

The qualitative method provided us with very relevant insights about the social constraint facing women and the youngsters' behavior and motivation regarding digital technologies usage. In spite of such cultural context characterized by the normative control of the religious beliefs there was an increase in use of those technologies since the past decade. In particular mobile phone is the most popular tool promoting social interaction among youngsters.

In the quantitative step, we collected 784 valid questionnaires (from a pool of 1.100). Two structural equation models – male and female separately – were developed to study the influence of several factors on youngster's digital technological behavior. The *free access* to digital tools and *gender control* (female model) showed a positive influence on *attitude toward digital*; in both (gender) models *attitude* had a positive effect on other three constructs capturing the behavioral response to different digital tools.

Although our conceptual model design was supported on a comprehensive and commonly accepted theoretical framework the reality of a non-western country proved overwhelmingly strong to challenge the cultural background of our framework. The religion effect is too powerful in shaping every aspect of consumer behavior and consequently their relationship

with technologies. We found that some of the predictors of digital behavior, which are mandatory in any western model, simply do not work in a muslim context. Other predictors work better but not with our western vantage point. At best of our knowledge a research under this cultural/religion circumstances never been done. We learn that the number of digital technologies behavioral predictors is more restricted due to the vast impact of the muslim religion. Cultural anthropology and sociology were helpful to contextualize and interpret such cultural gap. Future research should cover other muslim countries with different traditions. Other age cohorts also should be addressed. A comparative analysis with other religions could be insightful to better understand the normative effect of religion.

***Keywords:*** *Modern Technology, Young Generation, Religion, Gender role, Muslim society*

## RESUMO

O acesso às tecnologias modernas desempenha um papel significativo na sociedade dos nossos dias, especialmente para os jovens, o que lhes vem proporcionar uma enorme capacidade de informação e facilita a vida do dia-a-dia. Estudos existentes nesta área, defendem que os telemóveis (smartphones) e a internet são as tecnologias digitais mais utilizadas entre os jovens, nos nossos dias. Sendo que os jovens, tornaram-se o principal segmento de mercado para o qual o mercado digital está direcionado.

O principal objetivo do presente estudo consiste em analisar os fatores que influenciam o comportamento dos jovens consumidores enquanto estes utilizam a tecnologia digital; e, em simultâneo, analisar o impacto da religião no uso da tecnologia digital. O presente estudo também explora o papel do género, em particular, do género feminino no uso da tecnologia moderna num contexto de uma sociedade muçulmana.

Para tal, utilizou-se uma metodologia mista, consistindo na realização de *focus group* (abordagem qualitativa) e num inquérito por questionário (abordagem quantitativa).

Na primeira fase, o *focus group* forneceu informações para que deste modo fosse possível compreender melhor o comportamento dos jovens consumidores e as suas motivações para o uso das tecnologias modernas. Os principais resultados foram que os jovens no Tajiquistão começaram a usar telemóveis entre 2006-2007, embora as jovens mulheres apenas começaram entre 2009-2010. Esta realidade deveu-se às restrições religiosas e culturais dos países de origem muçulmana. Outro resultado interessante foi o verificar que existiu um crescente uso das tecnologias e também aferir o seu impacto no dia-a-dia. Na segunda fase, foi realizado um inquérito por questionário para recolher os dados de 1.100 jovens com experiência em actividades digitais e online. Assim, foram recolhidos 784 questionários válidos, que correspondem a uma taxa de resposta de 72%. Posteriormente, foram analisados dois modelos estruturais baseados na discriminação de género e o papel dos fatores associados à utilização de tecnologia digital.

Os principais resultados deste inquérito por questionário vieram confirmar os resultados do *focus group*. Salientamos o fato de o jovem começar a usar o smartphone e a internet mais cedo do que as jovens mulheres; também um outro resultado em comum prende-se com a



importância atribuída pelos jovens ao uso das tecnologias no seu dia-a-dia. No modelo de equações estruturais, os principais resultados sugerem que o *livre acesso* e o *controle de gênero* (modelo feminino) têm uma influência positiva sobre a *atitude*; e a *atitude* tem um impacto positivo nos três construtos que medem o uso da tecnologia (verificado em ambos os modelos).

Um outro contributo deste estudo, é ter aferido que os modelos conceituais desenhados (baseados em literatura do mundo ocidental) que sustentam que a influência da religião é determinante (esta mesma não se verificou nestes modelos aplicados à realidade de um país de origem muçulmana, como é o Tadjiquistão). O que nos leva a afirmar que o comportamento do consumidor de tecnologias digitais tem preditores diferentes (que não a religião) dependendo se é mundo ocidental ou mundo muçulmano. Sendo um dado interessante, pois as questões levantadas por ciências como a Sociologia, Antropologia entre outras, terão que ser analisadas com maior profundidade para estudar o construto religião.

A principal limitação do nosso estudo é o fato deste ter sido somente realizado no Tadjiquistão, sendo útil estender-se a outros países de origem muçulmana.

Como futuras investigações, poderá sugerir-se um estudo mais focado numa outra faixa etária, que não a jovem (como neste estudo se realizou); bem como analisar o impacto que outras religiões como o cristianismo, hinduísmo ou budismo, poderão ter no uso destas novas tecnologias.

***Palavras-chave:*** *Tecnologia moderna, Geração jovem, Religião, Papel de gênero, Sociedade muçulmana*

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**APPENDIX D:** Standardized Regression Weights Initial Measurement Model (Male)

**APPENDIX E:** Standardized Regression Weights for Final Measurement Model (Female)

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**APPENDIX G:** Correlations Between Latent Variables (Female)

**APPENDIX H:** Correlations Between Latent Variables Final Measurement Model (Male)

**APPENDIX I:** Questionnaire for Females Respondents (English Version)

**APPENDIX K:** Questionnaire for Males Respondents (English Version)

**APPENDIX L:** Questionnaire for Females Respondents (Tajik Version)

**APPENDIX M:** Questionnaire for Males Respondents (Tajik Version)

## LIST OF ABBREVIATIONS

Acronym	Meaning
<b>AGFI</b>	Adjusted Goodness of Fit Index
<b>ATT</b>	Attitude
<b>AMOS</b>	
<b>AVE</b>	Average Variance Extraction
<b>AIC</b>	Akaike information criterion
<b>ARPA</b>	Advanced Research Projects Agency
<b>CADA</b>	Central Asian Development Agency
<b>CFA</b>	Confirmatory Factor Analysis
<b>CFit</b>	Close fit
<b>CMIN</b>	Minimum of discrepancy function
<b>CR</b>	Composite Reliability
<b>CFI</b>	Comparative Fit Index
<b>EFA</b>	Exploratory Factor Analysis
<b>ECVI</b>	Expected Cross-validation Index
<b>FGD</b>	Focus Group Discussions
<b>FA</b>	Free Access
<b>GSM</b>	Global System for Mobile Communications
<b>GLS</b>	Generalized Least Squares
<b>GC</b>	Gender Control
<b>GFI</b>	Goodness of Fit Index
<b>ICT</b>	Information Communication Technology
<b>INN</b>	Product Innovation
<b>IoT</b>	Internet of things
<b>ITU</b>	International Telecommunication Union
<b>ISIS</b>	Islamic State in Iraq and Syria
<b>IAT</b>	Internet Addiction Test
<b>IT</b>	Information Technology
<b>IFI</b>	Incremental Fit Index

<b>IFC</b>	Internet Effect Scale
<b>KMO</b>	Kaiser Meyer Olkin
<b>LS</b>	Lifestyle
<b>MMA</b>	Measurement Modeling Analysis
<b>MMS</b>	Multimedia Messaging Service
<b>MM</b>	Measurement Model
<b>MI</b>	Modification indices
<b>ML</b>	Maximum Likelihood
<b>MARS</b>	Muslim Attitudes towards Religion Scale
<b>NFI</b>	Normed Fit Index
<b>NNFI</b>	Non-normed Fit Index
<b>PGFI</b>	Parsimony-adjusted Comparative Fit Index
<b>PCFI</b>	Parsimony-adjusted Comparative Fit Index
<b>PNFI</b>	Parsimony-adjusted Normed Fit Index
<b>PCs</b>	Pocket Sized
<b>PC</b>	Personal Computers
<b>PBUH</b>	Peace be Upon Him
<b>PDAs</b>	Personal Digital Assistants
<b>PGI</b>	Peer Group Influence
<b>RMR</b>	Root Mean Square Residual
<b>RMSR</b>	Root Mean Square Error of Approximation
<b>RC</b>	Religious Coping
<b>RAL</b>	Religious Altruism
<b>REN</b>	Religious Enrichment
<b>RMSEA</b>	Root Mean Square Error of Approximation
<b>SRMR</b>	Standardized Root Mean Square Residual
<b>SEM</b>	Structural Equation Modeling
<b>ST</b>	Structural Model
<b>Sig.</b>	Significance
<b>SD</b>	Standard Deviation
<b>SNS</b>	Social Networking Sites

<b>SPSS</b>	Statistical Package for Social Science
<b>TAM</b>	Technology Acceptance Model
<b>TLI</b>	Tucker-Lewis index
<b>UK</b>	United Kinden
<b>U.S.</b>	United State
<b>UOM</b>	Use of Mobile
<b>UOI</b>	Use of the Internet
<b>UOSN</b>	Use of Social Network
<b>ULS</b>	Unweighted Least Squares
<b>WLS</b>	Weighted Least Squares

# **CHAPTER ONE**

## **INTRODUCTION**

This chapter presents the research framework on the use of digital technology such as mobile phones, the Internet and social networking sites (SNS) among young people. We describe the research problem, research questions, objectives of the study, scope of the study, research method, definition of key terms, and structure of the thesis.

### **1.1 Background to the Research**

The availability of modern technologies plays a major role in today society, with a significant capability to make today's lives a lot easier (Mokhlis and Yaakop, 2012). The Internet has changed the character of human social interaction in such a way as to allow anyone to easily connect with many individuals worldwide. Social networking sites (SNS) have come to play such a significant role in enabling communication and relationship building for many individuals, young people in particular, that it is crucial to investigate the various factors that influence their use (Wilson et al., 2009). Along with this, the advent of the mobile phone has had enormous impact on the way people communicate around the globe (Almenayes, 2014, p.108). In other words, the pervasive presence and substantial impact of mobile phones and Internet technology on users' everyday lives make these devices a suitable instrument for study. In recent years, as technologies have kept improving they have become more affordable, and more people, both young and old, now use them in their daily lives. Thankfully, the development of modern technologies is helping the way people live and day-to-day, making people's lives easier. With these mobile devices people are not tied to landlines or a physical presence any longer, and are free to call anyone, anytime, anywhere, which means that people can spend less time on unimportant things and instead spend more time on important things (Almenayes, 2014, p.108). In brief, may say that modern technologies are helping all of humanity to make life easier, and without these technologies life today would be much harder and more tedious.

An increasing number of studies show that the mobile phone and Internet technology are the most used digital technologies in life today. Accordingly, a large number of mobile

phone and Internet users indicate that these devices have become an integral part of their lives, especially for young people (Kosimov et al., 2015; ITU, 2015; Zerkalo, 2013; Liaw et al., 2010; McMillan and Morrison, 2006; Oksman and Turtiainen, 2004). It is interesting to note that these modern technologies seem to appeal more to the younger generations than to the older generation. Today's young generations are of the same age as these new technologies, and they use digital technologies while they walk, work, study, eat, think, dance, and even while they sleep. Due to all the activities, young people do with digital technologies, Rosen (2008) stated that today's young generations have become virtual they even live online. It is easy to observe that today's young generations have adapted their lives too much to the use of modern technologies, although they see it as ordinary (Jiang, 2011; Lenhart et al., 2010; Walsh et al., 2008; Jarvenpaa and Todd, 1997; Campbell, 2005; Pedersen, 2005). It is normal that when something is present in your life from childhood, you adapt to it and accept it as a perfectly natural part of your life. Therefore, today's young generation feels entirely comfortable with these new technologies because they have grown up with digital technology and almost all of them had a digital tool from an early age, so it is like an extension of their bodies and lives.

The massive use of mobile phones and the Internet in Tajikistan testifies to the significant development of information communication technology (ICT) field in the last two decades (Chorshanbiev, 2014; Shokirov, 2013; Adinabay, 2013). In Tajikistan, because of the geographical location and the high cost of Internet access, people use the Internet via mobile devices, particularly young people (Kosimov et al., 2015; Adinabay, 2013; Zerkalo, 2013; Ibodulloev, 2012). Currently, the mobile Internet has become an essential tool for communication in Tajikistan society due to its accelerating spread and intensity of use (Chorshanbiev, 2014; Shokirov, 2013; Adinabay, 2013), especially among young people (Kosimov et al., 2015; Zerkalo, 2013), both male and female, for various reasons and purposes. Today, young Tajiks can hardly imagine their lives without information technology, and digital devices have become almost like the air they breathe.

It is considered that use of Mobile phone and Internet technology will continue to grow in Tajikistan, because of several factors that can speed up this growth. First, is that 70 percent of the population of Tajikistan is comprised of young people who are growing up in



the age of technology. It is reasonable to assume that this group will adopt new technologies faster than average. In this segment, 45 percent of them are between ages 14 to 30, and they are the primary users of digital technologies (CYST, 2011; Kiyomiddin, 2012; Kosimov et al., 2015). The current studies report that young people aged 15 to 30 are the heaviest users of mobile phones and the Internet in Tajikistan (Kosimov et al., 2015, p.2). This generation comprises one segment of the society, but it represents the future and has the fastest adoption of new technologies and the first users of a variety of modern technology platforms.

Although people in Tajikistan have been using mobile phones since 1996 and had access to the Internet since 1995 (Adinabay, 2013, p.14-23), there is no accurate information about the extent of use, the number of users, types of usage patterns, influencing factors on the behavior of users, or the role of gender in the use of digital technologies. Therefore, it is necessary to conduct a scientific study in order to understand the patterns of modern technology use in Tajikistan amongst people in general and young people in particular. There are some scientific studies such as Kosimov et al., 2015; Adinabay, 2013, which have looked at some characteristics of mobile phone and Internet users (age, call duration, experiences with mobile phones, reasons for using mobile phones and the Internet, arrival of the mobile phone and the Internet, etc.), but none of these authors have included consumer psychology in the use of this digital technology. In order to understand the behavior of consumers it is necessary to identify the factors that influence their behavior when they use goods and services (Solomon, 2011). At present among the Tajikistan society in general and young people in particular, the digital market is in need of this kind of study. Therefore, it is necessary to think about and investigate the perspectives of young people, as they are the primary users of digital technologies.

## **1.2 Problem Statement**

The current studies argue that an importance of communication in human society has been recognized for thousands of years, far longer than we can demonstrate through recorded history (Richmond and MacCroskey 2009, p.223). Concurring with Richmond and MacCroskey, Singer, (2006) stated that humankind has developed as an overall social, competitive, and cooperative group. Singer further states that humanity as a group has always

depended on how well they communicate their own opinions and appreciate the thoughts of others. Consequently, for human beings, there is a basic urge to communicate. This instinct, from the start of human existence to the present time, has always been the same (Einterz, 2012). Nowadays, with the availability of new technologies, people are able to move from one place to another and still keep in touch with each other with mobile phones, as communication technology and the Internet media technology simplify communication, regardless of time and geographical location. Wladawsky-Berger, (2012) stated that using digital technology uniquely enables people to recast their relationship with others around them, with the world, and even with themselves.

The rapid development and wide use of modern technologies such as mobile phones and the Internet has great potential to influence the behavior of young generations. For instance, mobile phones provide various services on the global network, such as unrestricted communication between people, enabling them to talk to family, friends and strangers easily and instantly. On the other hand, the use of mobile phone also creates problems, some of which are ethical in character and have an impact on the norms of moral behavior, social development, and the psychological and physical health of children (Afshorniyo, 2014, p.68). The Internet also provides a wide variety of services in information, communication, entertainment and education. Nonetheless, we have just begun to understand the true extent of its effect on society and the new digital generation (Afshorniyo, 2014). Uncertainty toward the use of new technology reflects a necessary and natural stage of development in any society. As the youngest members of society are, the main users of modern technologies, which are devoid of traditional protocols their norms of behavior can easily be, affected (Afshorniyo, 2014).

The rapid growth of digital technologies over last three decades has spread worldwide, and has led to significant changes in the cultural ecosystems of the world in which we live. So far, little is known about how culture affects consumer's perceptions and beliefs after they have adopted digital devices. When we think about consumer behavior we cannot ignore the role of socio-cultural aspects. According to Winsted, (1997) a cultural norm is one of the main external factors that significantly influences the behavior of individuals. Chang,

(2005) noted that culture has a great impact on people's lives, and affects the motives and choices individuals make when they consume or shop.

In relation to cultural systems' influence on consumer behavior, religion needs to be viewed in the framework of technology adoption and Internet usage patterns, since we can easily fail to notice that it permeates almost all aspects of life with its related practices (Hirschman 1983). Kotler, (2000) commented that religion is part of a culture that can shape an individual's behavior. This means that people who have religious faith hold certain values that influence their actions and decisions. For a better understanding of the role of religion in the digital world, we turn to some earlier studies. Buddenbaum, (2002) stated that rather than a general propensity to view technology adoption, media usage and religion separately, the interplay between the adopted medium and religion needs to be considered jointly for a wider and deeper appreciation of the interaction between the two. Current studies have demonstrated that religion plays a key role in how people use the Internet and the relationship between religious beliefs and technology adoption. In many historical cases, religion has fueled not only technological innovation but also shaped proliferation and use. Some studies suggest that using the Internet for religious purposes might transform religious practice and ideology in revolutionary ways, from challenging the roles of traditional religious authorities to altering religious expectations of the community and connection (Dawson and Cowan, 2004; Brasher, 2001).

It is clear that, the world is progressively becoming digitized and these changes are felt in every area of life; from optimal sleep, to efficient travel, effective time management, or religious engagement. For Muslims, there is an application called "Ramadan Times" that shows fasting times depending on the location of the device. Others show the location of mosques and halal shops close to the user (Beirut, 2012). Cross-lingual access and translations help Muslims whose first language is not Arabic to easily download text and audio versions of the Holy Quran in languages, which they can read and understand. ICT brings significant benefits to the quality and efficiency of education as well, which effects teaching, learning, and research. Ahmad-Haji Abdullayev, the Islamic leader of the Chechen Republic said in one of his interviews that "today the Internet is a massive tool for spreading the word of the Allah" (Goralik, 2011). The Prophet Muhammad (s.a.w) the messenger of

Allah commanded the Muslims “If you do something, then do it well” (Goralik 2011). This means that Muslims can use everything but should do so in the way that Allah commanded. Therefore, when a Muslim does something, he/she should use all the most useful and appropriate things to do their work successfully. The use of new technology is no different. Therefore, it is necessary to think about how these modern technologies can be helpful or harmful for today’s Muslim society.

Despite numerous theoretical attempts to explore the relationship between Islam and digital technology use, little empirical research has been done in predominantly Muslim societies. Therefore, our study took place in a Muslim society with the aims of analyzing the behavior of young consumers toward the use of digital technologies, and of quantifying the impact of religion, Islam in particular, on the behavior of young individuals when they use or purchase modern technologies. This study also identifies the role of gender toward the use of digital technology. The next section will state the objectives of the study in more detail.

### **1.3 Research Goals**

Due to the rapid growth of modern technology and its usage amongst young people worldwide, this issue became a suitable research topic, especially in the developing regions. Therefore, after reviewing the existing studies and relevant literature, the primary aims of this study were to see; how new technologies enter the everyday lives of young people, how in turn young people engage with these novelties and how they use them, what factors influence their behavior when they use these digital devices, how Tajik youth as Muslim consumers use these devices in their lives, and the role of gender in the use of new technology.

Based on the goal of the study, the main research question is to determine the factors that influence the behavior of young people when they use digital technology. In addition, we sought to analyze the following aspects; the role of religion and gender, especially among females, on the use of modern technologies. The research questions can be summarized as follows:

**RQ1:** Which factors influences the use of digital technology and its pattern of use amongst young people?

**RQ2:** How does the use of digital technology differ in the context of the demographic profile of youth?

**RQ3:** To what extent do the normative dimensions of religious practices and values moderate the effect of predictors on the use of digital technology?

#### **1.4 Scope of the Study**

This study targeted only young people aging from 18 to 30 years old living in Dushanbe city, the capital of Tajikistan. All participants had an experiences in the use Mobile phone and Internet technologies. Unlike in many other communities/societies (such as Western, non-Muslim, and Muslim developed countries), females in Tajikistan, because of cultural and taraditional rules do not have the same freedom as males do, especially in the use of digital technology. Therefore, one of the purpose of this study was to analyze female perceptions regarding this issue.

#### **1.5 Research Method**

This thesis applied a mixed methodological approach for collecting both qualitative data (focus group discussion) and quantitative data (survey questionnaire). The purpose of using a mixed methodological approach was hypothesis analyzing in order to interpret and explain the nature of Tajik society and its relationship with the use of digial technology and to establish the differences among the age groups and other independent factors. The rationale behind the use of mixed method is that for studying consumer behavior researchers have to go for a mix research method, because there are many things, which we cannot measure on a numerical scale, value or number, in this case questionnaire can measure how young people use digital technologies, while focus group discussions allow participants to talk in a more open-ended way about using these devices. Before measuring the relationship among variables explaining

consumer behavior, it is useful to understand the meaning and the context from the consumer's perspectives in a less structural way (Hair et al., 2013; Malhotra and David 2007).

Three Focus Group Discussions (FGD) were conducted with a minimum seven participants, males and females aged 18-30 years old, and every participant had an experience with mobile phones and online activity. Following the focus group discussion, two pre-pilot studies with 30 samples (15 in each pilot study) and pilot study with 100 respondents from the same age group were carried out to check the understanding of the respondents to the questionnaires.

The survey helped the researcher collect primary data regarding the factors that influence the behavior of young consumers when they use a mobile phone, Internet, or other digital devices. We randomly distributed 1100 questionnaires in six universities, public institutions and companies targeting separately women and men. In the final phase, we had a sample of 784 usable respondents for further data analysis. The questionnaires were divided into two forms to neutralize the role of gender in the use of digital technology. The reason behind the splitting the questionnaires into two form was that during focus group discussions and pilot studies we found that there are some questions that are not related to males respondents or vice versa. Therefore, it was formulated into two form in order do not be complicated for respondents. For analyzing the data, the researcher used Statistical Package for Social Science (SPSS-21) and AMOS-21.

## 1.6 Definition of Key Terms

**Digital Technology:** This term is used to describe the use of digital resources to efficiently find, analyze, create, interconnect, and use information in a digital context (CETA, 2006). Based on massive development in technology industries, nowadays people use these technologies as a communication tool (Cohalan, 2012, p.1).

**Mobile Phone:** The Mobile Phone is a wireless handheld technology that allows users to make calls, send and receive text messages, use multimedia messaging services, and connect to the Internet. Mobile phones defined as a telephone system that can move or be moved easily and quickly from place to place (Bittner, 1989, cited in Ogbomo and Ogbomo, 2008, p.3). Mobile phones are now the ICT that is reshaping and revolutionizing the communications globally (Ogbomo and Ogbomo, 2008, p.3).

**The Internet:** The Internet is a global collection of many types of computers and computer networks that are linked together (Ogbomo and Ogbomo, 2008, p.3). It is increasingly becoming the solution to many information, problems, information exchange, and marketing (Adesanya, 2002). The Internet is the decisive technology of the Information Age, and with the explosion of wireless communication in the early twenty-first century, we can say that humankind is now almost entirely connected, albeit with great levels of inequality in bandwidth, efficiency, and price (Castells, 2014).

**Young Consumer:** The Young Generation is the latest and the largest generation making inroads in all areas of life, including the digital market. The young consumers constitute one of the fastest growing Internet populations. This group of consumers spends more time online than adults and surpasses all other age groups in their use of chat, instant messaging and use of other modern technologies (Wided, 2010, p.250). This generation recognized as a group of individuals who shares years of birth, ideas, needs and important life events at critical stages of development (Kupperschmidt, 2000).

**Religion:** Religion is a set of beliefs, feelings, dogmas and practices that define the relationship between human beings and the sacred or divine. Religion is a primary element of culture, which influences attitudes, values, and behaviors on both an individual and societal level (Mokhlis, 2009, p.75). In the everyday lives of people, religion

intervenes in consuming/using goods or services, and even in the use of modern technology such as mobile phones and the Internet.

***Islam:*** Islam is the religion followed by Muslims. Islam is a “religion that guides Muslims in every aspect of life and not just specific acts of worship” (Lotfizadeh, 2013, p.107). According to Malaekah, (2001) Islam is not a new or different religion, and it strongly calls for man to use his logic, reasoning, and intellect.

### **1.7 Structure of the Study**

The rest of this thesis structure is as follows. Chapter two presents a literature review covering the relevant background. Chapter three provides an overview of Tajikistan and the use of digital technology in the country. Chapter four presents the theoretical framework of the study. Chapter five elucidates the research method used in this study. Chapter six articulates the result of the data analysis and interpretation. Finally, Chapter seven presents the conclusion of the study.



## **CHAPTER TWO**

### **DIGITAL TECHNOLOGY CONSUMPTION – REVIEW OF LITERATURE**

#### **2.1 Introduction**

For any scientific study, it is important to understand the evolution and logic of previous studies, to take into consideration the wider knowledge on the topic under investigation. Furthermore, it is necessary to analyze and explain different findings as well as determine the gaps available for researchers to investigate.

The previous Chapter provided a brief overview for the present study. This section will make a review of the literature regarding the use of digital technologies among young people, in particular mobile phones and the Internet, and religion as an external factor that influences the behavior of young consumers. The current chapter also will discuss the role of gender in the use of digital technology. The content is divided into four parts. The first part will present an overview of digital technology (2.2). Part two offers information about the Internet as media technology in general, and in particular about the creation of the Internet, the definition of the Internet, various uses of the Internet in life today, the impact of the Internet on young people's lives and access to the Internet (2.3). Part three, provides information about mobile phone technology; as a communication tool, the creation of the mobile phone, definition of the cell phone, various uses of mobile phones in life today, the impact of mobile phones on young people's lives, and the perception of using mobile phones to access the Internet (2.4). Finally, part four provides information about the role of gender in the use of digital technology.

#### **2.2 Digital Technology**

Since the beginning of the current era, there has been rapid growth and development of information technologies such as movies, print media, radio, terrestrial broadcast analogue television, cable television and other related technologies. In a short time, almost all user devices have become digitized (Gutnick et al., 2011). To begin, it is useful to remember how these technologies were used before becoming new technologies such as mobile phones and

the Internet. Currently, all the above actions may be performed with a mobile phone and an Internet connection.

In the late 19th century, Marvin, (1988) argued that people began to use technologies to solve old difficulties of managing time and space in relationship communication. At the present time, with the development of technology people have access to all fields of life 24/7 via digital technologies. People all over the world today use digital devices for different purposes and in different places. According to Cohalan, (2012), digital technologies are not only for spreading static information, they are more about communication. This means that mobile phones are used to stay in touch with friends, family, and society, and for Internet applications such as emailing, social networking, video chatting, shopping, learning and even for religious purposes.

There are different opinions among scholars regarding the use of digital technology in daily life. The current studies stated that modern technologies used for communicating with friends and family, for obtaining goods and amenities, and even obtaining some social and healthcare services are often attained through the use of new technology (Copeland et al., 2015). Others state that modern technologies are considered as an inherent part of society (Mesch, 2009, p.53). Hermeking, (2005) commented that the overall spread of digital technologies is frequently regarded both as an indicator of the postmodern epoch of globalization and as the very precondition for the era of intensive global interaction of people and the exchange of goods, services, information, and capital (p.192).

The development of digital technologies can help bridge the vast geographical distances between dispersed family members and friends who live abroad. According to Damant and Knapp (2015), the extent to which core technologies have taken a central role in life today is evidence of how they have become more accessible, affordable and prevalent over the past three decades (p.7). Today these devices provide an opportunity for people come together, solve their problems, satisfy their needs and increase their knowledge about world. On the other hand, as with a lot of innovations in technology, people can now use these technologies for different purposes, such as watching TV, listening to music, playing games, communicating with each other, reading online, shopping online, sharing their thoughts, finding a solution for their problems, for religious purposes, and so on.

## **2.3 Internet Technology**

The Internet is considered to be a primary element of information communication technology (ICT) in the Information age, which, with the explosion of wireless communication in the early 21st century, has allowed people all over the world to connect with each other (Castells, 2014). The Internet as a media technology is widely used because it allows users to transfer text and information around the world, quickly, cheaply, and efficiently (Dangwal and Srivastava, 2016, p.6). According to Davison and Tatnal, (2003), for any technology to become used widely, it needs to provide innovations for users such as faster access, lower-prices, and offer extensive information sharing alternatives.

As a result of this progress at the beginning of the century, the real world has changed into a virtual world. The virtual world is a cyberspace, where people are independent of spatial location, transcending geographical and social frontiers (Brito, 2011). Currently, people, companies, institutions, markets and even religions have their spaces in the virtual world. The Internet is a comprehensive system, which connects millions of people together to exchange data and information. It provides a platform in which many activities such as shopping, banking, gaming, inter-personal communication and entertainment can be performed (Eastin et al., 2011).

### **2.3.1 The Creation of the Internet**

The technological evolution of the Internet began with research on packet switching and the ARPANET, which was first created in 1969 by the United States Department of Defense Advanced Research Projects Agency (ARPA) (Abbate, 2000). The first public display of the ARPANET was presented at the first International Conference on Computers and Communities in 1972 in Washington, DC (Beranek and Corporation, 1981). The purpose of creating the network was to allow computer users from one university to be able to talk with other computer users at another university. The first survey of Internet users in 1996 counted about 400 million people connected to the Internet, and by the year 2013 this number had grown to over 2.5 billion (Castells, 2014). By the end of 2015, the number of Internet users reached 3.37 billion (Internet Users, 2016). Today hundreds of millions of people

around the world use the Internet in every field of life, from obtaining basic information on health or finance, seeking a ride, a job or accommodation, learning and education, for entertainment and socializing, and countless other daily activities.

The Internet is now at the heart of communication networks, which provide the production, distribution and use of digitized information in all formats. Simply speaking, the Internet has transformed the computer and communications world like nothing before. Early communication technologies such as the telegraph, telephone, radio, and computer laid the foundation for the Internet's unprecedented integration of capabilities. Currently, the Internet is a platform for worldwide broadcasting, for information storage and distribution and a medium for collaboration and communication between individuals and their computers exclusive of geographic location (Leiner, et al., 1997). Leiner et al. commented that "the Internet was conceived in the era of time-sharing, but has survived into the era of personal computers, client/server and peer-to-peer computing, and the network computer" (p.103). A study by Hilbert and Lopez, (2011) indicates that 95 percent of all current information in the world is digitized, and most people have access to the Internet. With advances in the communication information field, more than 190 countries are now linked into exchanges of data, news, and information (Beal, 2016). Today the Internet represents a set of globally interconnected computers through which anyone can get quick access to data and programs from almost any site.

### **2.3.2 Internet Definition**

The Internet is a global network of networks, which connects billions of people. It is a massive system of channels in a networking infrastructure (Beal, 2015). In the WordNet Dictionary, the Internet is defined as "a publicly available computer network consisting of a global system of computer networks that use the TCP/IP network protocols to promote data transmission and exchange" (WordNet Dictionary, 2003). The Internet is frequently described as "organized chaos" (Marson, 1997, p.35). It is a worldwide system of computer networks that allows users to get information from any computer and allows users to talk directly to other users who sit on the other side of the network. Sometimes it is just called the "Net" (Davison and Tatnall 2003). In other words, the Internet is an interconnected network

that connects billions of people from all over the world in one place, in the so-called virtual world. Colloquially speaking, the Internet is a new world in which people can share their thoughts and stories, obtain needed information, spend leisure time, watch videos, buy goods and carry out many other activities.

### **2.3.3 Various Uses of the Internet in Life Today**

The Internet became such significant information technology tool in everyday life that many people started to use it for different purposes, such as obtaining information, reading the news, shopping, social networking, video streaming, downloading files, online gaming and also earning money via the Internet (Pangellu and Pandowo, 2014). Pangellu and Pandowo, (2014) state that today with the use of Internet people can save much time finding any necessary information rather than going to a library or directly to the field, because on the Internet with one click you can fulfill your needs. The Internet has become almost indispensable in the daily lives of many people and directly affects many aspects of everyday life, such as ways of thinking, ideas and behavior (Knowles, 2013; Thanuskodi, 2013; Carr, 2011). Bargh and McKenna, (2004) commented that the Internet, as the latest in a series of technological advances, has made a fundamental changes in the world (p.573). Therefore, for evaluating the effect of the Internet on everyday life it is useful to review how people in the initial stage accepted these technologies, and then how they started to use these technological advances (Bargh and McKenna, 2004).

Within the past 25 years, the world has witnessed the emergence of completely new forms of social interaction made possible by the blending of new communication technologies on the Internet. Since the beginning of the present century, with the rapid development in information communication technology (ICT) the world has changed dramatically. The world of current technology is intertwined with information and communication technology. According to Dangwal and Srivastava, (2016) information and communications technology (ICT), especially the Internet, has significant implications in the present time (p.6). Jack Ma the Founder and Chairperson of “Alibaba Group” said in one of his speeches, that information and communication technology (ICT), in particular the Internet, is about empowering yourself (Jack Ma, 2016). With increasingly faster Internet

connections and powerful computing technologies, people all over the world have become closer and geographical barriers are gone, particularly for the younger generation (Ronny, 2015; Shuriye et al., 2013). Peter and Valkenburg, (2006) concluded that access to information, social networks, and entertainment mediums goes hand in hand with an increased presence of the Internet in the different places where people live (p.294).

In the early 1990's as people started to use the Internet, most the users accessed the Internet with a computer in their workplace, and access was limited because of the low network connection speed. Two decades later, access to the Internet has become the norm for many applications and today it is considered a part of life in business, industry, markets and many other fields (Chase, 2013). Today with the rapid development of information technologies people use the Internet not only at their workplace with a computer, but also at university, at home, in hospital and even while walking or driving with the help of different new devices, such as mobile phones. Peter and Valkenburg, (2006) argued that with the recent advances in technologies, namely (wireless) access or Wi-Fi, the Internet has become more mobilized than ever before (p.294). Today it is no longer necessary for users to sit at a wired workstation to access the Internet.

Nowadays, the Internet is regarded as the most powerful tool for communication and exchange of information, thought and data all around the world. The development of ITC has reached a level that touches almost every sphere of human life, including the physical, social, emotional, moral and ethical (Dangwal and Srivastava, 2016, p.6). The Internet has changed the way people communicate, work and spend their leisure time (Wellman et al., 2002). The studies suggest that the Internet combines almost everything into the rhythm of everyday life. At the present, the Internet is used everywhere: at work, in business, in schools, in universities, and hospitals (Wellman et al., 2002), as well as in the internet of things (IoT) – the internetworking of physical devices such as appliances, vehicles, buildings, etc. (Wiki, 2016). Generally speaking, IoT refers to the networked interconnection of everyday objects, which are often equipped with ubiquitous intelligence. IoT will increase the ubiquity of the Internet by integrating every object for interaction via embedded systems, which leads to a highly-distributed network of devices communicating with human beings as well as other devices (Xia et al., 2012).

Howard, Rainie, and Jones (2001) reported that the Internet is used for a multiplicity of purposes, such as checking the sports news, seeking information for hobbies, playing online games, browsing for fun, watching video clips, listening to audio clips, listening to music or downloading it, and mainly for chatting (p.387). For Davison, and Tatnall, (2003) the Internet was viewed as an electronic community that interacts with the spheres of leisure, commerce, and academic research. To date, many people from different age groups and fields, especially people who are engaged in academic research and projects prefer to use the Internet because of the low cost, easy access and faster times for obtaining necessary information (Market Cloud, 2014). At the present, primarily from the benefits of Internet applications and the geographical spread of Internet access, the connections between people, family and friends who live far apart has become easier than ever before.

In the past 25 years, the number of the Internet users has increased in tenfold. The first billion was reached in 2005, second billion in 2010 and third billion was achieved in 2014 (Internet Users, 2016). According to some official reports, the number of the Internet users in the world was 2.02 billion in 2010, and this number reached to 3.37 billion by November 2015 (Internet World Stats, 2015: Internet Users, 2016). From this figure, we may say that in 2015, 44.6 per cent of world's population were Internet users (Internet World Stats, 2015), of which 2 billion users live in developing countries (ITU, 2015). Considering the Internet World Penetration Rates by Geographical Regions, North America comes in with higher rates of Internet users 87.9%, Europe 73.5%, Australia/Oceania 73.2%, Latin America/Caribbean 55.9%, and Asia 40.2%. In the last 25 years, the growth of Internet users was 832.5% worldwide (Internet World Stats, 2015). According to the report of the Internet World Stats in 2015, Tajikistan has 1.4 million users and 17.5% penetration. However, this data can change according to various local official sources.

### **2.3.4 Impact of the Internet on Young People's Lives**

#### **2.3.4.1 Positive Aspects**

The great significance of the Internet is that it has become the prevalent tool of social life, especially in the lives of young people today. Therefore, it is important to know exactly what the younger generation is doing when they are online, what activities they are engaged in and which factors motivate them to use the Internet. It is also important to know what influences their behavior when they use the Internet and other related technologies. Thus, some studies have been particularly interested in looking at Internet usage among young people (Bess and Bartolini, 2011; Belsey, 2008; McMillan and Morrison, 2006) and they often develop a concept in order to investigate how the Internet has changed the life of the younger generation (Oksman, 2006, p.2). Many studies describe young people as technologically skillful and as the main users of information technologies (Holloway and Valentine, 2003; Drotner, 2000). In a world of information technology, the young generation are seen as active subjects because of their influence on the emergence, rules and character of social phenomena related to it (Oksman, 2006; Livingstone, 2002). In general, ICT studies have focused on young people as the main users and the first adopters of modern technology (Oksman, 2006). The main body of the above studies indicate that ICT, the Internet in particular, has a significant role in many daily activities of young people.

According to Dangwal and Srivastava, (2016) the Internet as a communication tool, especially for exchanging messages has become as a vital feature of young people's social lives. The advance and development of ICT and the arrival of the Internet has changed the social lives of youth, as face-to-face communication been replaced by virtual interactions (Sharpe, 2009). According to data from the Pew Research Center, these technologies provide an endless source of information, entertainment and ecosystems for young people's social lives (Pew Research Center, 2010). Today the young generation use the Internet as an easy way to socialize with friends, family, and as an amusing toy. People born or brought up during the age of digital technology have been familiar with computers and the Internet from an early age, and are called "digital natives" or the "digital generation," because digital technology makes more sense to them than to members of the older generation (Dangwal and



Srivastava, 2016). This is also the primary reason that information technologies so easily affect the daily lives of the younger generation (Oksman, 2006).

According to Dangwal and Srivastava, (2016) “digital natives” or the “digital generation” are the generation groups that grew up with and effectively work with these new technologies and remain highly engaged with the Internet (p.11). It is easy to understand how this generation became so ‘virtual’ because in their leisure time they prefer to be online. Often this age group prefers to communicate with their friends virtually rather than going out to socialize, attend parties or meet with real friends (Dangwal and Srivastava, 2016).

In using the Internet, younger users feel that they are traveling in the cloud of the virtual world, where they can move from one part of the planet to another part in a second. Prensky, (2001, 2006) stated that technologies such as computers, tablets, mobile phones, and related technologies with access to the Internet have become an essential part of young people’s lives. Additionally, Pransky emphasized that these technologies have become critical tools in establishing new forms of leisure, relationships, communication, socialization and even education. Similarly, other studies also report that the use of the Internet has changed the communicability and everyday life of the younger generation in different contexts, including education and family life (Holloway and Valentine, 2003; Drotner, 2000).

Ballano et al. (2014) stated that young people mainly use these new technologies for sociability and leisure. Howard, Rainie, and Jones (2001) indicated that young people likely use the Internet for fun. According to Bess and Bartolini (2011), the Internet is a primary tool for the young generation, and it provides a space where they can communicate with their peers. Belsey, (2008) conclude that youth perceive the Internet as a normal and healthy forum for communication which allows them to stay in touch with their peer group, and their communication often looks like a real interaction through the immediacy of instant messaging. Today’s young generation sees the Internet as a vital part of their social life because the Internet provides them with access to all the activities that they need.

Current studies agree that the main advantage of the Internet is the fast access to volumes of information for young people and all age groups, and as the means of communication and networking among individuals and organizations. Today the Internet offers up-to-date information on different matters of young people's interests so that they do

not need to rely on other people for such information (Batane, 2013). Belsey (2008) has described how new technologies, especially the Internet, provide a place where young people can always be “on” i.e., continuously in touch and aware of all events. In general, the Internet has penetrated young people's lives so that they regard it as an essential element in their social lives (p.19). As well, the Internet provides a fantastic range of opportunities for young people, which, with their digital abilities, they can obtain whatever they wish.

As it was mentioned in the previous section, in recent years with the rapid development in technology, the number of Internet users has increased dramatically. Since the early 1990s, the growth rate of the Internet has been 832.5% worldwide (Internet World Stats, 2015). The studies report that young people aged 16 to 29 years-old are the primary and heaviest Internet users, with an average of 75 to 95 percent (Batane, 2013; Lenhart et al., 2010; Hargittai and Hinnant, 2008; Fox, 2004). Jones, (2002) stated that this generation spends much more time using the Internet than another groups. Based on the current studies, one may conclude that young people are the primary age group that utilizes the Internet, more than other age groups. On the other hand, technological developments indicate that digital technologies such as computers, mobile devices, and other related technologies with access to the Internet are things that youth have available in everyday life. Because today's world mainly depends on these technologies.

#### **2.3.4.2 Negative Aspects**

Unfortunately, the other side of the coin is that these technologies can also have destructive aspects. Therefore, it is necessary to think about how these tools have negative effects on people's lives, what impacts it has on a person's social behavior and what the future will look like, particularly in the lives of the younger generation (Temmel et al., 2016). Because young people are an age group that always wants to be ahead of others, these technologies can easily influence their social life.

Newman, (2003) stated that the majority of studies regarding the use of information technology tools have only considered positive relationships. A number of studies have begun to investigate the negative aspects of online activities on the everyday lives of users. The wide use of the Internet has made the younger generation feel culturally and socially

strange about what comes from the use of communication technologies and the moral values that they have in their daily life and the thing that results in different effects on their beliefs, values and behaviors (Trampiets, 1998). Due to the long hours using the Internet by young people, a number of concerns such as Internet addiction, psychological disorders, social and health problems have dramatically increased (Alam, et al., 2014; Otaibi, 2012; Chak and Leung, 2004). Kraut et al., (1998) concluded that the massive use of the Internet will reduce social circles, increase the feeling of psychological alienation and rates of depression among Internet users.

Widyanto and Griffiths, (2006) has commented that internet addiction is a “non-chemical or behavioral addiction that involves human machine interaction while it can either be passive, such as watching movies, or active, such as playing computer games” (p.31). Young, (2006) commented that Internet addiction, as an impulse control disorder that does not involve the use of an intoxicating drug is very similar to pathological gambling. Solomon, (2009) concluded that Internet addiction is a maladaptive use of the Internet and can lead to social and functional impairment. Internet addiction has been viewed from different aspects as reasons for psychological, social, scholastic, and work difficulties (Davis et al., 2002; Shapira et al., 2000). Young, (1998) has categorized Internet addiction into five specific subtypes as follows;

- Cyber-sexual addiction (use of adult chat rooms or cyber-porn);
- Cyber-relationship addiction (over-involvement in online relationships);
- Net compulsions (online gambling, online shopping, online trading);
- Information overload (compulsive web surfing or searches);
- Computer addiction (obsessive computer gaming).

Later, Young (2001) advanced five phases of the Internet addiction process as follows;

- Discovery;
- Experimentation,
- Escalation;
- Compulsion;
- Hopelessness.

Another negative aspect of the Internet is that it alters the social behavior, habits, and abilities of young people (Temmel et al., 2016). Today with the wide use of the Internet, people are becoming hooked on Internet content such as pornography, gambling, online shopping, searching for non-important information or surfing for a very long time (Alam, et al., 2014). Regarding this view, Solomon, (2009) commented that for young people today it is compulsory to use the Internet, because working with the Internet is effective and productive, and they feel more comfortable with online friends than real ones, playing games online and also have easy Internet access on all their mobile devices, including smartphones, tablets or other mobile devices. Alam, et al., (2014) conclude that young people on the Internet today feel “excited, thrilled, uninhibited, attractive, supported, and more desirable” (p.623).

Some of the negative aspects of the Internet, including psychological problems, interpersonal relationships, work problems, behavioral problems and physical problems are presented in the table below.

**Table 1: The negative aspects of the Internet.**

Construct	Findings	Authors
Interpersonal problems	- the relationships people have is far from their location;	(Alam, et al., 2014, p.621)
	- recurring difficulties in relating to others; - compulsive use of Internet, withdrawal from social activities, decreased tolerance, time management problems, interpersonal and health problems; - increasing depression and decreasing self-esteem;	(Loke, 2005, p.915) (Li and Chung, 2006, p.1067) (Yang and Tung, 2007, p.79)
Psychological problems	- due to long hours of using the Internet some individuals are unable to control their emotions and ways of thinking;	Alam, et al., (2014, p.625)
	- higher locus of control score (i.e., those who feel that events in their lives are out of their hands) e.g. youth are those more likely to have reported problems due to Internet use; - psychological disorders such as compulsive behaviors and depression;	(Rotsztein, 2003) Young, (1998)
Work problems	- unlimited use of the Internet reduces the potential of the employees and will cause delays in work accomplished;	Young, (2010, p.1467)
	- unlimited use of the Internet negatively effects personal traits; - an unsatisfactory financial situation can be a factor associated with Internet addiction;	Landers and Lounsbury, (2006, p.284) Bakken et al., (2009, p.121)
Physical problems	- massive use of the Internet disrupts sleep cycles due to late night logins which results in excessive fatigue, impairing academic ability or decreasing occupational performance, and may weaken the immune system, leaving the addict prone to disease;	Alam, et al., (2014)
	- massive use of the internet can affect health as follows; failed attempts to eat a healthier diet, taking nutritional supplements, inability to increase physical activity levels, overweight Body Mass Index (BMI >25), having hypersomnia (>10 h of sleep/day) and adverse effects on academic studies; - massive use of the Internet can have negative effects such as migraine or headache, poor sleep, and backaches;	(Jean, et al., 2010, p.217) Shuhail and Bergees, (2006)

These studies were conducted in different countries in order to determine the positive and negative impact of the Internet on the everyday life of people. They used different theories and models based on the cultural and environmental situation of the country (Alam et al., 2014). For instance, the theory of Young, (1998) the Internet Addiction Test (IAT) was applied in developed countries such as Italy and France. In case of developing countries, the Internet Effect Scale (IFC) theory was constructed in Pakistan to test similar impacts of the Internet on the life of users (Alam et al., 2014).

### **2.3.5 Access to the Internet**

There are many public places where people can access the Internet. Universities, hotels, cafes, shopping malls, city buses and various public “hotspots” allow users to access the Internet via Wi-Fi. The development and innovations in technology has brought Internet access everywhere through Wi-Fi and mobile gadgets. Among all modern technologies, the mobile phone is the most widely used for accessing the Internet (Tirfe and Nittala, 2015; Kosimov et al., 2015; Chaubey et al., 2011; Berelowitz, 2005), because any place and any time it allows users fast and cheap access to the Internet. Other factors that affect Internet access are privacy, gatekeeping, timeliness and functionality (Skinner et al., 2003). It is necessary to note that the use of mobile Internet among young people is increasingly growing. On the whole, we can say that mobile phones provide an easy means access to the Internet.

### **2.4 Mobile Phone Technology**

In general terms, the mobile phone is a wireless handheld device that allows users to make calls, send and receive text messages (SMS), use multimedia messaging service (MMS), and keep in touch with others (Techopedia, 2016; Merisavo, et al., 2007; Karjaluoto, et al., 2005). As well, mobile phones allow users to take and share pictures, videos, songs as well as to connect to the Internet, which provides much pleasure for young people (Enpocket, 2005; Sanakulov and Karjaluoto, 2015). All these abilities are the result of technological advances which enable mobile phones to perform sophisticated tasks (Sanakulov and Karjaluoto, 2015; Okazaki and Mendez, 2013). For a better understanding of mobile

technology it is useful to look back to the early stages of mobile technology. The following subsections will discuss the development of the mobile phone up to its present form.

#### **2.4.1 The Creation of the Mobile Phone**

When the first mobile phone was presented, it was large and its only function was to make phone calls. Its bulky size made it impractical to carry in a pocket. A key figure in the development of mobile technology was Martin Cooper, an employee of Motorola. Cooper produced the first his mobile phone in April 1973 (Goodwin, 2015). Later, mobile devices belonging to the Global System for Mobile Communications (GSM) network were capable of sending and receiving text messages (SMS). As these technologies introduced changes, phones became more convenient and more functions were added, such as multimedia messaging service (MMS) that allowed users to send and receive pictures, and at the same time to show others where he/she is and what he/she sees (Dunnewijk and Hulten, 2007, p.165).

Today mobile phones do not just replace landline phones, they are a different kind of tool. First, they are attached to a person, not a place; they are a prosthesis of the body, an extension of oneself. People now call a person, not a place, and the mobile phone is a private, and personal object as well, not just a piece of furniture (Haste, 2005). Nowadays, the improved screen is part of what makes mobile phones more than a mere instrument of communication. It seems that the great advantage of mobile phones is that they allow people almost complete freedom in regard to location, as calls can be made and received anywhere and anytime.

#### **2.4.2 Definition of Mobile Phone**

The term 'mobile phone' is used differently, according to the interest of the study. The existing studies use the terms mobile, cell phone and cellular phone as synonyms for a mobile phone. The amounts to a simplification that misses the full concept, because viewing a phone as a technology which operates wirelessly is only a small aspect of what today's mobile phone can offer (Çavuş et al., 2008). Indeed, studies have proposed a theory that the arrival of the mobile phone signaled the introduction of a major revolution in human

evolution. The term mobile phone is from the Latin "mobilis" which means, "to move" or be "able or willing to walk quickly or freely among businesses, places of residence and social classes" (Sharon, 2015). Nyiri, (2005) commented that the mobile phone is developing towards becoming the dominant medium.

### **2.4.3 Various Uses of the Mobile Phone in Life Today**

Over the last two decades the use of mobile phones has exploded, as it has become a part of the daily life of its users. In fact, today those who do not use mobile devices are a minority (Moore, 2013). The rapid development of mobile technology indicates that day by day, mobile users are growing more than the world population (Moore, 2013). According to Grand (2007), mobile technologies serve as personal, portable multimedia devices. Further, Grand states that while mobile phones have improved their capacity for downloading media files, they are becoming more necessary tools for young users. People now can access multimedia content via mobile gadgets, such as mobile phones, tablets, and laptops (Lu and Su, 2009).

The advance of new communication technologies lets people communicate instantly no matter how far apart they are. The mobile phone is the preeminent example of these devices. Mobile gadgets have had one of the fastest household adoption rates of any device in the world's modern history (Comera and Wikle, 2008). In the late 1990s, when mobile technology made its advance through mass merchandising in every society, many discussions on the impact of new ways of communication on everyday life and social practices were raised. According to Coghi, (2001) among the various modern communication technologies the mobile phone is regarded as "the most radioactive domestic appliance ever invented" (p. 28). In a mobile world, these devices have now become the most convenient means of communication. New age mobile telephones come equipped with the latest technologies and high-end features, making peoples' lives easier than ever before.

According to Chaubey et al., (2011), and Tirfe and Nittala (2015), in the present day a mobile phone connection is an important mechanism for people to keep in touch with their families and friends. The popularity of mobile technologies revolves around convenience, business, recreation, safety and social status (Mishaps, 2014; Patel and Rathod, 2011). The



various information services of the mobile phone have created an environment of immediate communication, which has produced an economic benefit for business and society. This progress makes the device very significant in day-to-day activities (Mokhlis and Yaakop, 2012). With the innovations in the mobile industry, mobile technologies now have many applications such as calling, texting, listening to music (Das, 2012) and allow connecting to the Internet.

Nowadays mobile devices are considered personal accessories and are an integrated part of people's daily lives. These devices are often seen as fashion statements and users seem to assign different symbolic meaning to their mobile phones (Katz and Sugiyama, 2006). Katz and Sugiyama (2006) state that people incorporate mobile phones into their self-image and use them as status markers. According to Mokhlis and Yaakop (2012), mobile phones have become enjoyable tools not only for communication, but also for music and video entertainment with their color screens, camera, and games (p.204). Due to technical advances, mobile phones have become pocket-sized (PCs) and entertainment devices called smartphones, which provide a wide range of uses and features in spheres such as entertainment, photography and health using a touch-sensitive user interface to access the applications. Mobile technology has become a bridge that joins people or groups together so that they can converse, share ideas, and grow.

From another angle, the broad penetration, personal nature, reliability of communication and increasing demands people make of mobile technology shows that besides communication people use mobile devices for other areas of life. For instance, for m-commerce (Ng, 2016; Yadav et al., 2016; Yang, 2005; Barnes, 2002), m-advertising (Cho et al., 2016; King, 2008; Haghirian et al., 2005), m-banking (Alalwan et al., 2016; Porteous, 2006), m-learning (Sabah, 2016; Abu-Al-Aish and Love, 2013), etc.

The studies also reported that mobile phones used as a digital babysitter. These days it's common to see parents handing a mobile device to very young children so they will be entertained and the parent can engage in other activities. In UK, a survey conducted by an online coupon site and showed that 58% of parents surveyed say they use their gadgets twice a week to babysit. The result of the survey also indicated that parents who have a child between the ages of 2 and 13 said they've handed their child a gadget because they either

needed some time to themselves or they just felt they needed a break from the kids (Bukhat, 2016; Nelson, 2015). This ties in nicely with the digital native idea – in fact young children today are learning digital skills before they can walk or talk. Based on the above studies one may conclude that the mobile phone has become an important tool in daily life. In the next sub-section, the study will talk about the use of mobile phone by young people.

## **2.4.4 Impact of Mobile Phones on Young People's Lives**

### **2.4.4.1 Possitive Aspects**

The adoption of the mobile technology by young people has become a global phenomenon in recent years. Numerous studies and surveys worldwide reported high rates of mobile phone use amongst young people (Lenhart et al., 2010; Haste, 2005). Since their introduction over 25 years ago, mobile phones have become the norm among young people and are accepted as an integral part of their daily life. A main reason for attracting young people to use mobile phones is that the price of these devices is much lower than for a PC, they are more durable and appropriate for gathering information quickly, are attractive, and suitable for a combination of extracurricular activities (Black and Hawkes, 2006). Haste, (2005) concluded that mobile phones have become a vital part of the personality and identity of young people.

The use of mobile phones became a common part of young people's everyday lives, and is integrated into many young people's self-identity (Walsh et al., 2008). The young generation personalizes their devices with unique ringtones and screensavers (Baron and Ling, 2007; Katz and Sugiyama, 2006) and think that mobile phones symbolize their freedom from their family (Ling, 2000, p.110) and their independence (Campbell and Park, 2008, p.383). Some young people become so dependent on their mobile phone that they cannot imagine their life without one, and view their mobile device as an appendage (Walsh et al., 2008).

The studies on these topics often have been interested in how these new technologies have changed the lives of young people in different contexts. Torlak et al., (2011) reported that various studies and surveys from different countries indicate that the use of mobile phone

among young people is growing rapidly. The reason is that, this group of users ages 18-30 years old started to use these technologies from a younger age, because they born and grow up with these technologies, anyhow it will influence their behavior. Technologies offering a range of applications can quickly affect the behavior of their users. According to Torlak et al., (2011) mobile phone applications are an enormous attraction to the young generation, who are constantly changing their location and interests. Pain et al., (2005) stated that ownership or use of mobile phone is related to complex social and political relationships that affect the reality in which young people live, and that mobile phones offer new independent spaces and freedom away from home for their younger users. Oksman and Turtianinen, (2004) commented that mobile phones have genuinely changed young people's definition of their personal space.

Studies find that mobile communication technologies have opened new spaces for social communication e.g. for friends to talk, to send text messages and arrange a meeting, and for young people to stay in touch with their circles of friends and family (Jones et al., 2003; Kasesniemi and Rautiainen, 2002). Matthews et al., (1998) stated that the young generation are active in negotiating their spatial mobility with their parents, and they often break rules that are set as to where they may be, when and with whom. Jones et al., (2003) commented that mobile technologies are a spatial technology with significant implications for young people's geographical lives, and that “Mobile devices offer differing challenges and potential for the young generation because of their interactive, flexible, portable, mobile capacities that the other technologies do not provide.”

Mobile phones present new possibilities for young people to decide how much information to give their family, and they may not always be where they say they are (Pain et al., 2005). A sense of liberty has a particular resonance with the use of mobile phones by young people (Ling, 2000). Davie et al., (2004) stated that young people can choose when, from where and with whom to communicate. The use of mobile devices among youth has been studied from different angles. Some scholars have considered the traditional uses and gratifications approach in examining mobile phone use by young people. For instance, Leung and Wei, (2000), in Hong Kong, identified seven gratification factors in the use of mobile

phone: “fashion/status,” “affection/sociability,” “relaxation,” “mobility,” “immediate access,” “instrumentality” and “reassurance” (p.312).

A study by Oksman and Raitainen, (2002) in Finland, and Skog, (2002) in Norway, reported that mobile phones have become integrated into young people's everyday lives, and in another study, they note that mobile phones may also help young people to gain and obtain peer group acceptance (Oksman and Raitainen, 2004). Grant, (2007) emphasized that for young people mobile phones are the most important device among all other technologies. Additionally, Grant stated that over 90 percent of young people have access to a mobile phone. Wilska, (2003) commented that both female and male youths are more knowledgeable than older people in the use of new technologies. According to Aoki and Downes, (2003) mobile phones are “forming particular subcultures among youth in different countries” (p.4).

Godman and Samuel, (2005) in their study in developing countries, highlighted that mobile phone are used to maintain social networks by providing a means for information and for communication between friends. Davie et al., (2004) have stated that mobile phones are becoming the primary means of contact between two people. The Market Cloud in their survey found that 85 percent of the respondents aged 18-24 stated that mobile phones are a central part of their everyday life. The survey also reported that 89 percent of the interviewees indicated that mobile gadgets allow them to stay up-to-date with loved ones and social events (Market Cloud, 2014). The studies indicate that young people use their mobile phones mostly to stay in touch with a circle of friends and family, and to access the Internet (Tirfe and Nittala, 2015; Kosimov et al., 2015; Chaubey et al., 2011; Aoki and Downes, 2003).

#### **2.4.4.2 Negative Aspects**

Along with their wide use, mobile phones have become a double-edged sword for young people. Although mobile phones facilitate the lives of young people, allowing them to increase their frequency of social communication (Park and Lee, 2012), improve their relationships and make new friends (Auter, 2007). When researchers look at the “dark side” of mobile phone use their findings reveal some negative aspects, such as behavioral or technological addiction and its influences on intrapersonal (e.g., attention, depression etc.) and interpersonal characteristics (Block, 2008; Bianchi and Phillips, 2005). Similarly, other

studies have found that the use of mobile phones in inappropriate ways can reduce an individuals' concentration and the amount of information received during a typical class, reduce face-to-face communication time, and even lead to mental or physical problems (see Lepp, and Karpinski, 2014; Thomée et al., 2011; Beranuy et al., 2009; Campbell, 2006).

As was mentioned in the previous section, the wide use of mobile phone among young people has dramatically increased and many people depend on these devices. To be a part of today's virtual world involves quite a high risk of becoming dependent on these mediums. Past studies on Internet addiction have demonstrated that there are significant differences in the frequency (e.g. how often people use the internet) and amount (e.g. how much time people spend on the Internet) of Internet use among Internet addicts, potential Internet addicts, and non-addicts (Bakken et al., 2009). Comparable to internet addiction, mobile phone addiction can have similar patterns in mobile phone use (Chena, et al., 2016). Other studies have found negative consequences of mobile phone use in common health problems such as; headaches, trouble concentrating, memory loss, hearing loss, and fatigue from the use of mobile phones (Khan, 2008). Similarly, some other studies reported that use of mobile phones gives rise to problems such as tension, fatigue, sleep disturbance, and dizziness (Al-Khlaiwi and Meo, 2004). Accordingly, the massive use of mobile phones indicates that young people have adapted their lives so much to the use of mobile phones they cannot bear to be without one.

#### **2.4.5 Perception of Mobile phones for using the Internet**

The Internet provided an easy and efficient way of delivering information and services to millions of users around the globe who were connected to the wired network. This “wired” network involved two significant constraints: time and place (Park, 2005, p.131). This restriction boosted the popularity of the mobile internet, which allows users to access the Internet from anywhere at anytime. The use of the Internet on mobile phones has been defined by Chae and Kiam, (2003) as “wireless access to the digitized contents of the Internet via mobile devices” (p.240). The characteristics of the Internet use on mobile phones can be described from three different perspectives: the user, environment, and system (Chae et al., 2002, p.240-241). Mobile technologies such as mobile phones, PDAs (Personal Digital

Assistants), and related digital technologies are more widespread and attractive among users, especially among young users for several reasons. The factors that attract young users to the use of mobile devices to connect to the Internet are as follows: cheaper than a computer, more durable and suitable for accessing information quickly, attractive design, and suitable for assimilation into extracurricular activities (Black and Hawkes, 2006). Day by day, rapid technological innovation had made it possible to provide the cheap, easy, fast and quality communication through wireless networks. Mobile phones which were once considered as a luxury device, now combine all of these actions in one device.

Studies show that Internet connections are increasingly moving off the desktop and increasingly into the mobile phone and wireless environment (Tirfe and Nittala, 2015; Kosimov et al., 2015; Chaubey et al., 2011; Horrigan, 2009; Aoki and Downes, 2003). Due to technical improvements in mobile phones the Internet is becoming more accessible (McConatha et al., 2014). Ghose et al., (2012) stated that the small screen size on mobile phones increased the amount of the Internet users. Because, small screen on mobile phones it is convenient and affordable anywhere at anytime to access the internet. A study by Byington and Schwebel, (2013) found that young people use the Internet on their mobile phones with great frequency, including while crossing streets. A study by Lenhart et al., (2010) found that 93 percent of young people aged 18-29 have a mobile phone, and 74 percent of this group worldwide have accessed the Internet with mobile phones (Statista, 2014). A study in a Muslim society by Nawi et al., (2015), regarding mobile application use over 24 hours indicated that 40 percent of their respondents used their mobile phone to access the Internet. A study by Kosimov et al., (2015) reported that in Tajikistan 79 percent of the young people ages 15- 32 years old connect to the Internet via a mobile phone.

In recent years, the number of the mobile users who connect to the Internet with mobile phones has globally increased. In 2012, with the highest percentage of Mobile Internet users the United States with 15.68 percent and China with 15.49 percent were in the first, Japan in second place was with 9.64 percent and other countries were with 5.5 percent or lower. Other sources state that over 7.1 billion of the world's population use the Internet via mobile phones (StatsMonkey, 2012).

## **2.5 Social Network Sites**

### **2.5.1 Positive Aspects**

Before the advent of social network sites (SNSs) the Internet was used for obtaining and sharing information, but with arrival of SNSs it has emerged as an indispensable online communication tool (Gupta, 2013). Social network sites (SNSs) as a communication tool for socializing provide access to the personal information and everyday activities of an enormous number of other people in a way that has never previously been possible (Singleton et al., 2016). Shuriye et al., (2013) stated that social network sites can be described as “Internet and mobile-based devices that combine technology, telecommunications, and social interaction” (p.1212). Shuriye et al., (2013) reported that SNSs are gathering momentum as one of the most significant tools for people to raise their voices. At present, many people use social network sites to overcome the power of politicians as a forum to express their opinions, allowing them to engage in a direct discussion with an unlimited audience (Shuriye et al., 2013, p. 1213). According to Dabner, (2012) social network sites promote the construction and distribution of messages and information through words, images and audio. Kwong, (2007) concludes that SNSs provide personalized and interactive services based on the user's interests and activities on the Internet (p.1).

Social network sites became widely used after 2000 with the explosive growth of major online sites (Boyd and Ellison, 2008). Boyd and Ellison, (2008) define SNS as web-based services that allow individuals to...

- construct a public or semi-public profile within a bounded system;
- articulate a list of other users with whom they share a connection;
- view and traverse their list of connections and those made by others within the system;

The study of social networking sites is a subject that divides opinion, while some people think that it is an amazing tool others are worried about the effects that it has on people's lives (BBC School Report, 2013) (Report, 2013). Since their introduction, SNSs have attracted almost 2 billion users and many people have integrated them into their daily activities, particularly younger generation (Boyd and Ellison, 2008). In recent years, numerous studies

have been conducted which, among other aims, review and seek to understand the practices, implications, culture and meaning of SNSs, as well as users' engagement with them (Boyd and Ellison, 2008). Today, SNSs penetrate the everyday activities of people whether they embrace or reject them, and can no longer be ignored because of their wide use (Duggan, 2015).

Today, making friends, reaching out to family and circles of friends has become easier than ever before, thanks mainly to social networking sites. Apart from making friends, socializing, and sending private messages, SNSs provide various services such as; photo and video sharing, built-in blogging and instant messaging technology (Boyd and Ellison, 2008). Most SNSs are designed based on specific ethnic, sexual orientation, political, religious, or with other identity-driven categories in mind (see Boyd and Ellison, 2008, p.214). Some SNSs mainly target users from specific geographical areas or linguistic groups, although this does not always determine the site's constituency. For example, "Odnoklassniki" was launched in the Russia in 2007 in the Russian language, but all Central Asia countries, Tajikistan in particular, quickly became the dominant user group because the majority of these communities understand and speak Russian. There are also other SNSs where other language speakers became the dominant user group such as Orkut, which was launched in the United States with an English-only interface, but Portuguese-speaking Brazilians quickly became the dominant user group (Kopytoff, 2004).

From another angle, with the widespread availability of the Internet and social network sites in particular, there has been an unprecedented shift in the patterns of social interactions among youth and the culture in which they live. Regarding these extraordinary shifts, the studies report that the reasons behind this change is that the main users of SNS are young people. In developed countries, young twelve to fifteen-year-olds are the main users of SNS, and spend an average of 18.9 h online each week (Ofcom, 2015). According to the Pew Research Center reports, today, 90 percent of young people ages 18 to 29 years-old are the main users of SNSs (Perrin, 2015).

In developing countries SNSs are considered as important, safe and cheap sites for social interaction. A study by Chuang and Schechter (2014) reported that in developing countries in 2013 only 7% of the population was using the internet, whereas in developed



countries the statistic was 78%. Chuang and Schechter (2014) stated that people in developing countries have a great need for social networking sites and it is hard to find indications from representative data sets that they use social network sites, as many people in these nations do not have access to the Internet (p.3). On the other hand, many people in the developing countries, apart from entertainment, use social networking sites mainly for education and agriculture (Pimmer et al., 2012; Munguatosha et al., 2011; Roblyer et al., 2010).

Today SNSs are central gathering places for younger generations to develop new media literacy skills (Jenkins, 2006). Additionally, Jenkins (2006) argue that various skills have become vital in networked spaces, such as the ability to collaborate with others, adopt changing identities as one navigates through different communities, or explore new knowledge domains when one has access to vast repositories of information. Current studies have found that youth find creative ways to gain access to new information technologies, such as SNSs in order to participate in different online societies that will help them learn new skills and delve deep into learning about topics that are personally interesting to them (Ito, et al., 2010). Younger generations also utilize social networking sites to provide social support to peers, share creative work, and network with others (Greenhow and Robelia, 2009).

### **2.5.2 Negative Aspects**

The characteristics of social media and youth's online activities make it vulnerable for the them to the online risk. Young generation see social network sites as the main source of information and medium to spark their interest. Today's young generation have adequate technical skills to use a range of social media application, but they seem oblivious to conduct critical search and evaluation of information and ignorance with regulation or infringement (Handayani et al., 2017). Handayani et al., (2017) stated that young people are prone to potential risk in digital world since they share their personal information i.e home address, phone number or school address. Youth are also unprotected from the negative content as they are often exposed to incidentally by the pop-up message or untrusted link or porn advertising (Kominfo, 2014).

There are many risks in the use of SNS for young people, such as watching porno pictures and videos, receiving sexual messages, bullying that have a negative impact on youth behavior. But, for Muslim developing countries the main problem is that, today many young Muslims joined to the terrorist organizations. Today, apart from the numerous advances in Internet use and SNSs in particular, the main problem of these new information communication mediums is that the terrorist organizations such as “ISIS” use these mediums to spread their message and encourage others, particularly young people, to support their organizations (Blaker, 2015). Blaker, (2015) notes that ISIS (The Islamic State of Iraq and Syria) mainly use SNSs to incite youth to "travel to the Middle East to engage in combat fighting side-by-side with other jihadists, or to join the group by playing a supporting role, which is often a role carved out for young women who are persuaded to join ISIS" (p.1). ISIS propaganda is now more frequently aimed at Westerners and specifically at young people, because it is clear that the main users on 89 % of social network sites are youth (Pew Research Center, 2013). The SNSs platform allows terrorist organizations to reach across globe in real time (Blaker, 2015). Weimann, (2011) argue that 90 percent of terrorist activities on the Internet takes place using social networking sites (p.3).

According to some official sources, at the beginning of 2015 ninety thousand pro ISIS messages were posted on social network sites every day. But, other sources have pointed out that this figure might be much higher, somewhat more than 200,000, because there could be re-tweets and some generated by computer programs (Greenberg, 2015). These huge numbers indicate that virtual world is a preferred place for terrorist organizations to hunt. Therefore, today these organizations mainly focus on this virtual world, because on the Internet it's possible that anonymous loosely organized hacking group, would (Blaker, 2015). With the help of new technologies, it is possible to produce slick videos, films and music with the lyrics translated into languages that are understandable to users, and obviously, these organizations mainly target young people (Blaker, 2015).

The wide use of SNSs allows terrorist organizations, despite vast geographical or political distances, to easily connect with thousands of people all over the world. These organizations also use SNSs geographically, for example in Central Asian countries in general, Tajikistan in particular, usually they use “Odnoklassniki”, because all these

communities can speak and understand the Russian language (Lemon, 2015). Other SNSs such as Facebook, Myspace, Twitter and related sites are mainly used in English-speaking regions, and sometimes globally (Blaker, 2015; Weimann, 2011). Today all terrorists are active users of up-to-date online communication technologies such as “e-mail, chatrooms, e-groups, e-forums, virtual message boards, and resources like YouTube, Facebook, Odnoklassniki, Twitter, and Google Earth (Lemon, 2015; Weimann, 2011). These groups act as a virtual firewall to help safeguard the identities of those who participate, and they offer subscribers a chance to make direct contact with terrorist representatives, to ask questions, and even to contribute and help out the cyber-jihad.” (Weimann, 2010, p.3.

Some reasons why young people are lured into joining terrorist organizations are summarized in the table below.

**Table 2: The reasons why young people join terrorist organizations.**

Construct	Reasons	Links
Sense of identity	<ul style="list-style-type: none"> <li>- ISIS typically preys on youth who are disillusioned and have no sense of purpose or belonging;</li> <li>- suggesting friendship, good morale and purposeful activity, all mixed in with a sense of understated heroism, designed to attract their friends as well as to boost their own self-esteem;</li> </ul>	(Haq, 2014)
Sophisticated propaganda machine	<ul style="list-style-type: none"> <li>- SNSs platforms - allow them to reach their target audience in a language that they understand;</li> <li>- SNSs platforms – exploit popular hashtags to disseminate their message;</li> <li>- SNSs platforms - allow a rapid distribution of propaganda and to invite a widespread following.</li> </ul>	(Jethro and Mullen, 2015); (Haq, 2014)
Religious obligation	<ul style="list-style-type: none"> <li>- SNSs are often used in a persuasive approach to convince young people to join an extremist group;</li> <li>- SNSs are often used in order to convince young people to make hijrah to the land of Islam as a religious obligation;</li> </ul>	(Berger and Jessica Stern, 2015) (Haq, 2014)
Female-targeted recruitment	<ul style="list-style-type: none"> <li>- young females who may feel isolated and removed from their non-Muslim peers;</li> <li>- living with a number of restrictions;</li> <li>- recruiters of women are women, because there’s a level of comfort established when conversing with another woman.</li> </ul>	(Haq, 2014) (Zavadski, 2014)

Yasir Qadhi, a Muslim cleric in the U.S. and professor at Rhodes College in Memphis, commented that radicalization occurs not in mosques, but rather, online in secret (Haq, 2014). Further, Yasir Qadh, notes that “most parents are comfortable with a quieter Islam that tends to shy away from controversial matters, such as American policy in Muslim lands” (Reitman, 2015). Thus, there is a communication gap between generations. Aside from the communication gap, the technology and social media sites that young people use in everyday life can be confusing and unfamiliar to parents. There is an absence “of genuine dialogue that could be tempered with some elderly wisdom” (Reitman, 2015).

Nevertheless, technological advances, such as cheap and easy access to the Internet allow users to use video capturing hardware (e.g. hand-held digital video cameras, mobile telephones, etc.) and interactive online networking platforms (e.g., Facebook, Odnoklassniki) while these advances have also changed terrorist’s online communications. The global community created by social networks and interactive forums on the Internet is advancing cultural awareness and reconciliation efforts, but it is also advancing the terrorists’ goal to share their extremist messages with global audiences (Weimann, 2011). Weimann, (2011) states that terrorist organizations not only promote global paranoia, share their messages with sympathizers and obtain donations, they also create more terrorists (p.11). Today with easy access to the Internet terrorist groups can recruit new members from any part of the globe (Conway, 2006; Weimann, 2011). It means that with online communication any person can easily take a terrorist training course in the privacy of their bedroom.

## 2.6 Summary

The current literature indicated that Internet considers as a primary element of information communication technology (ICT) in the information age, which allow people all over the world interact with each other. The existing studies reported that Internet as a significant information technology tool in today life used for many purposes such as obtaining information, reading the news, shopping, social networking, video streaming, downloading files, online gaming and also for doing business. The wide use of the Internet affects in many aspects of everyday life such as the way of thinking, communicating, working, spending leisure time and on the ideas and behavior. The review of the current studies showed that the Internet with the wide use became the great prevalent tool of social life, especially in the lives of young people today. Many studies reported that today's young people because of their large size, technologically skillful, growing up with and effectively work with these new technologies are the main users of information technologies. In contrast, the use of the Internet also has destructive aspects such as internet addiction, psychological disorders, social and health problems, interpersonal relationships, work problems, behavioral problems and physical problems that significantly can influence on the behavior of the individuals.

Mobile technology is the most used digital technology among other modern technology for communication, business, entertainment, safety, social status and connecting to the internet etc. Mobile phones with the wide use became a part of the daily life of its users. In some cases, mobile phones used as a personal assistant for finding nearest restaurant, club, coffee, parking, etc. The advance of the mobile technology allows people communicate instantly no matter how far apart they are. Based on the wide use mobile phone become an integral part of the today life, especially for young people. At the same time with the wide use, mobile devices become a double-edged sword for young people. The dark side of the use mobile phones provide many negative aspects such as technological addiction and its influences on intrapersonal and interpersonal characteristics, behavioral problems, reduce face-to-face communication, and even lead to mental or physical problems. The current studies reported that the wide use of mobile phone in inappropriate ways drives to the health

problems such as; tension, fatigue, sleep disturbance, dizziness, headaches, trouble concentrating, memory loss, hearing loss, and fatigue from the use of mobile phones. Comparable to internet addiction, mobile phone addiction can have similar patterns in mobile phone use

Today, Social Network Site (SNS) with the wide used, is another online communication tools that many people, especially young people utilize for different purposes. SNSs as a communication tool mainly used for socializing to provide access to the personal information and everyday activities. On the other hand, SNS provide various services such as construction and distribution of messages and information through words, images and audio. Making friends, reaching out to family and circles of friends has become easier than ever before with the advance of SNS. The use of SNSs also have the negative aspects as other information communication technologies. Today SNSs apart from the various advances, used for many other problematic purposes such as terrorism. As this study goal was to understand consumer behavior in Muslim society therefore, we mainly concentrated in negative aspects of these technologies for religious purposes. Regarding to this stance, the existing studies reported that terrorist groups mainly used SNSs to spread their message and encourage others, particularly young people, to support their organizations. According to some official sources, 90 percent of the online terrorist activities takes place- using SNSs such as sharing slick video, film and music with the lyrics translated into languages that are understandable to their followers. The review of the literature indicated that mobile phone and internet technology (social network sites) dramatically change the social life of the young people, in a good or bad side.

## **CHAPTER THREE**

### **USE OF DIGITAL TECHNOLOGY IN TAJIKISTAN**

#### **3.1 Introduction**

The present chapter will provide a brief overview of the country where the current study took place. Meanwhile, the study will focus on those aspects, which relate to the use of digital technology. The study also discusses the use of mobile phones and the Internet in Tajikistan. The content is divided into two parts. In the first part of the chapter the study will provide information about the location, language, culture and traditions, and youth of the country. The second part of the chapter will discuss the use of digital technology; mobile phones and the Internet in particular, and the use of digital technologies in regard to religion in Muslim society.

##### **3.1.1 Country Location**

The Republic of Tajikistan is a small and developing country, located in south-eastern part of the region which is in 19<sup>th</sup> century Russians and Europeans called Central Asia (Kamoludin and Shahram, 2010). In cultural and historical terms, Central Asia is a Turko - Iranian part of the Eurasian heartland (Kamoludin and Shahram, 2010). After the collapse of the USSR, Central Asia was divided into five independent Soviet republics and the people were split by their tribal and ethnic lines. On September 1991, Tajikistan declared itself as an independent country (Kamoludin and Shahram, 2010). Tajikistan is a mountainous land with an area of 142,100 km<sup>2</sup>, and up to 93 percent of the country is covered by mountains of the Pamir range, and so it is an alpine country (MFA, 2016; Kamoludin and Shahram, 2010). In January 2016, the population of Tajikistan was 8.6 million inhabitants (Tajikistan Population, 2016), and 74 percent of which were living in rural areas. The country borders with Afghanistan to the south, China to the east, Kyrgyzstan to the north, and Uzbekistan to the west. Figure 1 shows a political map of the country.



**Figure 1: Tajikistan Map** ([http://www.geographic.org/maps/new2/tajikistan\\_maps.html](http://www.geographic.org/maps/new2/tajikistan_maps.html))

### 3.1.2 Tajikistan Languages

In linguistic terms, Tajikistan is a unique country in which more than ten different languages are spoken. The official language is Tajik (Tojiki), which is a western Iranian language of the Indo-European family of languages. Tajik, it is very close to Farsi (spoken in Iran) and Dari (spoken in Afghanistan) (Kamoludin and Shahram, 2010). Russian is still commonly used as a second language in government and business. In Tajikistan, English is used as the lingua franca of digital devices, and only a very limited number of the population speaks English. In the use of digital technology with keyboard user interface (UI), a multilingual keyboard with Cyrillic and Latin alphabets is used for machine labeling and documentation.



### **3.1.3 Tajikistan Culture and Traditions**

The country is primarily a Muslim nation, with tribal groups or clans laying ownership claims to particular regions. The official religion in Tajikistan is Islam and it is split into Sunni, Shi'a, and other groups. The majority of the populace, up to 85 percent, is Sunni Muslim, 5 percent is Shia, and other groups account for 10 percent (Kamoludin and Shahram, 2010). According to Kamoludin and Shahram, (2010) Tajiks have been part of the Islamic world since the eighth century (p.8-9). Tajikistan is a multi-ethnic state, including Tajik 84.3%, Uzbek 12.2%, Kyrgyz 0.8%, Russian 0.5% and others 2.2% (Muhammadieva et al., 2012).

### **3.1.4 Youth in Tajikistan**

Young people have an important role in the global arena. Interest in this generation is based on several social, economic and political factors. First, the young generation is the future of a society. Second, young people have a lot of physical and moral strength, and they are resistant to setbacks in life. Third, their credulity, quick-changing, repeating, fast testing, and so on, is characteristic of young people (Miralien, 2016). Miralien, (2016) stated that fifty percent of the world population is young people up to 30 years old. According to this stance, Tajikistan is considered as one of the youngest countries in the world, because 70 percent of the population are young people up to 30 years-old (Miralieva, 2012), and more than 45 percent are between 14 - 30 years old (CYST, 2011; Miralieva, 2012). According to the "On State Youth Policy" Law of the Republic of Tajikistan, the population aged 14-30 years-old are considered as young people (CYST, 2011; Miralieva, 2012).

### **3.2 Gender Characteristics in Tajikistan**

The concept of gender, in its narrowest sense, means socially constructed distinctions of "sex," be it female or male (Bisilliat, 2001). There are two ways to understand the difference between male and female; the biological/anatomical differences which are usually referred to as "sex," and the social and cultural differences articulated as masculinity and femininity referred to as "gender" (Matanhelia, 2010, p.13). Studies argue that the social

construct differences between men and women may differ across time (historically), across societies (geographically) and have a bearing on social identity, roles and relationships acquired by men and women in societies (Ruble et al., 2007; Rakow and Wackwitz, 2004). Matanhelia, (2010) stated that societies have different social norms, expectations and rules for how men and women should dress (e.g. clothing, hairstyles), behave (e.g. girls should be shy), and relate to each other (e.g. men are superior to women, hence women should listen to men) (p.13). These social and cultural rules about behaviors, roles and relationships of men and women are termed “gender stereotypes” and are used to discriminate between the two sexes (Matanhelia, 2010, p.13).

Numerous studies have documented and stated that in patriarchal communities’ gender stereotypes are largely in favor of men and are used to subjugate and suppress women by according them a secondary status in the social hierarchy and limiting their freedom and opportunities (Neff, 2001; Wainryb and Turiel, 1994). Thus, gender is a socially and culturally constructed category used to differentiate between males and females. It also means that gender is different across cultures and time. For instance, in Tajikistan the culture and tradition requires women to dress in appropriate traditional clothing while in western countries a culturally appropriate dress for women would be a “skirt and blouse.” But, since new technologies connect young people all over the world they will copy other culture and traditions. For example, in recent times, in urban Tajikistan the dress codes have changed, and wearing “jeans and t-shirt” has become normal.

As Tajikistan, mainly is a patriarchal society, there are different socio-cultural rules for men and women. Therefore, in Tajikistan families much more pay attention to the education of males than females. If boys wish to go to big cities for higher education, their parents will be more supportive than in the case of females. In the case of females, parents always expect that girls should learn about household chores such as cooking, even if they are engaged in higher education, because traditionally before getting married girls should know how to cook. Even in marriage, in many cases parents will choose a husband for their daughter. Boys have more freedom to reject the choice of their parents, while females typically cannot do so. The use modern technologies are similar – males are free to use any technology while females are always under the control of their brothers, parents, and family,

and when they get married they will be under control of their husband (Matanhelia, 2010, p.14). Simply put, majority of females in Tajikistan are under control of males until the end of their life.

### **3.3 Technology Usage in Tajikistan**

Nowadays, the use of modern technologies, especially mobile phones and the Internet technology among the young generation is a well-researched subject in developing countries. So far, almost all studies on the adoption and use of new technologies have been in developed regions, and those findings may not be applicable to developing nations (Elizabeth et al, 2007). Therefore, developing regions need such studies to identify the factors that influence the behavior of young IT users in their population. The social and cultural characteristics of Tajikistan as a Muslim and as post-soviet country is different from Western countries, and these are reflected in the use of modern technologies. Beside the social and cultural factors that affect the use of modern technologies in the country, gender characteristics have an impact on the use of mobile phones and the Internet among young users.

From one perspective, if one observes how thoroughly today's lives are shaped by interconnected systems of modern technologies e.g. feeling their influence, respect for their authority and participating in their workings, one begins to understand that, whether we like it or not, we have become members of a new order in human history (Langdon, 1986). Castells, said of the modern world and the changes therein; "in the last quarter of the twentieth century a technological revolution centered around information, transformed the way how people think, produce, consume, trade, manage, communicate, live, die, make war, and make love" (Castells, 2000). Nowadays people over the world use these new technologies in different places and for different purposes.

With the rapid growth of new technologies like smart phones, people can now carry an Internet connection with them in their pockets and purses. Over the last two decades the way of working, talking and even the way of living has changed due to the development of the communication and information industries (Unsal et al., 2008). Kim, (2008) states that because of the wide distribution of technology, communication among people takes place in virtual space, also known as cyberspace. This new world (cyberspace) has appeared as a new

environment, which is different from the reality that we live in (p.4). Simply speaking, cyberspace has linked people all over the world together.

The conditions in Tajikistan are quite different, and this is reflected in the use of digital technology compared to developed countries. It can be geographical location, political situation, cultural, religious, and traditional values. On the other hand, Tajikistan is a mountainous country with low growth of the economy (MFA, 2016; UN, 2013). But, despite the geographical location and slow development of the economy, the ICT field is growing fast, because today's lives do not make sense without the use of digital technologies. According to Dewan et al., (2005) a few years ago, there was some concern about a global digital divide. However, given the decreasing cost of obtaining technology, developing countries have also started adopting these technologies rapidly. Tajikistan is also included in this list of countries (UN, 2013). Despite many difficulties in the country, the rapid development of information and telecommunication in Tajikistan can be seen as a sign of the development of digital technology there (Mirsaidov, 2013). According to Tajiddinov et al., (2010) in the last two decades, during independence, Tajikistan has undergone great changes in many aspects of life, and information and communication technology is one of these fields (p.7).

### **3.4 Internet Usage in Tajikistan**

People all over the world have rapidly adopted in the use of new technologies and incorporated them into their everyday life. Tajik people are also a part of this. The Internet is becoming an essential tool in Tajik society today due to its accelerating spread and intensity of use, especially among young people (Kosimov et al., 2015). At the end of the 1990s, the Central Asian Development Agency (CADA), a US humanitarian organization, was the first provider of an email service in Tajikistan (Kamoludin and Shahram, 2010). Between 1995 and 1998 it started email services in the major cities of Tajikistan such as Dushanbe, Khujand, Kulob, Qurghornteppa and Khorugh with assistance from PERDKA, Soros and Eurasian Foundations (Adinabay, 2013). According to Adinabay, (2013) in 1998 about 1500 people were registered as Internet users (p.23). Full access to the Internet first became available in Dushanbe, the capital of Tajikistan, and Khujand as a developed city (Kamoludin and

Shahram, 2010). The Internet is increasingly regarded as a key method of obtaining information and entertainment, an important source of news, and a platform for daily interaction and information exchange between individuals and institutions.

Over the past few years the number of Internet users has significantly increased in Tajikistan (Adinabay, 2013). According to official sources, at the beginning of 2013, Internet users in Tajikistan numbered nearly 3.7 million users, compared to 2012 (with 1.8 M users), doubling its numbers (Interfax, 2013). It is important to note that nowadays many people connect to the Internet via mobile phones, and one can assume that the number of the Internet users will continue to grow day by day (Adinabay, 2013). The Centre of Sociological Research “Zerkalo” did a telephone survey among 1450 people of Tajikistan by region and gender, in which they found that 80% of the respondents know about the Internet, 33% are using it, and 4% are planning to connect to the Internet. The socio-demographic characteristics showed that 73% of the users are male, and 76% of young people aged from 16 to 34 years-old are active Internet users (Zerkalo, 2013). According to a report of the Centre of Sociological Research “Zerkalo,” 83% of the population of Tajikistan connects to the Internet via mobile phones (Zerkalo, 2013).

### **3.5 Mobile Phone Use in Tajikistan**

Over the last two decades, mobile phone use has grown very fast and has millions of subscribers worldwide. Nowadays it is easy to see that mobile phones have become a part people’s lives (Liaw et al., 2010). The mobile phone is considered as one of the most advanced and efficient tools of communication between people. Alan Moore (2013), stated that 80 percent of the planet is now covered by a mobile network. In one of his presentations he noted that there are more mobile devices than people in the world (Alan Moore, 2013). According to a report of the International Telecommunication Union (ITU) dated May 2015, there were more than 7 billion mobile subscriptions globally, up from 738 million in 2000 (ITU, 2015). The rapid growth of sales in the mobile market indicates the increasing number of the mobile users. As reported by Gartner, in 2012, 1.75 billion mobile phone units were sold to the end users worldwide (Gartner, 2013) and this number reached about two billion units in 2014 (Statista, 2014). The Statistics Portal reported that in 2019 nearly 70 percent of

the global population is expected to use a mobile phone, while the number of mobile phone users globally is estimated to add up to over five billion in the same year (Statista, 2014). The use of mobile phones has become so imbedded that people today use their mobiles as personal assistants (Islam and Want, 2014).

Mobile phones have become a pervasive tool in daily life today (Srivastava, 2005; Pinchot et al., 2010). Kenaw (2012) argue that mobile phones affect communication landscapes around the world in an unprecedented way. Mobile phones have definitely made many aspects of people's life easier; people can use their mobiles 24/7 to be in touch or easily contact anyone, at any time and place. Mobile phones have changed the nature of relationships among people by cutting the distance and increasing confidentiality and intimacy (Adinabay, 2013). According to Sanakulov and Karjaluoto, (2015) with the development of mobile technology, mobile users can now access the Internet, watch videos, search for information, play games, check stocks online and much more. Okazaki and Mendez, (2013) concluded that all these developments have resulted from technological advances. Mobile devices are not only tools for communication, but they play a significant role in solving many issues in today society.

In Tajikistan, the mobile sector has grown strongly over the last two decades, and it is becoming the standout feature of the country's telecom industry. The first mobile operator "Tajik Tel" entered the Tajik telecoms market in 1996 (Adinabay, 2013). In the first few years "Tajik-Tel" did not attract many customers, but from 2000 the number of mobile operators and their clients started to grow rapidly (Adinabay, 2013). Currently, in the Tajik telecom market five mobile operators are active; Babilon-Mobile, Megaphon, Tcell, Beeline, and TKL-Mobile.

Nowadays mobile phones are the most popular tool of communication in Tajikistan. Comparing the Tajikistan population of 8 million in 2014 against 11.1 million mobile communication customers reported by the Agency for Statistics under the President of Tajikistan, gives about a 138% mobile communication penetration level in Tajikistan. Active subscribers number approximately 6.5 million or 81% (Chorshanbiev, 2014). From another view, even considering that the active use of mobile phones is lower than their total number, the level of penetration is significantly high. Kosimov et al., (2015) in their study "Research

on Mobile Technology Usage in Tajikistan,” found that in Tajikistan the majority of mobile phone users (90%) are young people aged 15-32 years-old, and this age group is the main mobile internet user (p.2). According to the finding of Kosimov et al., (2015), 62 percent of mobile phone users and 87 percent of smartphone owners use their device to connect to the Internet. Similarly, the Centre of Sociological Research “Zerkalo,” reported that 83% of the population uses their mobile to connect to the Internet (Zerkalo, 2013). According to Ibodulloev, (2012) in such a mountainous country as Tajikistan, the mobile internet is an important device and can solve many problems and difficulties for the people.

### **3.6 The Impact of digital technology in Tajikistan society from a Religious view**

Apart from all their advantages, new technologies also have illegal uses and can be used to change thinking and organize unlawful activities (Ling, 2004). While the number of mobile phone and Internet users has increased in Tajik society, the number of conflicts, problems and even the number of divorces has increased. This has been a big challenge for the relevant authorities and religious leaders involved with these issues. Behind all of these are the reasons why the Tajik people were not ready to use these new devices in an appropriate way and still are not. Society still faces many problems related to the use of new technology, in particular among young people.

Mobile phones and the Internet play a great role in developing personal relationships between young people. There are now lots of love stories about young people in Tajikistan related to mobile phones and the Internet (Adinabay, 2013). In Tajikistan, most young people use mobile phones and the Internet (social networks) to get acquainted and write love messages to each other. For instance, there were situations in which young girls were disciplined when a member of their family read her love message. A similar situation may also be seen in the case of married women. There were cases when a husband or one of his family discovered that a stranger called his wife or sent her a message, and he divorced her. There were even situations where some wives received wrong number calls from a stranger and when her husband found out about it he divorced her.

The use of mobile phones and the Internet, and more specifically, social networks, have also become very popular among young married couples in Tajikistan, especially when

husbands are migrant workers in Russia. In Central Asia there is a social network site named “Odnoklassniki” which is mainly used in all Central Asia countries, including Tajikistan, because the language of this social network site is understandable for all population of these countries.

As was noted in the previous section, when communication increased via mobile phones and Internet the number of divorces also increased. There were reports in 2008 related to the growing number of divorces through text message among young migrant workers in Russia (Adinabay, 2013). The mobile phone and the Internet facilitated a growing number of such easy and quick divorces in Tajikistan, and this then sparked widespread concerns and became a serious challenge for Tajik society, especially for religious leaders. For religious leaders, it was a challenge because in time of the Prophet Muhammad (PBUH), there were no mobile phones or Internet and they did not have this kind of divorce.

There are different opinions among scholars about divorce via SMS, mobile calls, Skype, email and other digital means. So far, the present study has not found any common fatwa regarding divorce via digital text. In some Muslim countries, it is considered valid and in others, it is not. For instance, in Saudi Arabia and Dubai, divorce via SMS is valid, and Malaysian law has also included “SMS divorce” as a legal way of separation (Desk, 2013; Yessir, 2010). In the case of Tajikistan in 2011, the Chairman of the Religious Committee of Tajikistan announced that the Council of Islamic Scholars would issue a fatwa to ban text message divorces (Adinabay, 2013). It can be observed that the number of divorces is increasing in those countries where divorce is valid via digital text. Some religious scholars and religious leaders give clarity that divorces via digital text are considered valid according to Islamic leaders of the country. In general, according to Islamic common law when a man gives divorce to his wife via phone calls, SMS, other digital texts, or in her presence, if he does it with two witnesses the divorce will be considered as valid. Another banned activity, which worries many in Tajik society, is the easy access to pornographic films for the young generation via mobile phones and the Internet. Many people believe that watching such films has a negative impact on the morality of young people. According to Adinabay, (2013) watching such films was unprecedented in Tajikistan society where people have traditionally conservative morals.



### **3.7 Summary**

Today, the advantages of the digital technologies have changed the way how people think, work, live and many other activities. In other words, because of the wide use of modern technologies our society becomes digital, which is different from the reality that we live in. The wide use of these technologies has connected all over the world in one place, which is known as cyberspace. Tajikistan is connected to this world too. These technologies, particularly mobile phone and internet technology are well used in Tajikistan, especially among young people. But, because of the geographical location, political situation, economic situation, and cultural systems the way how Tajik people use these technologies may be different, from other regions, especially from the Western countries. As, Tajikistan is a patriarchal culture, therefore, there are different social-cultural rules for men and women. The use of digital technology may affect by this social-cultural rule such as male are free to use any modern technology while females are always under the control of their males.

On the other hand, modern technologies apart from all their advantages have numerous negative aspects, which is significantly affected on Tajik society. While the use of mobile phone and internet technology increased in Tajikistan, country faced with many problems such as the number of divorce increased, young people started to miss school and spend much times in the internet coffees. Too much spending time in the internet coffees also became the reasons of conflicts between young people. Therefore, it is necessary to conduct a scientific research in Tajikistan in order to understand the patterns of behavior of young people toward the use the modern technologies and the factors that influencing on the behavior of the young people while they use digital technology. To investigate the role of Islam and gender toward the use of modern technology in Muslim society is also a problematic research topic. Therefore, this thesis took place in Muslim society in order to investigate all these issues.

## **CHAPTER – FOUR**

### **CONSUMER BEHAVIOR STUDY - THEORETICAL FRAMEWORK**

#### **4.1 Introduction**

One goal of consumer behavior studies is to understand how marketers identify and utilize sources, which influences consumer behavior. These sources are dominated by various medias, which compete with other stimuli to inform, persuade, and influence purchase decisions. The study of consumer behavior seeks to understand how consumers make product choices and purchase decisions, and includes environmental factors that influence their thoughts, feelings, and actions (Peter and Jerry, 2010). These include demography, culture, religion, social, personal and psychological factors which play a role in motivation, perception, and attitudes that influence the behavior of consumers while they make decisions or consume products/services (Sihombing, 2013; Brosekhan and Velayutham, 2008). Usually most of these factors are uncontrollable and beyond the hands of marketers. Thus, when marketers want to understand the behavior of a consumer they have to consider these factors. Culture is considered the main element in understanding consumer behavior (Kotler, 2003). Religion is known to be the most defining element of culture, and so it has a key role in the quest for understanding consumer behavior (see section 4.4.3 for details, Lotfizadeh 2013; Al-Hyari, et al., 2012; Mokhlis, 2010; Mittelstaedt, 2002; Delener, 1994; McDaniel and Burnett 1990; Hirschman, 1982). Religion is one of the most universal and influential social institutions that has a significant influence on people's attitudes, values, and behavior, at both the individual and societal levels (Mokhlis 2009). In the literature on consumer behavior religion has been studied from two main perspectives, religious affiliation, and religious commitment (see section 4.4.3.1 to 4.4.3.4 for details) (Essoo and Dibb, 2004).

In every research project the first step is to review the current studies regarding the topic under study. This chapter introduces the theoretical framework for this thesis, with a review of related research. The hypotheses and the conceptual models for this thesis were proposed based on a review of current literature. This chapter first present theories of

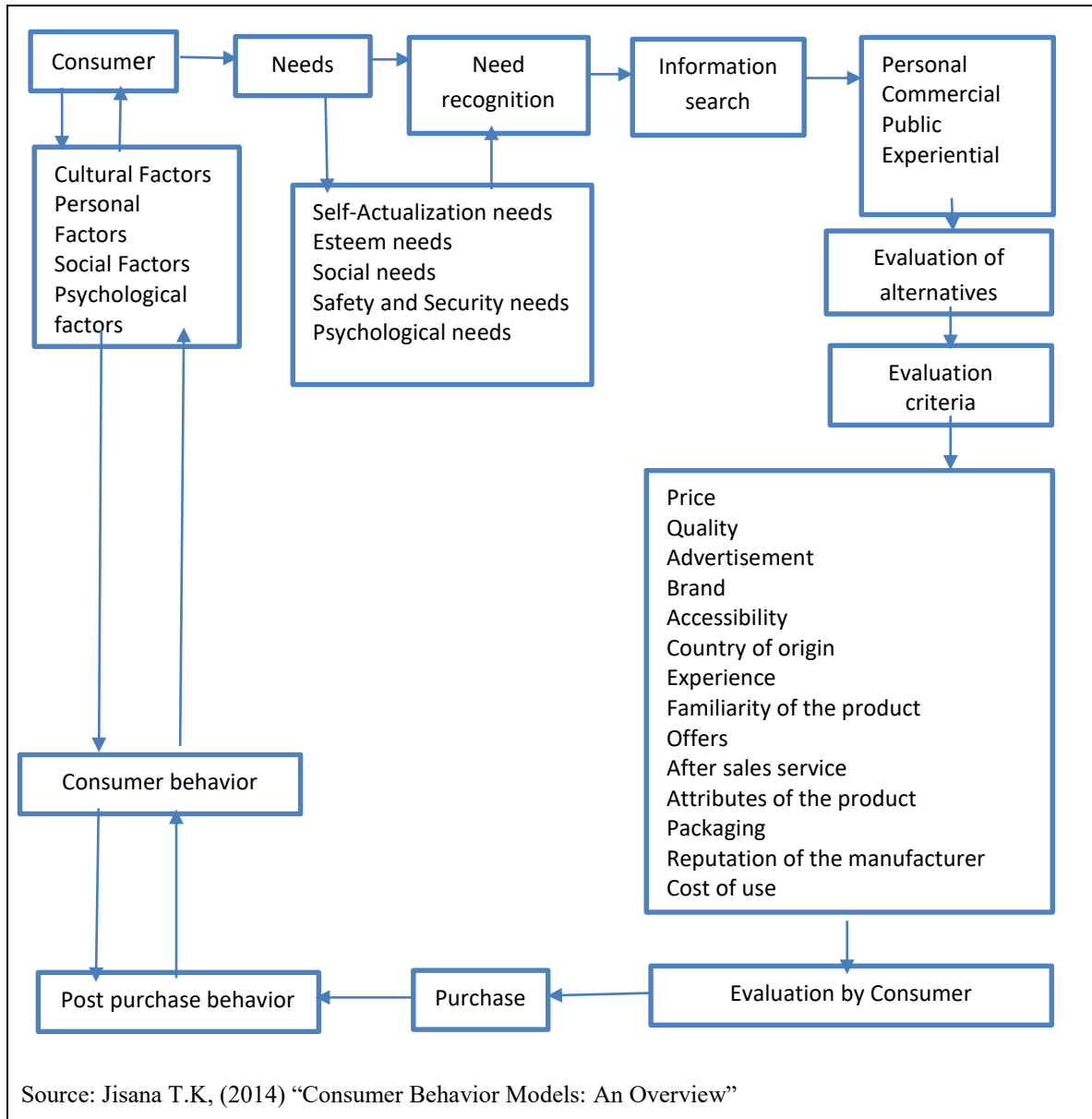
consumer psychology relevant to our consumer behavior model. Next it discusses the factors that influence consumer behavior and explains the role of religion as an important component of cultural factors that significantly influence consumer behavior. It follows by discussing two major components of religion, namely “religious affiliation and religious commitment,” often called religiosity, which significantly influences consumer behavior during purchase decisions (Essoo and Dibb, 2004, p. 684). This chapter discusses the role of religion in the use of digital technology and presents a brief discussion of Islam and Muslim consumers in the age of digital technology. Young people as the main users of modern technologies and the role of gender in the use of digital technology is discussed as well. This chapter also presents and discusses the hypotheses and conceptual models of this thesis, and ends with a conclusion of the discussion.

## **4.2 Consumer Behavior**

### **4.2.1 Consumer Behavior Concepts**

The study of consumer behavior has long been of interest to researchers. About three centuries ago, early economists led by Nicholas Bernoulli, John von Neumann and Oskar Morgenstern started to examine the basis of consumer behavior while making purchase decisions (Richarme, 2005). This early work approached the topic from an economic perspective and focused only on the act of purchase (Loudon and Bitta 1993). They proposed the “Utility Theory,” which held that consumers make decisions based on the expected outcomes of their decisions. This model viewed consumers as rational actors who are able to estimate the probabilistic outcomes of uncertain decisions and select the outcome which maximizes their well-being. Recent research in Consumer Behavior considers a wide range of factors which influence purchase decisions, and acknowledges a broad range of consumption activities beyond purchasing (Jisana, 2014; Bray, 2008; Zinkhan, 1992). Figure 2 describes the conceptual model that explains consumer behavior decisions.

**Figure 2: Conceptual Model for Consumer Behavior and the Consumer Buying Decision Process**



Source: Jisana T.K, (2014) "Consumer Behavior Models: An Overview"

The above schema explains the processes that will ensue during consumer purchase decisions. In the first phase, the model identifies an unsatisfied need. After that, the model presents the process of information search from different personal, commercial, public, and experiential sources. After completing the search process consumer will have many alternative choices and from those he will select the best one. Next, the consumer appraises the available choices using evaluation criteria such as price, quality, advertisements, brand etc. After evaluation, the actual purchase takes pace. An important phase is the post purchase decision i.e. whether the consumer is satisfied with the product and will continue purchasing it or will shift to another product. In other words, the consumer buying decision process is an on-going process and there are numerous factors that significantly influence consumer behavior. Among these are cultural, personal, social, and psychological factors. (See section 4.3.1 to 4.3.4 for more details).

It is only since the 1950's that the notion of consumer behavior has responded to the conception and growth of modern marketing to encompass the more holistic range of activities that impact upon the consumer decision (Blackwell, Miniard, and Engel, 2001). Based on this evolution, the study of consumer behavior has become an important issue in marketing scenarios. The current studies state that study of consumer behavior focuses on the behavior that consumers (individual or groups) display in searching for, selecting, purchasing, using, evaluating, and disposing of products/services that they expect will satisfy their needs and desires (Solomon, 2011; Schiffman, Kanuk, and Wisenblit, 2010). Marketers see consumers as king in the market, because without consumers no business can be run (Jisana, 2014; Brosekhan and Velayutham, 2008).

The study of consumer behavior helps marketers to improve their marketing strategies by understanding issues such as how consumers think, feel, reason, and select from different alternatives (e.g., brands, products); how the consumer is influenced by their environment (e.g., culture, family, signs, media); the behavior of consumers while shopping or making other marketing decisions; how limitations in consumer knowledge or information processing abilities influence decisions and marketing outcomes; how consumer motivation and decision strategies differ between products that differ in the level of importance or

interest that they entail for the consumer; and how marketers can adapt and improve their marketing campaigns and marketing strategies to more effectively reach the consumer (Amudha and Sumathi, 2011; Brosekhan and Velayutham, 2008).

Consumer behavior is translated into how individuals make decisions to spend their available resources of time, money and energy on the consumption of different products and services (Jisana, 2014). However, as marketing strategists concentrated their effort to grasp simple questions such as what, why, when, where and how often consumers make their purchasing decisions, the answers were not always as straightforward as they would have liked (Jisana, 2014; Schiffman, Kanuk, and Wisenblit, 2010). For that reason, the study of consumer behavior continues to be of great interest to marketers.

According to Engel et al., (1994) consumer behavior is directly involved in the actions of obtaining, consuming, and spending products and services, including the decision processes that precede and follow these actions. The American Marketing Association defines consumer behavior as “the dynamic interaction of affect and cognition, behavior, and the environment by which human beings conduct the exchange aspects of their lives (Bennett, 1995). In the literature, the general accepted definition of consumer behavior is “the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs, and the impacts that these processes have on the consumer and society (Amudha and Sumathi, 2011). In other words, the study of consumer behavior involves the thoughts and feelings people experience and the actions they perform in consumption processes (Peter and Jerry 2010). Following this brief review of the literature related the study of consumer behavior in the marketplace; section 4.3 will identify and discuss the factors influencing consumer behavior.

### 4.3 Factors Influencing Consumer Behavior

Consumer behavior involves the selection, purchase and consumption of goods and services in order to satisfy their wants (Shan, 2016; Gajjar, 2013). There are numerous factors in the environment that influence a consumer’s behavior while they make a purchase decision. The current studies classify and structure these factors in various ways (see table 3). These factors can be inner and outer, and the major factors are classified into four groups; cultural, social, personal, and psychological factors (Shan, 2016; Gajjar, 2013; Stávková, Stejskal, and Toufarová, 2008; Brown, 2006; Kotler, 2001). Many of these factors cannot be directly controlled by marketers, therefore, understanding their impact is important for developing suitable strategies to appeal to the target customer (Rani, 2014).

**Table 3: Factors Affecting Consumer Behavior – Review of the Literature**

Researcher	Major Factors
Enis (1974)	personal factors, social factors
Cross and Peterson (1987)	social factors, physical factors
Dibb and Etal (1991)	personal factors, social factors, physical factors
Zikmond and Amico (1993)	social factors, environmental factors, individual factors
McCarthy and Perreault (1993)	physical factors, social factors
Narayana and Raol (1993)	physical factors, social factors, cultural factors
Keegan (1995)	social factors, cultural factors, economic factors, geographic factors
Setlow (1996)	personal factors, environmental factors
Stanton (1997)	social factors, physical factors, attitudinal factors
Lancaster and Reynold (1998)	physical factors, social factors, cultural factors
Kotler and Armstrong (2007)	physical factors, social factors, cultural factors, personal factors
Straughan and Roberts (1999)	demographic factors, lifestyle
Pride and Ferrell (2000)	social factors, physical factors, attitudinal factors

Note: Based on Stávková, Stejskal, and Toufarová, 2008; Suleiman, 2000).

There are four major factor areas that significantly influence the behavior of consumers while making a purchase decision. The table below presents a list of these factors as major factors and sub-factors.

**Table 4: Major Factors Affecting Consumer Behavior**

Major Factor	Sub-Factors	Description
<b>Cultural factors</b>	Culture	These refer to the set of basic values, wants and behaviors learned by a member of a society from the family and other important institutions.
	Sub-culture	Each culture contains smaller sub-cultures. Sub-culture includes nationalities, religions, racial groups, and geographic regions.
	Social class	Society has relatively permanent and ordered divisions, the members of which share similar values, interests, and behaviors. Social class can be determined by a combination of occupation, income, education, wealth, and other variables.
<b>Social factors</b>	Reference Groups	A group refers to two or more individuals who interact to accomplish individual or mutual goals. A person's behavior is influenced by many small groups or reference groups. These groups involve family, religious groups, circle of friends, neighbors etc.
	Family	Members can strongly influence a buyer's behavior. Marketers are interested in the roles and influences of the husband, wife, and children on the purchase of different products and services.
	Roles and status	The person's position in each group can be defined in terms of both role & status. Each role carries a status that is conferred by society.
<b>Personal factors</b>	Age and life cycle stage	People change their purchase patterns over their lifetimes. Marketers define their target markets in terms of family life-cycle stages and develop appropriate plans and products for each stage.
	Lifestyle	Lifestyle refers to the way a person lives in a society and is expressed by the things in his/her surroundings. It is determined by customer interests, opinions, activities etc. and shapes his whole pattern of acting and interacting in the world.
	Occupation	A person's occupation affects the goods and services bought.
	Economic situation	A person's economic situation affects product choice. Marketers of income-sensitive goods should monitor trends in personal income, savings, and interest rates.
	Personality	Personality changes from person to person, time to time and place to place. Therefore, it can greatly influence the buying behavior of customers.
<b>Psychological factors</b>	Motivation	When a consumer recognizes that they have a need, the inner drive to fulfil the need is called motivation. A motivated person is ready to act.
	Perception	It is the process by which people select, organize, and interpret information to form a meaningful picture of the world.
	Learning	When people act, they learn. Learning can be described as changes in an individual's behavior arising from experience.
	Attitude and belief	An individual has specific beliefs and attitudes towards various products.
Note: Author's own elaboration based on (Shan, 2016; Rani, 2014; Gajjar, 2013; Stávková, Stejkal, Toufarová, 2008; Kotler and Armstrong, 2007).		



### **4.3.1 Cultural Factors**

The above table shows that cultural factors significantly influence consumer behavior, it is a part of every society and it is an important foundation of individual needs and behavior. The impact of culture on consumer behavior differs from country to country, and so marketers have to be very careful in analyzing the culture of different groups, regions or even countries. Each culture contains different subcultures, such as religions, nationalities, geographic regions, racial groups, etc. Therefore, marketers have to offer products/services based on the needs of a particular religion, nationality and geographic group. Social class is one of the subculture factors that significantly influences consumer behavior because every society has some form of social class. This is important to marketers because the behavior of individuals in any given social class is similar. Social class is not only determined by income. Understanding the influence of social class on consumer behavior includes numerous other factors such as wealth, education, occupation etc., that influence consumer behavior (see Rani, 2014; Gajjar, 2013; Abraham, 2011; Chang, 2005; Shaw and Clarke, 1998; Schouten and McAlexander, 1995; Thompson and Tambyah, 1998).

### **4.3.2 Social Factors**

As shown in the table above, social factors include reference groups, family, social roles, and status. Social factors explain the effects of outside factors on an individual purchase decision either directly or indirectly. It is concerned with how one person influences another person's buying process. A person belongs to a reference group, which is considered as social factor, and this will significantly influence their behavior. Reference groups are usually related to social origin, age, place of residence, work, hobbies, leisure, etc. The impact of reference groups differs across products and brands. For example, if the product is visible, such as clothing, shoes, a car etc., then the influence of reference groups will be high. Reference groups also include an opinion leader (a person who influences others because of his special skill, knowledge, or other characteristics). The family sub factor is considered to be the most influential factor for the individual, because it strongly influences the purchase decision of the individual. Therefore, marketers are trying to discovery the roles and

influence of the husband, wife, and children when consuming products and services. For instance, if the buying decision of a particular product is influenced by children, then the marketers will try to target the children in their advertisement. Each person has different roles and status in a society depending upon the groups, clubs, family, organization etc. to which he belongs. For instance, a woman who is working in a company as finance manager is playing two roles; a professional one in the company and a mother at home. Therefore, her buying decisions will be influenced by her role and status. In other words, we may say that a social role is a set of attitudes and activities that an individual is supposed to have and do according to his profession and his position at work, his position in the family, his gender, etc. and the expectations of people around him (Jisana, 2014; Rani, 2014; Gajjar, 2013; Amudha and Sumathi, 2011; Abraham, 2011; Stávková, Stejkal and Toufarová, 2008).

#### **4.3.3 Personal Factors**

Personal factors can also affect consumer behavior with reference to age and stage of life, lifestyle, occupation, economic situation, personality, and self-concept. Personal factors explain why individuals' preferences often change as their situation changes. Consumers do not make the same decisions after 20-30 years have passed, as their lifestyles, values, environment, activities, hobbies, purchasing power and consumer habits change over their lifetimes. Family life-cycles consist of different stages, such young singles, unmarried couples, married couples, etc. which help marketers develop suitable products for each stage. Individual lifestyle is another important factor affecting consumer behavior. Lifestyle refers to the way a person lives in a society and is expressed by the things in his/her surroundings. Lifestyle is determined by individuals' interests, opinions, activities etc., and shapes his/her whole pattern of acting and interacting in the world. The occupation of an individual has significant impact on his purchase decision. For example, a marketing manager of an organization will seek to purchase business suits, whereas a low-level worker in the same organization will purchase rugged work clothes. A consumer's economic situation has great influence on his purchase decision. If the income and savings of a customer is high, then he will purchase more expensive products. In contrast, an individual with low income and savings will purchase inexpensive products.

Personality is the set of traits and specific characteristics of each individual. It is the product of the interaction of psychological and physiological characteristics of the individual and results in constant behaviors. Actually, personality is not what one wears; rather it is the totality of behavior of a person in different circumstances. It has different characteristics, such as: dominance, aggressiveness, self-confidence etc., which can be useful to determine the consumer behavior for a particular product or service (Jisana, 2014; Rani, 2014; Gajjar, 2013; Amudha and Sumathi, 2011; Abraham, 2011; Stávková, Stejkal and Toufarová, 2008).

#### **4.3.4 Psychological Factors**

Psychological factors also significantly influence consumer behavior. This includes how and what aspects of products/services influence people to maintain their choice, or buy something different from previous purchases. Consumer behavior is often influenced by other people, therefore marketers need to know which people are involved in the purchase decision and what role each person plays, so that marketing strategies can also be aimed at these people. Psychological factors are divided into four categories; motivation, perception, learning, beliefs and attitudes. Motivation is what drives consumers to develop a purchasing behavior. Each person has different incentives, such as physiological needs, biological needs, social needs etc. The nature of needs is that some of them are more pressing while others are less pressing. A need becomes a motive when it is more pressing, directing the person to seek satisfaction. Perception is the process through which an individual select, organizes, and interprets the information he/she receives in order to do something that makes sense. Selecting, organizing, and interpreting information in a way to produce a meaningful experience of the world is called perception. There are three different perceptual processes which are selective attention, selective distortion, and selective retention. In the case of selective attention, marketers try to attract the customer attention. In the case of selective distortion, customers try to interpret information in a way that will support what they already believe. Similarly, in case of selective retention, the marketer wants to 'embed' the information in the customer's mind so that the customer retains the information. Learning changes the behavior of an individual as he acquires information and experience. For example, if person is sick after drinking milk s/he has a negative experience, s/he associates

milk with this state of discomfort and s/he learns that s/he should not drink milk. During a purchase decision, an individual has specific beliefs and attitudes towards various products/services. Since such beliefs and attitudes make up brand image and affect consumer buying behavior it follows that marketers are interested in them. Some studies agreed that, marketers can change the beliefs and attitudes of customers by launching special campaigns (Jisana, 2014; Rani, 2014; Gajjar, 2013; Amudha and Sumathi, 2011; Abraham, 2011; Stávková, Stejkal, and Toufarová, 2008).

Consumer behavior studies have made a lot of effort to explore the influence of cultural, social, personal, and psychological factors in order to understand how consumers make products/services purchase decisions. One of the areas that has been identified as a significant factor is religion and related religious factors (Mansori, 2012). Because of some limitations, this study only investigates the role of religion in the study of consumer behavior, which is described in the following section.

#### **4.4 Religion and Consumer Behavior**

##### **4.4.1 The impact of religion on consumer behavior**

Religion is one of the important elements of cultural phenomenon that significantly influence consumer behavior (Mittelstaedt, 2002). In the past, several decades' religion has been an area of study for sociologists (Durkheim, 1951), and about three decades ago academicians started studying religion for understanding its influence on consumer behavior (Hirschman 1982; Delener, 1994). Religion may serve to link consumers to a life style that determines not only what and how much is consumed, but why it is consumed (Hirschman 1983). Early studies identified the impacts of religion on consumer behavior. Religiosity can explain purchase decisions beyond those explained by marketing variables (Hirschman 1982, 1983). In tune with Hirschman's view, McDaniel and Burnett (1990) found that, religion is more salient than other demographic variables, such as age and income, in predicting consumer behavior. Lawrence (2000) stated that Muslim consumers are distinguished from those of other faiths by the direct influence of Islamic teachings in every aspect of their lives.

Bashir (2002) and Sharif (2003) found that for Muslim consumers, product purchase and consumption should be consistent with Islamic values as a reflection of obedience and adherence to the beliefs and teachings of their religion. For that reason, religion as an element of culture is understudied and needs more investigation.

Consumers from different religions have different purchasing behaviors. For instance, Muslim consumers will buy a product with a lower level of information compared to followers of other religions because they believe in Kismet, which is a predetermined course of events, or fate (Mansori, 2012; Bailey and Sood, 1993). Fam et al., (2004), studied the influence of religion in five countries (Malaysia, China, Turkey, Britain and New Zeland). In their study, advertisements of seventeen different types of product was divided into four groups such as; (1) Gender/sex related products (e.g. male/female underwear, cosmetics, condoms, female hygiene products; (2) Addictive products (e.g. tobacco, alcohol etc.); (3) Health and care products (e.g. charities, sexual diseases (AIDS, STD prevention), etc.) and (4) Social/political parties (e.g. political parties, religious denominations, funeral services, etc.) were chosen, and respondents were asked to express their ideas whether they think these products were controversial in their perspective or not (p.545). The result showed that Muslims react significantly differently than other religions to the advertising of controversial products. Their finding showed that, Muslims and Buddhists have the same perception for addictive (e.g. tobacco, alcohol etc.) products, which is negative. Christians and non-religious groups have positive perceptions and do not find this type of product offensive. Lotfizadeh (2013) said that, “Guidance provided by Islam indicate how and what to trade, how to interact with others and what to consume”. For example, eating and drinking are strictly followed according to the rules of Islam in everyday life of a Muslim society (p.113).

In marketing studies the role of religion in the study of consumer behavior did not receive much attention prior to the 1990s. In 1978, Lovelock and Weinberg reviewed the marketing literature and identified two articles on religion and marketing. A content analysis conducted by Cutler (1991) examined 7,000 journals published between 1959 and 1989 and found only 35 articles related to the subject, with nearly 80% of these articles published in the 1980s. Of these, only six of them are included in the consumer behavior studies listed in Table 5.

**Table 5: Religion and consumer behavior**

#	Author(s)	Year	Subject/purpose of study
1	Engel	1976	Empirical study contrasting psychographic profiles of denominations in Brazil
2	Hirschman	1983	Religious affiliation influences consumer behavior
3	Wilkes et al.	1986	Discusses measurement of religiosity
4	La Barbera and Gurhan	1987	The Born-Again Christianity movement and consumer behavior
5	Delener and Schiffman	1988	Empirical study of religion's effect on family decision making
6	Delener and Schiffman	1989	Relationship between religious background and information search

Source: (Cutler, 1991)

After 1990, experts started to investigate the role of religion when in consumer behavior (see for review Barber, 2012; Mokhlis, 2010-2009; Patel, 2006; Fam et al., 2004; Esso and Dibb, 2004; Mittelstaedt, 2002; La Barbera and Gurhan, 1997; Martin, 1996; Delener, 1994; Bailey and Sood, 1993; McDaniel and Burnett, 1990; Delener, 1990).

Current studies state that religion is an important factor to study because it is one of the most universal and influential social institutions that has a significant influence on people's attitudes, values and behaviors at both individual and societal levels (Mokhlis, 2009). Similarly, Delener (1990) argues that religion as an aspect of culture has considerable influence on people's values, habits, and attitudes, and it significantly affects lifestyle, which in turn effects consumer behavior. According to Kotler, (2000) religion as part of culture can shape people's behavior. Specifically, what this means is that people who have religion hold certain values that can influence their actions and decisions.

Religion is highly personal in nature, therefore, its influence on consumer behavior depends on an individuals' level of religious commitment, or the importance placed on religion in their life (Mokhlis, 2010, p. 78). According to Al-Hyari, et al., (2012), "religion defines and explains the values of life, which in turn are reflected in the values and attitudes of societies and human beings" (p.158). Such values and attitudes shape the behavior and practices of institutions and members of cultures, as described by (Fam et al., 2004). For instance, many public holidays have their origins in religion. The holy days for each religion differ not only in number, but also in significance. For example, Buddhists regard the birthday of Buddha as the most important day in their calendar; Christians view Easter Friday and Christmas Day as two important dates; Muslims regard Ramadan their holiest month when they fast from dawn to dusk; and Taoist and Confucian followers celebrate a number of festivals along the year (Fam et al., 2004, p. 538-539). Everett et al., (2003) stated that religion does not directly impose obligations but usually moralistically sets certain values, beliefs, and practice requirements. However, a few studies such as Delener (1990) and Essoo and Dibb (2004) have acknowledged the importance of religious value systems in sociology and showed its role in consumer behavior studies. They argue that consumer behavior and purchasing decisions are greatly influenced by religion.

According to Brosekhan and Velayutham (2008), understanding consumer behavior helps marketers to appreciate how consumers think, feel and select from alternative products/services. Usually consumers do not buy products or services, they buy dreams and experiences. When consumers are deciding to purchase, they think, feel, reason and select between different alternatives. Therefore, consumer behavior is influenced by several factors, and religion is one of these factors. Yener (2014) stated that the effects of religion might be seen in all consumer activities. Nonetheless, religiosity levels among individuals are different, so the effects of religion on consumer behavior are different too. Therefore, to understand the behavior of consumers and the influence of religion on consumer behavior it is necessary for marketers to develop suitable marketing strategies (Kamaruddin and Kamaruddin, 2009).

#### **4.4.2 Religion as a Subsystem of the Culture**

Religion is seen as a subsystem of culture and a value in itself, and is regarded as a way of life that encourages people to strive for other values (Schwartz and Huisman 1995). According to Mokhlis (2009b), religion is credited with being a unified system of beliefs and practices that pervades the value structure of a society, which forms a central part of the cognitive or ideological elements of a country's culture. The studies of Crystal (1993), Wulff (1997), and Berkman et al. (1997) indicated that a religion exercises influence over its adherents' value systems through socialization processes, by promulgating religious creeds, norms, moral prescriptions, ritual requirements, and taboos. Such sacred values shape the behavior and practices of institutions and members of the community.

Three different models of the relationship between religion as a sub-cultural system and society have been described by Greeley (1963). In the first model, a religion influences the personality variables of its members, and the members in their turn, acting under influence of their religious values, influence the organization of the social system. The second model views the influence flowing in the opposite direction, such that the social system creates dispositions in the personalities of its participants which in turn lead to certain kinds of religious activity and belief. Thus, in the first model, religion is an independent variable; in the second model, religion becomes an "epiphenomenon" or a dependent variable. A third model views religion as neither a necessarily independent variable nor a necessarily dependent variable; rather it sees religion as a "correlate," as a "predictor" variable whose precise causal influence must be determined in each correlation, and not as a matter of general principle (p.21). In this view, an individual's religious belief can influence his/her personality, which in turn will influence the role he/she plays in the social system. On the other hand, the role he/she plays in the social system can shape the value system he/she espouses, and in turn affect the religious belief he/she professes (Greeley, 1963).



#### **4.4.3 Religion concept**

The world contains a striking diversity of religious traditions, and it is assumed that most of us have no trouble recognizing such traditions as religious (Harrison, 2006). It is perhaps surprising that there is little agreement about what religion is, or indeed, if it is anything distinctive at all. The word religion comes from the Latin root "reiligare," which signifies a bond between humanity and some greater than human power. Current studies identify three historical designations of the term. First is a supernatural power to which individuals are motivated or committed. Second is a feeling present in individuals who conceive of such a power, and third are the ritual acts carried out in respect of that power (Wulff, 1997). Such designations have defied social scientific consensus and thus "it is hard to make any generalization (concerning religion) that is universally valid" (Peterson, 2011).

Any definition of religion suggests at least some theoretical conclusion. One of the reasons that it is difficult to define "religion" is that no convincing general theory of religion exists. Gunn (2003) has described three principal theories of the religion. First, religion in its metaphysical or theological sense (e.g., the underlying truth of the existence of God, the dharma, etc.). Second, religion as psychologically experienced by people (e.g., the feelings of the religious believer about divinity or ultimate concerns, the holy, etc.), and third, religion as a cultural or social force (e.g., symbolism that binds a community together or separates it from other communities) (p.193-194). Definitions of religion typically begin by assuming one of these three different theoretical approaches.

The concept of religion has never been un-contentious, and its critics have never been quiet. MacKinlay (2006) suggests that, religion is "an organized system of beliefs, practices, rituals and symbols designed to facilitate closeness to the sacred or transcendent through fostering an understanding of one's relationship and responsibility to others living together in a community". In an overview of definitions of religion Dobbelaere (2011) concluded, "Religion is a system of beliefs and rituals relative to the supernatural, which unite into a single moral community all those who adhere to it. Current studies have defined religion so as to identify both what makes something a religion and what, if anything, differentiates religions from secular social organizations like clubs (Harrison, 2006, p.1). Consequently,

the definition of religion seeks to provide an analysis and account of what makes something a religion and what the concept “religion” refers to. As a result, different theories and definitions of religion are often used in the literature. Among others, religion has been defined as:

- ❖ “A belief in God accompanied by a commitment to follow principles believed to be set forth by God”. (McDaniel and Burnett 1990, p. 110).
- ❖ “A socially shared set of beliefs, ideas and actions that relate to a reality that cannot be verified empirically yet is believed to affect the course of natural and human events”. (Terpstra and David 1991, p. 73)
- ❖ “An organised system of beliefs, practices, rituals and symbols designed (a) to facilitate closeness to the sacred or transcendent (God, higher power or ultimate truth/reality), and (b) to foster an understanding of one’s relation and responsibility to others in living together in a community”. (Koenig, et al., 2000, p. 18).
- ❖ “A social arrangement designed to provide a shared, collective way of dealing with the unknown and un-knowable aspects of human life, with the mysteries of life, death and the different dilemmas that arise in the process of making moral decisions (Johnson 2000, p. 259).
- ❖ “A cultural subsystem that refers to a unified system of beliefs and practices relative to a sacred ultimate reality or deity”. (Arnould, et al., 2004 p. 517-518).
- ❖ “A system of beliefs about the supernatural and spiritual world, about God, and about how humans, as God’s creatures, are supposed to behave on this earth”. (Sheth and Mittal 2004, p. 65).

As mentioned above, the existing studies define religion in different ways but still there is discrepancy in the theory and definition of religion. Thus, Engel et al., (1927) saw definitions of religion as two different types; “descriptive” and “normative”. When the difference between these two types is overlooked, various sorts of confusion may arise. Their definition follows as: *Descriptive definition*: Religion is a total attitude of man toward what he considers to be superhuman and worthy of worship, or devotion, or propitiation, or at least of reverence. *Normative definition*: Religion ought to be characterized by the feeling of

dependence on a personal God and dominated by the will to cooperate with God in the conservation and increase of values. Barber (2012), says that religion often offers a sense of structure, direction, identity, and community in which to develop, nurture and practice a personal or collective spirituality through communal or collective prayers, liturgy and religious services, such as the Catholic Mass, Muslim Friday prayers or Sabbath in the Synagogue.

#### **4.4.3.1 Religion from two main perspectives – affiliation and commitment**

Studies referring to the impact of religion on consumer behavior argued that every religion, on the basis of its teachings, directly or indirectly affects the thoughts, behaviors, and attitudes of its followers in their personal and social lives (Fontaine et al., 2005). According to McDaniel and Burnett, (1990) and Essoo and Dibb, (2004) life is linked with consumption, and the consumption process of individuals is often associated with their religion. Thus, studies in the marketing literature have addressed how consumer behaviors vary depending on consumers' religious affiliations (Choi et al., 2013). Studies have also examined various aspects of consumer behaviors depending on the level of consumer religiosity. Consumers with different levels of religiosity exhibit different shopping behaviors (Mokhlis 2009) and product purchase patterns (Sood and Nasu 1995). Current studies have shed some light on the impact of religious affiliation and religiosity on various aspects of consumer behavior, but there is still a need for more research on the role of religion in the marketplace (Choi, 2010).

Recent studies on religious psychology and consumer behavior report that the influence of religion on consumer behavior is mediated through five factors; (1) an individual's religious affiliation, (2) his or her commitment to religious beliefs and practices, (3) the extent of his or her religious knowledge in his or her views, (4) perceptions on societal issues, and (5) his or her motivation in following his or her religion (Muhamad and Mizerski, 2010, p.126). The two most used constructs in marketing are "religious affiliation" and "religious commitment" which examine the influence of religion on consumer behavior. In regard to Islam, recent literature states that Islamic religiosity can be divided into religious

affiliation and commitment. Specifically, what this means is that affiliation entails that they are a Muslim, whereas commitment refers to what it is to be a Muslim (El-Bassiouny, 2014).

According to Schiffman and Kanuk (2006), different aspects of consumer choice are influenced by religious affiliations. Therefore, religious affiliation plays an important role in forecasting consumer behavior patterns (Solomon, 2007). For example, Muslims favor Halal food and are likely to abstain from the consumption of pork. Many studies have showed or strongly suggested that religious commitment, as one dimension of religion, has an influence on individual behavior. Thus, if people's behavior is influenced by their religiosity, their behavior is also expressed in the way they make purchasing decisions. For instance, for Islam and Judaism the consumption of pork prohibited, but for Christianity it allowed. The sections below will describe and justify religious affiliation and religious commitment.

#### **4.4.3.2 Religious Affiliation**

Religious affiliation or the adherence of individuals to a particular religious group has been termed as ascribed status (Essoo and Dibb, 2004). This is because, like race and nationality, its effect on a person's life often predates birth, determines family size, level of education attained, the amount of wealth accumulated and the type of decisions one takes in life (Hirschman, 1983). In other words, the degree of achievement of members of a religious group is linked to the religion they follow. Religious affiliation has been depicted as a cognitive system of society (Patel, 2006; Mokhlis, 2010). Hirschman (1983) also stated that religious denomination affiliations might be viewed as "cognitive systems". A cognitive system can be defined as a (collection) of beliefs, values, expectations, and behaviors' that are shared by members of a group or a society (Al-Hyari et al., 2012). This perspective suggests that members of particular religion or society may have common and shared cognitive systems, which may control and impact that group's behavior (Hirschman, 1983). Hirschman's studies provided evidence that religious affiliation can affect the behavior and cognition of individuals (Hirschman, 1983, 1982, 1981). Fam et al. (2004), stated that religious affiliation influences the way people live, the choices they make, what they eat and with whom they associate (p.537). Hogg et al., (2010) concludes that an individual's religious

affiliation provides them with direction on what to think in regard to various issues and specifies normative practices.

#### **4.4.3.3 Religious affiliation and Consumer Behavior**

Various studies have been conducted in other areas of religious affiliation in behavioral science, such as: Samuelson (1964) looked at the relationships between religious affiliation and fertility, Odegard (1960) conducted a study on religious affiliation and political attitudes, and Hirschman (1981) studied religious affiliation and personality characteristics. Each of these studies showed that religious affiliation may influence aspects of consumption, and a few studies of consumer behavior have shown that religious affiliation directly influences consumer behavior.

A few empirical studies indicate that religious affiliation has a potential value in predicting consumer behavior. Engel (1976) made one of the earliest marketing studies about religious affiliation and consumer behavior, and found differences in the psychographic profiles between the Lutheran Church and Assembly of God denominations in Brazil. The result showed that the religion affiliations of each group differ in their perceptions of products and services, which then affects behavior. Engel found that religious affiliation and examination can serve as important variables for consumer segmentation. In the same year, Thompson and Raine (1976) also studied religious affiliation and buying behavior. They investigated whether or not customers who shopped at one furniture store differed from the general population of the city with regard to religious affiliation, as well as whether religious affiliation was a significant determinant of furniture purchases at the store. They also tested whether religious affiliation had a significant influence on purchasing furniture at the store or not. They found partial support for their hypothesis that a particular furniture store had a greater amount of sales coming from “a middle range of fundamentalist Protestant religious denominations” (p. 71).

A series of studies, which refer to religious affiliation and its effects on consumer behavior was carried out by Hirschman in the early 1980s. Hirschman’s work (1981, 1982 and 1983) mainly focused on the similarities and differences in consumption-related activities among consumers affiliated with Catholicism, Protestantism and Judaism. In her

study, Hirschman (1981) showed that Jewish consumers tend to be more innovative and less brand and store loyal than non-Jewish consumers. Hirschman findings suggest that Catholic consumers are more influenced by price, location and transportation, and mood when making entertainment related choices than Protestant consumers are. Hirschman (1983) concluded that Jewish, Catholic and Protestant consumers use different evaluation criteria in making decisions on entertainment, residence, transportation and pets.

Delener (1990) conducted a study on the effect of religious affiliation in the purchase of automobiles and microwave ovens among Jews and Catholics consumers in the USA. The study showed that purchasing behavior can be induced by religion and religiosity. Their study found that when buying novel products Catholics perceive higher risks than Jewish customers. Bailey and Sood (1993) examined the effects of religious affiliation on consumer behavior in six religious groups; Buddhists, Hindus, Moslems, Jews, Catholics and Protestants in Washington DC. The aim of the study was to see how the minority religious groups' behavior (i.e. Buddhism, Hinduism, and Islam) differed from those in the majority groups (i.e. Judaism, Catholic and Protestant). Their findings suggest that consumers from different religions have different behaviors. For instance, consumers from Buddhist, Hindu and Islamic religions differed in their shopping behavior compared to Judeo-Christian religions. In addition, they found that the demographics of the consumers can moderate the effect of religious affiliation on shopping behavior, as follows:

- Older Buddhists are more reluctant than younger ones
- More educated Buddhists are less risky shoppers
- More educated Muslims are less risky shoppers
- Muslim men are less informed than women
- More educated Jewish are less risky shoppers and
- Protestant men are more reluctant shoppers

Authors were also especially keen to test whether minority religious groups (i.e. Buddhism, Hinduism and Islam) maintained their religious beliefs and practices or modified their behavior to reflect the culture in which they were now living. They found that not all

people affiliated with a particular religion accept all of the beliefs and practices of the religion. A particularly revealing finding is that quite a few of the Buddhist followers do not hold with all of the beliefs of that religion, suggesting that they have changed their respective religious beliefs and practices. Their findings indicated that, both Hindu and Muslim consumers however have generally maintained their religious beliefs and practices, thus they have consumer behavior different from the majority religious groups.

The similar study was conducted by Essoo and Dibb (2004) on the island of Mauritius with consumers of three different religions: Hinduism, Islam, and Catholicism. A TV set product was chosen for the study. Their findings confirmed that consumers have different levels of religiosity, particularly in their shopping behavior. The results found that Catholic consumers are more demanding, thoughtful, traditional and trustful of advertisements and search more for bargains in their shopping behavior compared with Hindu and Muslim consumers. Their findings suggest that for Muslim consumers there is no difference in consumer shopping behaviors between devout and casual believers. Compared with Catholic and Hindu consumers, Muslim consumers are more practical and innovative in their shopping behavior. In the case of Hindu consumers, their findings suggest that compared with Muslim and Catholic consumers Hindus are less demanding, less thoughtful, less traditional, less practical and less innovative in their shopping behavior (p. 694).

Sialaa et al., (2004) studied the role of subcultural variables as antecedents of trust, with the main emphasis being on religious affiliation in the context of e-commerce. The participants were students from Muslim, Christian and other faiths at Brunel University, West London. Participants were asked to interact with an electronic commerce web site as a Muslim, Christian or Neutral. Their findings indicated that trust in e-commerce web sites differs according to the religious affiliation of users. The result showed that the Muslim group expressed more trust in the Muslim web site compared to the Christian site. They also expressed more positive attitudes towards the Muslim online bookstore than other sites. This finding further suggests that this group would be more likely to buy from the Muslim site than other two sites (p.20-21).

The preceding review makes it clear that different religions have different impacts on consumer behavior. These differences are thought to result from divergent values and beliefs

concerning consumption held by different religious ideologies. This effect may either be direct, as when consumption of specific products varies as a function of the tenets held by the religious traditions, or indirect as a function of differences in psychological constructs such as personality and values. The next section reviews the influence of religious commitment or devoutness on certain aspects of consumer behavior.

#### **4.4.3.4 Religious commitment**

Religious commitment or “Religiosity” can be defined as “The degree to which beliefs in specific religious values and ideals are held and practiced by an individual” (Delener, 1990). Religious commitment indicates the degree to which a person adheres to his or her religious values, beliefs, and practices and uses them in daily life (Everett et al., 2003; Al-Hyari et al., 2012). Essoo and Dibb (2004) argue that religious commitment is a subcategory of human values and relates specifically to a person's relationship with God and how he/she expresses that relationship in society. La Barbera and Gurhán (1997) saw religious commitment as one of the most important social forces in history, as well as being a key force in individual behavior. Consumers’ behavior and purchasing decisions can be categorized according to the degree to which consumers adhere to a particular faith (Essoo and Dibb, 2004).

#### **4.4.3.5 Religious commitment and Consumer Behavior**

It has been argued that religion is highly personal in nature and, therefore, its effects on consumer behavior depend on an individuals’ level of religious commitment. In a study of consumer behavior, religious commitment has been used as the second most tested construct to see how following a religion has an effect on consumer habits and purchasing. Muhammad (2012) indicates that religiosity may be referred as the state of one’s belief in God and characterized by his/her piety and devotion. Thus, the higher a follower’s piety and religious zeal are the stronger is their belief in God and the higher is his/her religiosity.

The current studies agree that religiosity significantly affects behavior (Mokhlis 2009; Ger 2005; Delener 1994). Mokhlis (2009) study seeks to examine the influence of religiosity



on one aspect of consumer behavior - shopping orientation. The research aims to understand the relevancy of religiosity on consumer behavior across different cultural settings, namely Islam, Buddhism, Hinduism, and Christianity. The researcher used both religious affiliation and religious commitment to measure religiosity. The findings revealed that the differences between consumer behavior in general were much more overt for religiosity than merely for religious affiliation. This implies that religiosity may serve as a potentially powerful predictor and determinant of consumer behavior.

According to Mokhlis (2008), religious people have value systems that differ from those who are less religious or non-religious. Their assumption is that a person who has higher religiosity will evaluate the world through religious schemas, and thus will integrate his/her religion into much of his/her life. Therefore, religious commitment is one of the most important cultural forces which influences the cognition and behavior of individuals. Marty and Appleby (1991) argued that religious commitment, as a key subcategory of human values, provides personal and social identity within the context of a cosmic or metaphysical background. Consumer behavior and purchasing decisions can be categorized according to the degree to which consumers adhere to a particular faith (Essoo and Dibb, 2004). Therefore, religiosity indicates the degree to which people are committed to a particular religious group and its influence on the feelings and attitudes of consumers towards consumption (Al-Hyari et al., 2012).

As the above studies, have shown, there is evidence that religious commitment, as one dimension of religion, has an influence on people's behavior. Thus, if people's behavior is influenced by their religious commitment, it is also expressed in the way they make purchasing decisions. For instance, for Islam and Judaism the consumption of pork is prohibited but for Christianity it is allowed. Hence, the degree to which consumers are committed in their religiosity should be considered in any understanding of the nature of consumer behavior.

As Delener (1990) observed, the available studies about religiosity and consumer behavior suggests that religious commitment, as a segmentation variable, has been recognized as one of the most important cultural forces and a key influence on consumer behavior. Delener (1990) stated that consumers can be categorized by the degree to which

they adhere to a particular faith. He also states that not enough research has been done in this field, and more work is needed among other religious denominations to confirm contentions about religious commitment and consumer behavior.

Wilkes et al., (1986), conducted an empirical study of religious commitment and consumer behavior with 602 white Protestant consumers. They reached a significant conclusion that religious commitment may have an influence on several aspects of consumer choice, which eventually may affect choice behavior. When age, sex and income were controlled they found that religiosity is a viable consumer construct as well, because it is correlated with variables such as opinion leadership, risk avoidance, credit purchases and life satisfaction. The result indicated that people with a high degree of religious commitment tend to have a more traditional gender role orientation, are less likely to be opinion leaders and are more satisfied with their lives. Therefore, a strong faith commitment and high religiosity is sometimes characterized as being closed-minded or dogmatic (Delener 1994).

## **4.5 Religion and Digital Technology**

### **4.5.1 Religion in the age of technology**

As was mentioned in the previous sections, the rapid development of modern technologies has led to changes in the world, and this covers almost all of humanity, including religion (George, 2006). Day by day new technology is coming to the market, and this progress cannot avoid having an impact on religion. Nastuta, (2012) states that the unprecedented growth of the Internet in the contemporary world and its increasing influence in people's lives, inevitably has an impact on religious practice. Numerous studies share this view that today many areas of life are replicated on the Internet, including religious faith (Nastuta, 2012; Efimova, 2011). Following the advances in technology, different faith-based institutions started to create their Internet own sources where people could not only get information about their organization, but they could also order rites (Højsgaard and Warburg, 2005). It means that, the digital age offers virtual worship, cyber-prayers and talk-boards for all of the major world faiths, as well as for pagan organisations and new religious movements (Højsgaard and Warburg, 2005). But the role of religion is often ignored in technology

studies. Therefore, studying modern technologies such as the Internet presents a unique opportunity to explore and give voice to areas of research that have largely been ignored by academic investigation.

According to Campbell, (2005) religion plays a significant role in the lives of many individuals, therefore they use the Internet for religious purposes as well. Internet is a resource for everyone and everything, it has also become a source for sermons and shapes, including the way pastors and parishioners practice their religion (Nastuta, 2012). For example, as spirituality replaces religion, online religion replaces church-going, and the traditional authority is replaced by other instances (Nastuta, 2012, p.62). From another view, modern technology allows religion to move “away from situations in which religious institutions and histories were definitive, to situations in which individual questing and practice have become more definitive” (Asamoah-Gyadu, 2008; Hoover, 2006). Accordingly, with the wide use of the Internet religion has become a public, commodified, therapeutic, and personalized set of practices, much more than it had been in the past (Nastuta, 2012, p.63).

Dawson and Cowa (2004) stated that the Internet is changing the face of religion worldwide. Additionally, Dawson and Cowan, (2004) notes that Internet is not only influencing how religion is practiced and disseminated, but the Internet also has become the spawning ground for widely diverse interpretations of religion and spirituality of all kinds. For a better understanding the role of religion in the digital world we turn to some earlier studies. Studies into the cultural, political, and economic dimensions of the Internet have become common. Other areas where the Internet has played a significant and transformative role still receive only limited attention. One of these areas is religion.

Some studies have demonstrated that religion plays a key role in the consumption of the Internet (Nisbet, 2005; Armfield and Holbert, 2003) and the relationship between religious beliefs and technology adoption, thus, Internet consumption remains complicated (Sanaktekin et al., 2013). Religion is often seen as an insignificant cultural category having no bearing on the use or development of technology. Campbell (2005) in her study “*Making Space for Religion in Internet Studies*” noted that a “historical analysis of technology and numerous inventions points to a very different story, such as the printing press’s link to the

Protestant Reformation and Islam's influence on the development of astronomy and cartography" (p.310). In many historical cases, religion has not only fueled technological innovation but also shaped its proliferation and use. Dawson, (2000) argued that electronic media have been with us for less than a century and their impact on religion is still being assessed (p. 26). Other studies state that the virtual world (media) has changed many cultural and social functions of religious institutions and now provides spiritual guidance, moral orientation, ritual passages and a sense of community and belonging (Lövheim and Lynch 2011; Hjarvard, 2011).

Possamai, (2009) and Hjelm, (2012) commented that the virtual world (the Internet) transformed religion into hyper-religion which is "a simulacrum of religion created out of popular culture which provides inspiration for believers/consumers on a metaphorical level" rather than on a religious level. Nastuta (2012) stated that the Internet provides a borderless platform for the expression and circulation of individual beliefs. According to Chilwa, (2012) the Internet enables religious followers from all over the world to maintain connections to distant homeland communities, traditions and religious practices. Dawson and Hennebry, (2004) concluded that by using a virtual identity everyone can try on a wide array of alternative religious views and, if they wish, they can hide their exposure or consumption of such views from the prying eyes of others.

The wide use of the Internet only began in recent decades, and in a traditional environment such as religion it has been even more recent. The number of scholars that have studied the influence of religion, in particular, Islam on the Internet are few, and the majority of these studies are from the western world. George, (2006) concluded that on the basis of the interaction between two spheres such as the Internet and Religion, there will be an influence of religion on the internet, as well as an impact of the internet on religion. Many studies agree that most religions, Islam in particular, are undergoing changes regarding some of the elements of the Internet environment. At the present time, the Internet with its wide audience provides a wide range of Internet resources, from dating and online shopping to the search engines, and, consequently, this permits Muslims to find any necessary information about Islam (Reshetnyak, 2010). From another perspective, the new communication

technologies changes the classical discourse of Islam into modern a colloquy that in turn will attract new believers (Anderson, 2003).

The internet's impact is even greater for Muslim women than men. For instance, with the advantage of the Internet, Muslim women can look after their family, have a job, and avoid workplace problems with the hijab [veil], said Kimberly Ben, a convert and freelance copywriter in Alabama, who publishes tips for Muslim women (sometimes called Muslimahs) on running a business from home on MuslimahsWorkingAtHome.com. (Beirut, 2012). Another example is that, in protest against Saudi Arabia's ban on women behind the wheel, Manal Al-Sharif uploaded a video to YouTube showing herself driving (which duly went viral and earned her nine days in detention) (Beirut, 2012).

#### **4.5.2 Effect of the Internet on Religious belief and practices**

The Internet does not have geographical distance, therefore, in the on-line discussion of religion, authentic representatives or exiled dissidents of any community can participate freely, and this wide discussion can effect the behavior and faith of consuming believers. On the other hand, the Internet provides a place where people from all over the world can discuss and share their religion, regardless of age, gender, and financial position. Since the early 1990s, when the Internet started its rapid growth, religion appeared on the Internet and introduced new forms of communication in ritual and dogma (Krueger, 2004). Campbell (2006) stressed that the Internet has provided religious believers with new ways to explore religious practices, beliefs and experiences through a growing number of social web sites, chat rooms, and email discussion groups dedicated to a variety of faith-related issues. Accordingly, Campbell, (2012) argues that struggle arose between traditional and new voices of authority on the religious communities and religious websites.

On the other hand, many religious web sites have appeared on the Internet, which allows religious organizations to provide different dogmatic, institutional, and other aspects of their religion, and also to offer interactive communication and spiritual services (Krueger, 2004). Today, access to the Internet has become easy and people are able to participate in or visit any religious website, such as muslimsocial.com for Islam, hisholyspace.com for Christianity, and theschmooze.org for Judaism, which allow people to explore the meanings

of their religious faiths (Mishra and Semaan 2010; Bunt 2009). While access to the Internet has increased, Campbell and Golan (2011) consider the result in an ensuing migration of religious expressions and identity online.

The Internet has become a significant source for obtaining information about religious issues and opened new opportunities so that people have even started to create their own religions (see Kamarulzaman et al., 2015; Nastuta, 2012). Dawson and Hennebry (2004) argued that the Internet opened the possibility of creating a truly churchless religion. Today, many people, apart from communication, obtaining information, reading and so on, use the Internet for religious purposes. Nastuta (2012) stated that the Internet has deeply changed the lives of many people, and for many individuals it changed their religious and spiritual life. The reason behind this change is that many people started to search for religious information and practice their religion in the virtual world (Nastuta, 2012). Further, Nastuta stated that the Internet is a wide access gate to the entire world and the only communication tool, hypothetically, with the whole world of Internet users (p.64).

According to Kamarulzaman et al., (2015) among all communication technologies, the Internet is the most influential tool with significant options for the religious diaspora to maintain their identities. Kozinets, (1999) argued that the Internet is an important source of communication among many faith-based societies. On the other hand, the wide use and everyday routines on the Internet can have a direct effect on how people work and spend their leisure time on the Internet. For instance, the Internet changes the way many people interact with God, Allah or any other supernatural deity (Nastuta, 2012). Based on these changes many people start to see the Internet as a sacred space and Internet technology as possessing a spiritual quality (Campbell, 2005). Today almost all religious institutions, in order to attract new followers or to satisfy their followers needs with information about their religion, have embraced these new media technologies (Nastuta, 2012, p.66). In similar, Chilwa, (2012) stated that offering religion and spirituality in a virtual environment is more flexible for worshipping God and reaching more people.

Several studies examine the arguments about a potential set of effects of the Internet on religious beliefs or attitudes at all levels of analysis. Their findings indicate that the Internet effects the way people talk about faith and share religious experiences and

perspectives. For instance, Cyprian, (2015) argues that the Internet is also a great tool for attracting younger generations who may not grow up with religion in their households. Denny and Higgins, (2003) indicate that use of multimedia resources could decrease psychosis and increase the spiritual mentality of young people. Other studies report that reasons to use the Internet include “curiosity, desire for sexual arousal, excitement, pleasure, emotional avoidance, and the enhancement of offline sexual encounters” (Reid et al., 2011; Goodson et al, 2000). Cooper et al., (2002) found motives such as "distractions, education, coping, exploring sexual fantasies, socializing, buying sex materials, meeting sexual partners, and support for sexual concerns.” The findings of Cooper et al., also relate to religious rituals, especially in Islam. In other words, today, by connecting people to the virtual community, the Internet provides an opportunity for religious participation that could not be imagined ever before.

## **4.6 Islam**

### **4.6.1 Background of Islam**

Islam is the religion followed by Muslims, and the guidance provided by Islam includes rules for on how and what to trade, how to interact with others and what to consume (Lotfizadeh, 2013). For instance, eating and drinking according to Islamic rules is strictly followed in everyday Muslim society. Additionally, Lotfizadeh, (2013) states, Islam is “a religion that guides Muslims in every aspect of life and not just specific acts of worship” (p.107). Malaekah, (2001) stated that “Islam is not a new or different religion, but it is a religion that strongly calls on man to use his logic, reasoning, and intellect.” According to El-Bassiouny (2014), Islam as a religion “is a whole way of life resulting from a state of submission to one God whereby all acts in life are considered a form of divine worship” (p.43).

One who follows or practices Islam is a Muslim. In the Holy Al-Quran, the term Muslim means "submission" to the Will or Laws of God (Masters et al., 2016; Fam et al., 2004). The Holy Al-Quran indicates that Islam is the ancient and universal religion, and even nature itself is Muslim, i.e. it is submissive because it automatically follows the laws of God

which are ingrained in it. For Muslims, the Holy Book of the Quran is the central religious text of Islam, and they respect it and try to follow the examples shown by the Prophet Muhammad (PBUH; peace be upon him). The fountainhead ideas of Islam are based on the belief that all spheres of human life, such as spiritual, social, political and economic must be thoroughly imbued with Islamic values (Fam et al., 2004, p.541). In general, Islam as a religion teaches Muslims that to achieve real peace of mind and surety of heart, one must submit to God and live according to His Divinely revealed Law (Masters et al., 2016).

Mohammed, (2005), stated that in contrast to other religions, Islam makes the world of its followers bright with the aim of the existence of humanity. As written in the Holy Book, Al-Quran, humankind was created to worship the One God through engagement in good things and avoidance from engaging in wrong things (Al-Aidaros et al., 2013). In the lives of Muslims, the Holy Al-Quran and the Sunnah of the Prophet Muhammad (PBUH) are guidance for avoiding the wrong things, which in the language of the Islam are called “haram,” meaning the sinful or forbidden things. For Muslims, what is right and what is wrong is clearly written in the Holy Book of Al-Quran and is based on the words of Allah, and the Sunnah of the Prophet Muhammad (PBUH) (Al-Aidroos, et al., 2013). Thus, based on these two important books, Muslims believe that such conduct is right because Allah, through his last messenger the Prophet Muhammad (PBUH) has commanded it (Al-Aidroos, et al., 2013, p.3). Muslims believe and accept all commandments which were ordered by Allah because they believe that Allah knows what is right or wrong and knows better what best is for his slaves (Al-Qaradawi, 1985; Mohammed 2005).

Another thing which Muslims follow in their everyday lives is Islamic law, known as “Sharia.” Sharia - inspired from the Holy Book of Al-Quran is a code, which suggests and governs the duties, morals, and behavior of all Muslims, individually or collectively, in all spheres of life (Luqmani et al., 1989; Coulson, 1964). In general, Muslims accept goods and services by the Sharia law. Sharia law describes the values that Muslims should take into consideration in their daily life. They are as follows: “truth, honesty, social and collective obligations and responsibilities, the role of men and women, the role buying and selling, the way of eating, the way of playing games and even the way of watching and listening to music and videos with technology” (Fam et al, 2004; Al-Olayan and Karande, 2000). For Muslims,



eating pork, gambling, drinking alcohol, nudity, idolatry, loose sexual codes, adultery and for young people to deceive or disrespect their parents, are strictly prohibited (see., Fam et al., 2004; Michella and Al-Mossawi, 1999; Denga et al., 1994). For Muslims, Islam is more than a religion. It controls the ways of society and factors associated with family, dress, cleanliness and ethics. For Muslims, it is mandatory to live and think in the way which Allah commanded (Fam et al., 2004). Thus, it becomes apparent that Muslims follow the guidance of Allah and these guidelines influence their behavior as a consumer, in addition to their gender, occupation, education, salary, etc.

#### **4.6.2 Islam in the age of modern technology**

As was mentioned in previous sections, the current century is an era of modern technology, where almost all spheres of life are influenced by these mediums. Technology continuously increases its users, and this progress does not bypass the Muslim world. Muslims as followers of Islam utilize high tech devices, in particular mobile phones and the Internet in much the same way as members of other religions use them. They text, they use social networks, they read online, and they shop online, etc. But, in today's society, few Muslims in general, and young Muslims in particular, think about how they use these new technologies. In their activities on the Internet and with mobile phones they don't know whether Allah is pleased with the way they use these new devices or not. On the Internet, there many websites that show nudity and pornographic content, which according to the Islamic law "Sharia" is prohibited and is considered as sinful (Fam et al., 2004; Al-Olayan and Karande, 2000). In addition, mobile phones allow them to talk with strangers secretly (male with female or conversely), which it is also considered to be sinful. Therefore, it is necessary to think about how these modern technologies can be helpful or harmful for today's Muslim society.

From another angle, these novel technologies have brought more propriety to things to Muslims so that they can facilitate their life. For instance, mobile phones have an application called "Ramadan Times," which shows fasting times depending on the location of the device (Beirut, 2012). Apart from this, many apps cater to religious needs, such as the location of mosques and halal shops close to the user (Beirut, 2012). On the other hand, this

technology helps Muslims whose first language is not Arabic to easily download text and audio versions of the Holy Al-Quran in languages which they can read and understand (Beirut, 2012). On the other hand, the advantage of modern technology, particularly the Internet, can significantly improve the quality and efficiency of education. It would be a mistake to ignore these achievements of human thought. For instance, Ahmad-Haji Abdullayev, the Islamic leaders of the Chechen Republic, in one of his interviews said that today Internet is a massive tool for spreading the word of the Allah (Goralik, 2011). The Prophet Muhammad (PBUH), the Messenger of Allah, urged Muslims by saying “If you do something, then do it well.” It means that Muslims should do everything in the way that Allah commanded. Therefore, when a Muslim begins to do something, it’s necessary for her/him to use the most useful and perfect things to do the work successfully (Goralik, 2011). The same guidance concerns the use of new technology.

#### **4.6.3 Muslim Consumers**

In general, Muslim consumers cannot be separated from others types of the consumers. But the way they consume products and services is mainly based on Islamic teachings. At the present, Muslims make up about 1.6 billion of the world population, roughly 24 percent of all people worldwide, which makes it the second largest religion in the world (Desilver, 2013; Karim et al., 2011). It is worth considering that the number of Muslims is growing rapidly in the world. The factors behind the rapid growth of Islam are based on simple demographics. The Muslims have more children than members of other religious groups and the average for each Muslim woman is 3.1, compared with 2.3 for all other religious groups combined (Lipka, 2015). According to some official sources, Muslims are the only religious group that increases faster than the world's population as a whole, and it is predicted that the Muslims will make up 73 percent of the global population by 2050 (Lipka, 2015). In the year 2010, the median age of Muslims was 23 years-old, and it indicates that Muslims are younger than other religious groups (Lipka, 2015).

Apart from Muslim societies such as those of Malaysia, Turkey, Egypt and Iran, the size of the Muslim population in other parts of the world is rapidly growing. It is expected that the number of Muslims will reach to one out of four by 2020 and one out three by 2075

(Kettani, 2010). They are actively participating in the global economy as investors, suppliers, manufacturers, bankers and traders (Lotfizadeh, 2013) while consuming new technologies. According to Pew Research Center-2015 data, the number of Muslims around the world will grow rapidly in the decades ahead, from about 1.6 billion in 2010 to nearly 2.8 billion in 2050 (Pew Research Center, 2015). Muslims make up the majority of the population in more than 50 countries, and a huge number of Muslims come from the Asia Pacific region with 985,530,000 members; followed by the Middle-east and North Africa with 317,070,000; Europe with 43,490,000; Sub-Saharan Africa with 248,110,000; North America having 3,480,000; and Latin America-Caribbean 840,000 (Desilver, 2013; Lipka, 2015). Islam is the fastest growing religion on earth (Saeed et al., 2001).

Muslim consumers represent one of the fastest growing consumer segments in the marketplace (Hanzaee and Lotfizadeh, 2011). However, in spite of its increasing significance, the intersection between Islam and marketing theory in practice remains poorly understood (Hanzaee and Lotfizadeh, 2011). Muslim consumers mostly make decisions based on Islamic guidelines on what and how much to consume. Alam et al., (2011) noted that, in the Holy Al-Quran, Allah commands Muslims not to consume or spend extravagantly, but to settle in the way of Allah. According to Hamouri, (1991) Muslim consumers will choose and consume the most preferred products that are allowable in Islam. Also, Hamouri stated that Islamic teachings would have an effect on the behavior of Muslims. A study by Gayatri et al., (2005) argues that a Muslim who follows Islamic values is influenced in his or her evaluation criteria of services, such as the quality of restaurants, hotels and airline services.

According to general Islamic law, “Sharia” Muslims must at first take into consideration the things that are not forbidden to use, even in the use of modern technologies. Thus, Muslims can do every activity on the Internet and actions with a mobile phone, but they must be like in ordinary life, allowed without any prohibitions. In Islam, ethical rules are based on the Al-Quran, from personal hygiene to governmental structures, and for Muslims it is mandatory to follow these rules, even in the use of technology (Goralik, 2011). From the above studies one may summarize that Islam has a significant influence on the purchasing decisions of Muslim consumers.

## **4.7 Young Generation and Digital Technology**

### **4.7.1 Young Generation Definition**

The younger generations are the latest and the largest generations making inroads into all areas of life, including the market. A generation is defined as a group of people who share years of birth, ideas, needs and important life events at critical stages of development (Kupperschmidt, 2000). Among marketers, young consumers are described in different ways and are determined as follows: Valentine and Powers, (2013); Cui et al., (2003) and Wolburg and Pokrywczynski, (2001) called them “Generation Y”; Tanksale et al., (2014); Potluri et al., (2010) named them as “Youngsters”; Roberts, (2005) and Hartman et al., (2005) see this generation as the “Net Generation” and Jordaan et al., (2011); Eastman et al., (2014) called them “Echo boomers, Millennials” and even the “Facebook generation”.

The study of Wolburg and Pokrywczynski, (2001) indicated that this age group, based on their large size, their significant current spending power, and their potential for massive future spending power are an important part of today’s market. The size of this generation group is purported to be somewhere between 31-80 million worldwide (Wolburg and Pokrywczynski, 2001; Cui et al., 2003; Braunstein and Zhang, 2005). Choosing to ignore this cohort would be risky for companies since they will be the future dominant segment of the market (Neuborne and Kerwin, 1999). Recent studies suggest that the young generation has grown up with modern technology and likes to be connected to it (Murphy, 2010; Hammill, 2005).

### **4.7.2 Use of Digital Technology by Young Users**

Young consumers are considered the primary segment of the market because of their significant role, especially in the technology market. Therefore, it is essential to study the psychology of this group of consumers, the factors which influence their consumer behavior and to understand their decision-making styles (Tanksale et al., 2014). Young generation consumers are a unique and influential consumer cohort, whose behavior is often discussed but not fully understood (Smith, 2012; Drake-Bridges and Burgess, 2010; Noble et al., 2009). The use of mobile phones and the Internet influences their behavior differently than the previous generations, and this consumer cohort is a challenging group to target (Lester et al.,

2005). Therefore, for marketers seeking efficient marketing strategies it is necessary to be aware of the factors that influence the behavior of young consumers when they use digital technology.

Interest in young consumers in consumer behavior studies has greatly increased from the middle of the last century among marketers, practitioners, and public policy makers. According to Khan and Rihi, (2013) for marketers the youth market is one of the most attractive markets for earning large returns on their investment. Marketers think that young consumers are different in many ways from previous generations (Pesquera, 2005). This group has been defined as individualistic, well-educated, technologically savvy, sophisticated, mature, and structured (Syrett and Lammiman, 2003). This generation considers themselves to be “cool,” with a strong sense of identity (Pesquera, 2005, p.1). In today’s market, young consumers are viewed as a segment of the market that has more power for decisions and purchases.

The behavior of the young generation is multitasking, always-on communication, engaged with multimedia, using the personal, multifunctional, wireless, multimedia, communication-centric capabilities of modern technologies with ease (Hartman et al., 2005). Also, Hartman et al., (2005) stated that the behavior of the young generation is an enactment of the capabilities afforded by modern digital technologies.

Gregan-Paxton et al., (1995) indicated that young consumers play a significant role in the marketplace, especially in digitization. According to Tanksale et al. (2014), this generation is more technologically aware and driven. Rosen, (2007) emphasized that today’s young generation is so virtual that they even live online. Simply stated, today’s generation has mastered the world of digital technologies and often spends a good deal of time in that world. On the other hand, it is clear that today young generation have never known life without digital devices. This is the primary factor that makes these consumers such an attractive target to marketers.

Young consumers have a unique attitude towards modern technologies. Today's young generation was born and grew up in a world where everything is digitalized, and, therefore, they are more comfortable with these new technologies than preceding generations and treat them differently. Today’s young generation grew up with widespread access to

digital technology and they intuitively use a variety of modern technologies and easily navigate the Internet (Oblinger and Oblinger, 2005). They have become so digitized that they are comfortable using advanced technologies without any instruction. With the development of technology, exposure to ICT begins at very young ages. Oblinger and Oblinger (2005), described group generations as following. (See Table 6).

**Table 6: Age Groups**

	<b>Matures</b>	<b>Baby Boomer</b>	<b>Generation X</b>	<b>Net generation</b>
Birth Dates	1900-1946	1946-1964	1965-1982	1982-1991
Description	Greatest generation	Me Generation	Latchkey generation	Millennials
Attributes	Command and control Self-sacrifice	Optimistic Workaholic	Independent- Skeptical	Hopeful Determined
Likes	Respect for authority, family. Community involvement	Responsibility Work ethic - Can-do attitude	Freedom Multitasking Work-life balance	Public activism Latest technology Parents
Dislikes	Waste. Technology	Laziness, Turning 50	Red tape, Hype	Anything slow, Negativity
Source: Oblinger and Oblinger, (2005)				

The above table indicates that the Baby Boomer generation born from 1946 to 1964 were exposed to large vacuum-tube radios, mechanical calculators, 78 rpm records, dial telephones, and party lines. This generation grew up with transistor radios, mainframe computers, and 45 rpm records, and the touch-tone telephone. Next generation, who were born in 1965-1982 as Generation “X” grew up in the era of CDs, personal computers, and electronic email. The Net generation was born in the age of digital technology and are the primary users of modern technologies such as MP3s, cell phones, and PDAs; they interact via instant messaging, text messaging, and blogs (Hartman et al., 2005).

The age group which the present study uses as a sample group is the generation born in 1982-1991, or the net generation. The difference between age groups is based on their attributes (for example, attitudes toward changing jobs or locus of the community). One of the most striking characteristics is the attitude toward the Internet (Oblinger and Obringer,

2005). For this young generation, the Internet is like oxygen, and they cannot imagine their life without it. In general, the young generation treats the Internet as an access tool, a medium for the sharing of resources rather than a resource with limitations (Botts and Kata, 2006).

#### **4.8 Gender Roles in the Use of Digital Technology**

In gender difference theory, it is commonly considered that females differ from males. In marketing studies, gender has been and still it is one of the most common segmentations for understanding the behavior of consumers (Putrevu, 2001). In studying consumer behavior toward the use of technology, gender is often recognized as a key moderator (Dommeyer and Gross, 2003; Bendall-Lyon and Thomas, 2002; Venkatesh and Morris, 2000; Moutinho and Gooded, 1995). Darley and Smith, (1995) in regard to why gender is so frequently applied as segmentation strategy, commented: first, “gender information is readily identifiable and accessible”; second, “gender segments are measurable and responsive to marketing mix elements”; finally, “gender parts are sufficiently large and profitable” (p.41).

The gender role regarding the use of the Internet and actual utilization of the medium have not been adequately studied so far (Busselle et al, 1999). But, as access to digital technologies has grown, some differences have been found between males and females in their use of modern technology. In the mid to late nineties, scholars reported that there was a significant gender difference in the use of computers and the Internet (Wieser, 2000; Wilder et al., 1985). The studies relating to gender differences in the use of digital technology found that females spend more time corresponding with personal connections than males do (Hargittai and Shafer, 2006). Some studies reported that women on average, invest more in personal relationships. Therefore, females have more extensive social networks in the virtual world (Walker, 1994; Wellman, 1992; Moore, 1990). Regarding the frequency of technology use by gender, some scholars state that females use the mobile phone more than males (Lacohee and Anderson, 2001; Walker, 1994; Brandon, 1980). Usually men use their phone as an instrument to do business, while females tend to make social calls (Boneva et al., 2001; Leung and Wei, 2000). It implies that men do not use phones for small and emotional things because males are strong, successful, rational, and non-emotional, while women use the

phone to share their thoughts, emotions, and feelings with their friends and family because females are respectful, emotional, promotional, and concerned with people and relationships (Lacohee and Anderson, 2001; Walker, 1994).

Kleif and Faulkner (2003) stated that males take more pleasure in the use of technology than females, and this may be due to early childhood experiences. Additionally, Klief and Faulkner argued that boys and girls are socialized to play with different types of toys from childhood, so boys are more likely to acquire and enjoy skills in hands-on tinkering and problem solving focused on the creation or repairing of technological artifacts. Similarly, Kirmani, (2009) stated that gender differences are evident from early childhood. Further, Kirmani with her colleagues noted that in many cultures, boys are expected to be active and tough are while girls supposed to be beautiful and delicate (p.17). Sutton, (1991) has stated that males from early childhood are introduced to the use of technologies while females are more often first-time users of technology in schools. Today, this issue can easily be seen in Muslim and developing countries, particularly in Tajikistan.

In general, many studies agree that the gender gap in the use of Internet has narrowed significantly among young people (Goodson et al., 2001; Odell et al., 2004). In fact, some studies report that day by day some of the differences between genders is fading (Economides and Grousopoulou, 2008). Nevertheless, some gender differences have been found in attitudes towards technology, intensity of Internet use, preferred online applications and experience in cyberspace (Economides and Grousopoulou, 2008, p.6). Along this vein, some studies reported that males had a significantly more positive attitude toward the use of digital technologies than females had (Makrakis and Sawada, 1996; Smith and Necessary, 1996; Collis and Williams, 1987). Despite the vast growth of technology use, young males and females still do not utilize technologies in the same way (Mitra et al., 2005). There are still gender differences in the use of modern technology based on religious rules, culture, etc.

Most studies have concentrated on the number of technology users, but not on what users do while interacting with technology (Haythornwaite, 2001). However, other studies argue that there are gender differences in the use of modern technologies, especially when they are online. The previous studies reported that males mainly use the Internet for recreation purposes, information gathering, entertainment, reading the news, financial



reports, watching pornography, or content related to their hobbies, while females preferred to use the Internet for communication such as emailing and chatting in order to be in touch with friends and family (Shaw and Gant, 2002; Boneva et al., 2001). Even at the early age of mobile devices, studies reported that females are heavier users of mobile phones while males use mobile technologies to access ever-increasing numbers of erotic services, such as chat lines (Rakow and Navarro 1993, Frissen 1995).

Furthermore, some studies reported that young females wish to be social as they used more e-mail and instant messaging on the Internet, making more mobile phone calls and sending more SMS messages than their male peers (Economides and Grousopoulou, 2008; Boneva et al., 2001; Jackson et al., 2001; Wilson, 2000). Moreover, some studies reported that young females use digital technology more often to express their feelings while boys are more interested in the technical aspect (Doring et al., 2005). The results from these studies indicate that gender roles influence the use of new technologies. Table 7 lists some studies which talk about gender differences in the use of digital technology.

**Table 7: Gender Roles**

Finding	Reference
Males tend to be more intensive Internet users than females	(Bimber, 2000; Ono and Zavodny, 2003)
Females send and receive more phone calls and SMS	(Economides & Grousopoulou, 2008; Doring et al., 2005)
Females send more e-mails to their family and friends	Boneva et al., (2001)
Young males use technologies with more confidence than young females do	Li and Kirku, (2007)
Young females have more positive attitudes than males have	Zhang, (2002)
Females generally use media types that they deal with daily	Trifonova et al., (2006)

## CHAPTER FIVE

### CONCEPTUAL MODELS AND HYPOTHESES DEVELOPMENT

#### 5.1 Conceptual Model

Many studies in the information communication technology (ICT) field have been interested in investigating theories and models which have power to predict and explain behavior across many areas. The main objectives of these studies have been to investigate how to promote usage and examine what hinders usage, and behavior in regard to intention to use the technology. All these theories and models have been proposed with different sets of determinants and moderators, and almost all of them have been developed and modified in Western countries (see Al-Hujra, et al., 2011; Cheong and Myeong-Cheol, 2005; Davis, 1989; Ajzen and Fishbein, 1980; Fishbein, 1967). Therefore, it would be interesting to know whether the theories and models from Western countries can be used in other cultures, religions, or countries (e.g. Muslim countries and developing countries), as there may be some other determinants or moderators that play a significant role in these societies.

Why do people accept or use a new technology? A well-known theory, among other theories that clarifies this, is the technology acceptance model (TAM). The model explains why individuals choose or use a particular technology, and the process of acceptance after finding that the new technologies are useful and easy to use. The advantage of this model is that it explains and predicts the behavior of users toward the use of technology. TAM is one among several models that researchers from IT have used to predict and explain the underlying factors that motivate users to accept and use new technologies (Al-Hujra, et al., (2011)). Cheong and Myeong-Cheol, (2005) argued that TAM is considered as one of the main research streams of exploring the determinants of behavior in accepting and using information technology (IT). In common opinion, the central idea of TAM is that an individual's affective response (attitude) toward using a technology determines the intention to use the technology.

Davis et al., (1989) stated that TAM was developed to explain why a user accepts or rejects new technologies. Chitungo and Simon, (2013) argue that adoption or rejection of a

new product or service begins when the consumer becomes aware of them. Legris et al., (2003) stressed that TAM has been proven to be a theoretical model in helping to explain and predict the behavior of users in the use of new technology.

According to Saleem (2013) TAM was originally proposed for studying acceptance of new technology at work, but was later used by many researchers in consumer behavior studies in its original or modified form for understanding the behavior of users toward the acceptance/use of a new technology. For instance, the adoption of mobile phones and the Internet includes *mobile adoption* (Biljon and Karen, 2008; Yan et al., 2009; Islam and Åke, 2011; Shin, 2011; Yang, 2013), *mobile Internet acceptance* (Cheong and Myeong-Cheol, 2005; Hong et al., 2006), *mobile banking* (Amin et al., 2008; Teo et al., 2012; Aboelmaged and Gebba, 2013; Kalaiarasi and Srividya, 2012; Chitungo and Simon 2013), *mobile advertising* (Saleem, 2013; Zhang and Mao, 2008), *mobile learning* (Mtebe and Raisamo, 2014; Fan, 2014; Zhao and Qi Zhu, 2010) *mobile government system* (Osman, 2013; Ali et al., 2014; Althunibat et al., 2014), *mobile commerce* (Hung et al., 2004; Zheng et al., 2012; Bhatti, 2007; Yang 2005; Ismail and Razali, 2011), *Internet usage* (Porter and Donthu, 2006; Shih, 2004; Pan and Maryalice, 2010) *web usage* (Lederer et al., 2000), *e-Learning* (Park, 2009; Alharbi and Drew, 2014), *e-commerce* (Lu Han, 2009; Çelik and Yılmaz, 2011), *e-shopping* (Lim and Ting, 2012; Vijayasathy, 2004), etc.

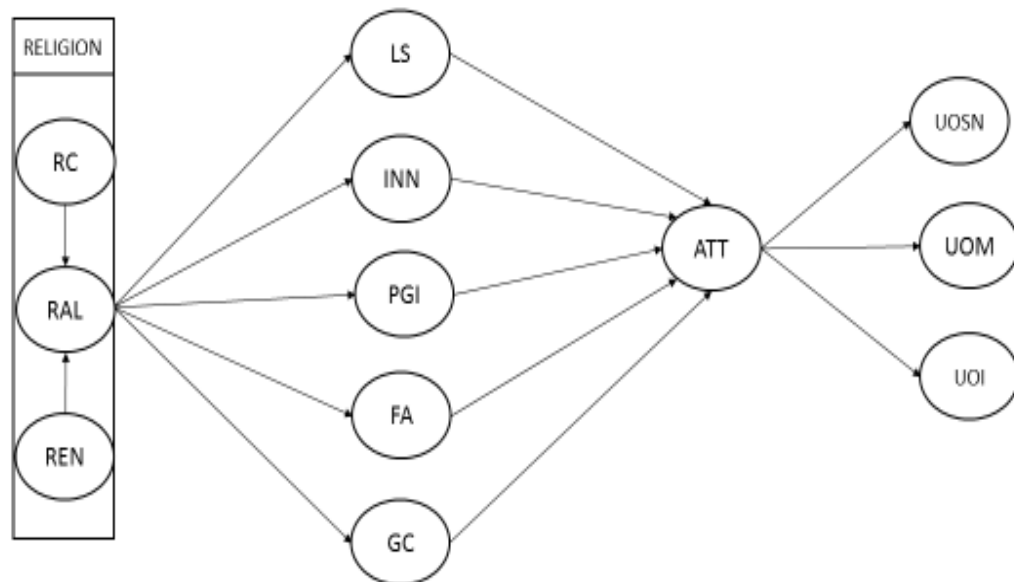
It is important to note that TAM says very little about the technology itself, but it says a lot about how people believe and perceive these technologies. In other words, whether the technology is actually useful or easy to use is not a matter of technology, but a matter of the user's perception, and this can change. These changes of perception depend on how much experience the user has, how old the user is, what gender the user is, etc.

Based on the above review of theoretical frameworks and related research, we propose two conceptual models based on gender roles, that will analyze the factors which influence the behavior of young people toward the use digital technology (see Figures 3 and 4). The research models underlying the current study are partly inspired on the review of literature and theoretical component of the technology acceptance model TAM (see Davis, 1989 for details). The first model will test considerations of female respondents and the

second will test male respondents. The purpose of developing two models was to neutralize the gender role in the use of technology.

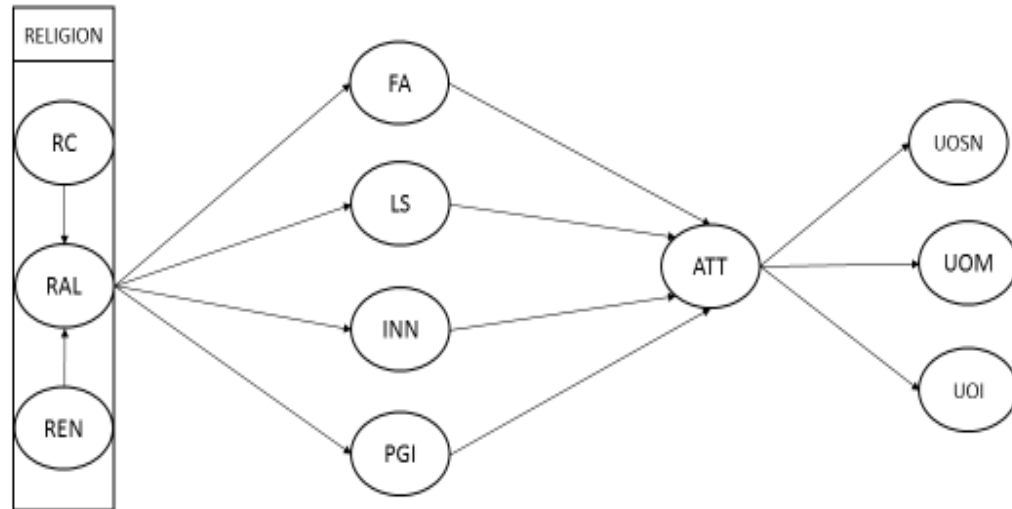
We justify the differences between these two models from what we found during the qualitative study (focus group discussion), when many participants raised the question of free access (in terms of Family, Lifestyle, Decision-making, etc.) with the use of digital technology. From the focus group discussions, we learned that there are two distinct worlds in Tajikistan – male and female. Similar to the pattern/traditions in other Muslim countries, the family has a strong control over a female's life on and off-line. In contrast, boys not only have more autonomy and freedom than girls, but also have the responsibility to supervise girls. Therefore, family (gender control) influence is a latent variable in the female model. Family variables include many observed variables which measure family freedom, family restriction, and family perception if females wish to use digital technology.

**Figure 3: Conceptual Model for Female Respondents**



RC = Religious Coping; RAL = Religious Altruism; REN = Religious Enrichment; LS = Lifestyle; INN = Product Innovation; PGI = Peer Group Influence; FA = Free Access; GC = Gender Control; ATT = Attitude; UOSN = Use of Social Network; UOM = Use of Mobile; UOI = Use of Internet.

**Figure 4: Conceptual Model for Male Respondents**



RC = Religious Coping; RAL = Religious Altruism; REN = Religious Enrichment; FA = Free Access; LS = Lifestyle; INN = Product Innovation; PGI = Peer Group Influence; ATT = Attitude; UOSN = Use of Social Network; UOM = Use of Mobile; UOI = Use of Internet.

## 5.2 Theoretical background

Various studies indicate that family factors can influence children’s attitude toward the use of novel technologies. In this regard, Clayton et al. (2009) stated that, in the relationship between parents and children, parental views on technology also impact children’s attitudes and behaviors towards the use of technology. Further, Clayton et al. indicated that in families, females especially are facing a multitude of challenges in the technology field. Some researchers have found new ways of studying the use of modern technologies among young people. For instance, March and Fleuriot (2006) used a combination of weblogs and interviews to gather data to study the everyday lives of young girls in the United States and the United Kingdom to understand how, when, and why they use these technologies, and the relationship between technology and their privacy practices. Their findings showed that young girls preferred using voice calls instead of text messaging,

and using mobile phones during conversations so that they would not be overheard. Another study found that in families there are some restrictions for children in the use of technology, such as time constraints for the use of technology and monitoring children's use of technology by staying in the same room as the child or installing website blocking software Rode, (2009). Weaver et al. (2012) found that many parents have negative attitudes toward their child's use of technology. Their findings indicate that many parents are not happy about the use of technology because their children spend a lot time alone in their room, therefore they have fewer conversations with them. In this regard, many parents restrict their children in the use of technology.

Regarding Tajikistan, since the country is mainly a patriarchal society there are different socio-cultural rules for men and women. Therefore, families in Tajikistan pay much more attention to the education of boys rather than girls. For instance, if a boy wants to go to a large city for higher education the family will be more supportive than in the case of females. Girls' parents always expect that girls should learn about household tasks such as cooking, cleaning, ironing etc. Even if girls are engaged in higher education, because of tradition they should know all about housekeeping tasks. In many marriages, the parents choose a spouse for their daughters, and while boys have some freedom to reject their parents' choice, females typically cannot do this. The use modern technologies have the same discrepancy. Males are free in the use of all technologies while females are always under control of their brothers, parents, and family, and when they get married they are under the control of their husband. In simple terms, we may say that the majority of females in Tajikistan are under the control of males, until the end of their lives.

Nevertheless, as technology has gained wide use it has become an everyday tool for many people and covers almost areas of life. Naturally, religion cannot keep people away from these novelties. Therefore, many religious organizations now have an Internet presence where it is not only possible to gain information about their organization, but also to order rites. For instance, there are many Islamic sources on the Internet where Muslims can read about absolution, halal food, or search for a fatwa related to their problems (Chuguevskiy, 2009; Roy, 2004), similar to other religions and organizations. Bunt, (2009) stated that Muslims from different of ethnic, linguistic, religious and political backgrounds are using

the Internet for discussing Islam and Muslim affairs, and for apologetic or polemical reasons. Ahmad-Haji Abdullayev, the Islamic leader of the Chechen Republic in the 1990s, said in one of his interviews that in life today the Internet is a tremendous tool for spreading the word of the Allah (Goralik, 2011). Even Pope Francis, in a meeting with the director of Apple in the Vatican, noted that the Internet is a gift from God, but we need to use it in an appropriate way (Ozodi, 2016). George, (2006) stated that as a result of the interaction between two spheres such as religion and the Internet, religion would have influence on the Internet and the Internet would impact on religion. Seizing the opportunity, the mobile phone industry has developed apps that cater to religious needs. For instance, for Muslims there are apps that show where mosques and halal shops are near a user's location, another illustrates how to pray, and another has a digital version of Holy Koran in different languages that makes it accessible to Muslims whose mother tongue is not Arabic (Beirut, 2012).

### **5.3 Hypotheses formulation**

The following section will provide an overview how the research hypotheses were developed.

Previous studies have found that religious factors significantly affect Free Access, Innovation, Lifestyle, Peer Group Influence and Gender Control. On the other hand, these five factors significantly influence the attitudes of young people, both female and male, toward the use digital technology (see section 4.9.2.1 to 4.9.2.12 for details, Ng, 2016; Venkatesh, 2013; Surendran, 2012; Bunt, 2009; Chuguevskiy, 2009; Grant, 2007; Wu and Wang, 2005; Pain et al., 2005; Roy, 2004; Wilska, 2003; Lee et al., 2003; Ling, 2000; Agarwal and Prasad, 1997; Moore and Benbasat, 1991; Davis et al., 1989; Rogers, 1962). We proposed the following hypotheses regarding the use of digital technology in Tajikistan for this thesis.

### **5.3.1 Religion Factors**

Although measuring religion is still a complex task, some tools have been developed for that purpose, such as MARS (Muslim Attitudes towards Religion Scale) by Wilde and Joseph (1997); the tool developed by Tiliouine et al. (2009), and by Tiliouine and Belgoumidi (2009), which to our understanding is quite significant for the Muslim community and that will be applied in this study.

In this framework, religion is understood as a construct consisting of three dimensions which measure the main requisites of the Islamic religion.

Hence, in the present study we pose the following research hypotheses:

**H1** - *Religion Coping has a positive influence on Religion Altruism.*

**H2** - *Religion Enrichment has a positive impact on Religion Altruism.*

### **5.3.2 Religion and Gender Control**

The influence of religion on family has been studied widely, where religion is mostly used as a dependent variable. However, there is also a line of research in which religion serves as an independent variable (Vermeer, 2014). In this thesis, religion serves as an independent variable. Vermeer, (2014) commented that many studies have investigated how religious beliefs and practices are transmitted from one generation to the next, and family has a significant role in this process. In this regard, Vermeer, (2014) stated that family has crucial importance for the persistence and continuation of religious traditions and communities (p. 402). According to Fagan, (2016) religious practice promotes the wellbeing of individuals, community and even family.

The impact of religion on individuals can be transferred in religious schools or in the religious community, but compared with family their effect is weak (Spilka et al., 2003; Hart, 1990). In addition, religious communities gain most of their new members from the children of their existing membership (Vermeer, 2014). In general, religion influences many aspects of family life, such as promoting marriage, having children, prescribing spousal roles (establishing family relationships), giving guidance on divorce, sexual fidelity or parenting



processes (maintenance family relationships), as well as affecting the way people deal with domestic violence (transformation of family relationships) (Vermeer, 2014).

There is a nuclear importance of family and a significant impact of religion in the family daily life. This is especially true for women, with less freedom and subject to tight control from the husband and all family members. Therefore, it is pertinent in the present study to analyze the influence of religion in the control of women.

Consequently, it will only make sense to analyze this construct in the model for the female gender. It is impossible here to discuss all of the different effects of religion on family values in detail. Therefore, the aim of this thesis limited to analyzing the impact of religion on family in regard to the use of digital technology.

Current studies have documented how individuals and communities from various religions increasingly use IT services such as websites, social media, and mobile apps for religious purposes (Campbell et al., 2014). Researchers also have considered the importance of religious experience on consumer behavior (Campbell, 2015). Based on the above literature we propose the following hypotheses;

**H3** - *Religion has a significant influence on the gender control toward the use of digital technology.*

### **5.3.3 Religion and Lifestyle**

A consumer's lifestyle includes the attitudes, interests, opinions and values of an individual and how he or she lives. Therefore, there are many factors that influence lifestyle, including religion.

In fact, Tiliouine and Belgoumidi (2009) argue that religiosity is directly and positively correlated with the well-being of individuals and their quality of life. Based on different studies (namely: Levin and Schillen, 1987; McIntosh and Spilka, 1990; Paloma and Pendleton, 1999; Tiliouine *et al.*, 1999) these authors advocate that more religious individuals are healthier individuals and enjoy a high level of happiness and satisfaction with life. Hence, it could be stated that religion (religiosity) has a positive impact on the lifestyle of consumers. Previous studies have reported that religion, as part of culture, has an

important effect on a consumer's values, habits, and attitudes and it greatly influences lifestyle, which in turn affects consumer's decisions (Delener 1994, 1990; Hirschman 1982). Rice and Al-Mossawi, (2002) stated that in Islam, religion has a significant effect on lifestyle and consumption patterns of individuals. According to Molapanah, (2013) religion and religiosity is one of the most important supports of our society, and has an influence on almost all everyday activities of individuals. Additionally, Molapanah reported that the interaction of religion has a direct impact on culture and values, interests and lifestyle.

In general, religion and lifestyle are part of culture, so they work together. In a wider view, the definitions and character of religion and lifestyle indicate that it is possible to establish a relationship (casual type) between these two concepts (Molapanah, 2013). On the other hand, lifestyle is a pattern of a general behavior which arises from passions and preferences, and it influences an individual's conceptual system (MahdaviKani 1385, cited in Molapanah, 2013). From another angle, with the arrival of information communication technologies, fundamental changes have occurred in peoples' traditional lifestyles (Molapanha, 2013, p.361). Based on the above literature, this study states the following proposition;

**H4** – *Religion positively affect the Lifestyle of young people while they use digital technology.*

### **5.3.4 Religion and Free Access**

Human rights hold that every person is free to strive to attain happiness in this life, and religion can have an effect on this right. Apart from human rights there are freedoms such as the freedom to be confident, freedom of expression, freedom of speech, religious freedom and others. Among all these freedoms, mainly religious freedom affects the behavior of individuals while they make product decisions. According to the “18<sup>th</sup> item of the Declaration of Human Right” the freedom of religion protects individual freedom and affects the way people think freely (Kharenget al., 20016). Religious freedom is a concept that supports the freedom of an individual or community, in public or private, to manifest

religion or belief in teaching, practice, worship, and observance all activities in social life (Wiki, 2016).

Religious freedom is a basic need, and central to the nature of human beings. A person needs a belief, authority or power to guide him to the right path and to achieve the objectives of his life (Ahmad et al., 2016). Additionally, Ahmad et al. (2016) commented that from the very beginning, people have realized the importance of safeguarding the freedom of religion, such as through the passing of laws.

Turner (2007) argues that the new media (websites, email channels, chat rooms, Internet cafes, blogging networks, etc.) are challenging the control from powers such as established governments, as well as the control from religious leaders. It is therefore important to consider the impact of religion on the freedom of access and use of those new media. It may even be said there is a contradiction in current society, with the “age of information/knowledge” running along attempts to control the access to the media by religious authorities.

Turner (2007) points out the fact that many young Muslims use the internet as a means of learning religion, especially through articles and sources in English. Those with more access and use are those studying in the United States or Europe, inclusively in order to keep in touch with their family and religion. However, Turner (2007) adds that the main concern of the Muslim world with Free Access to the new media is above all related to the proper use, as well as the proper circumstances and contexts.

Hence, the main issue raised by the use of the internet is the problem of authority (Turner, 2007) and subsequently the problem with freedom of access.

In the present study, this important connection of religion to the use of new technologies will be interpreted in the light of cultural constraints, such as the freedom of access allowed by families to their young. Accordingly, in the analyzed culture, religion has a large preponderance in everyday life and freedom of use, including the access of youngsters to the Internet. The right to freedom of religion is one of the important rights guaranteed in many international and regional human rights declarations. Based on the above discussion we propose the following;

**H5** – *Religion has a significant impact on the free access of young people toward the use of digital technology.*

### **5.3.5 Religion and Innovativeness**

In the marketplace, introducing a new product or service ultimately depends on consumer acceptance. Innovativeness is one of the individual characteristics that might influence the acceptance of new products or services. On the other hand, innovativeness itself also might be affected by many factors, such as an individual's religious affiliation and the level of commitment to his/her religion (Mansori, 2012). The studies report that religion is "one of the most important elements of culture and has extensive influence on an individuals' values, habits and attitudes", which in some instances may affect innovativeness (Usunier and Lee, 2005; Belzen, 1999). Mansori, (2012) stated that religious values lead people, not only in the performance of acts and spiritual rituals, but also in a certain way of behavior and a general worldview. According to Roccas, (2005) individuals with high commitment levels to religion usually have relatively higher levels of motivation to avoid uncertainty and change, and give relatively low importance to values expressing motivations to follow one's hedonistic desires, or to be independent in thought and action. Therefore, there is a possible relationship between religiosity and innovativeness in an individual.

The researchers argue that personality traits and consumer innovativeness have high inconsistency – from a positive relationship to a negative relationship, and almost all of them are applied in western countries among their sample Catholics, Protestants, or Jews (Steenkamp and Gielens, 2003; Im et al., 2003). Consequently, applying these findings can be of questionable value in other countries and religions, particularly for Muslim consumers because of their different ideology and religious philosophy.

According to Mansori (2012) innovativeness can be affected by several factors, namely the religion of an individual and his level of involvement with that religion. According to the results from his research, this author claims that religion (religiosity) has a negative impact on innovativeness.

Hence, the present research will analyze the following hypothesis of investigation, in order to verify the relationship between religion and innovation in the Muslim society:

**H6** – *Religion has a negative impact on consumer innovativeness.*

### **5.3.6 Religion and Peer Group Influence**

Youths have always been exposed to peer group influence, but the kinds of peer group influence that they encounter have changed tremendously in the past years. The peer group can influence everything from what an adolescent chooses to wear to whether or not and also to engage or do not engage in drug related or other delinquent behavior (Howard, 2004). According to Castrogiovanni (2002) peer group is a small group of similarly aged; fairly close friends, sharing the same activities. Temitope and Ogunsakin, (2015) emphasize that, peer groups or group of youths have two to twelve members, with an average of five or six. Peer groups provide a sense of security and they help youths to build a sense of identity (Temitope and Ogunsakin, 2015, p.325). The peer group provide youths with suggestion and feedback about what they should think and how they should behave in social situation (Howard, 2004). Both, males and females develop into adults, they also develop their own attitudes toward peer groups and handle peer pressure differently (p.12).

Based on the findings from the current studies, needed to note that peer group can have both positive and negative effects on the behavior of the youngsters (see. Howard, 2004, Black, 2002, Biddle, Bank and Marlin, 2001, Lashbrook, 2000). Zeijl et al., (2000) found that fourteen and fifteen-year-old boys, especially those from higher social classes, strongly focused on peer groups, whereas girls of the same age had a stronger preference for dyadic friendships. Since boys generally have more freedom of movement in peer groups than do girls, they are more frequently found in public with their peer groups. Girls are more likely to hang out in their homes. The study of Lingren found that peer group influence can, in fact, keep youth participating in religious activities, going to 4-H meeting, and playing on sports teams, even when they are not leaders (Lingren, 1995). The adolescence is a time for individuals to make important decisions about their commitment to academics, family, and

perhaps religion (Temitope and Ogunsakin, 2015, p.324). Based of the review of current studies we propose the below hypothesis in order to estimate the relation between religion and peer group influence.

**H7** – *Religion significantly impact on peer group while they use digital technology.*

### **5.3.7 Gender Control and Attitude**

Family attitudes and values are passed on to children from an early age. During this period the child's self concept is forming, and can be heavily influenced by members of the family (Lafortune, 2014). According to Kavanagh, et al., (1997) if parents are more critical or angry with their child the child will significantly be more likely to express similar attitudes toward the parents. The studies on attitudes indicates that parental warmth together with reasonable levels of control combine to produce positive child outcomes (Joan and Danyliuk, 2014). Futher, Joan and Danyliuk, (2014) state that the more frequently considered attitudes involve the degree of warmth and acceptance or coldness and rejection in the parent-child relationship, as well as the extent to which parents are permissive or restrictive in the limits they set for their offspring. Other scholars suggested that in non-Anglo-European families, attitudes toward control over children are more positive and these attitudes have less detrimental effects on childrens' development because they are more normative and less likely to be interpreted as rejecting or unloving (Chen et al., 2014; Rothbaum and Trommsdorff, 2007). In general, many children take their family environment for granted, and they carry numerous attitudes and behaviors which were acquired in childhood into adulthood. Regarding family attitude toward the use of technologies, Aoki and Downes (2003) stated that the family motive to give their children a mobile phone is to stay in touch with them. The hypotheses below was developed based on the above studies, to investigate family influence on attitudes of young people.

**H8** – *Gender Control significantly affects the attitudes of young people toward the use of digital technology.*

### **5.3.8 Free Access and Attitude**

The availability of new technologies, in particular, mobile phones and the Internet offers a space for young people to feel free. The young generation are more techno-savvy than the older generation, and they like to do many of their activities online, so much so that they appear to live online. Therefore, they are seeking to make their space in the virtual world. and spend hours online, even living online (Rosen, 2007). Campbell and Park, (2008) stated that young people believe that owning a mobile phone shows their independence. Similarly, Ling, (2000) commented that today's young generation thinks that having a mobile phone represents freedom from their family. According to Pain et al., (2005) modern technologies offer new independent spaces and freedom away from home for younger users. The use of new technologies such as the Internet and mobile phones unlocks new possibilities for the young generation to decide how much information to give their family, and so they may not always be where they say they are (Pain et al, 2005). On the other hand, Pain et al. noted that a mobile phone gives parents an opportunity to control the movements of their kids. Wilska, (2003) argued that use of mobile phones provides freedom for young people. Therefore, the sense of free access has a resonance for the use of mobile phones by young people (Ling, 2000). Young people have too much independence in the use of digital technology, and it gives them choices of when, from where and with whom to communicate (Davie et al., 2004). With consideration of above the literature, this study includes the following proposition:

**H9** – *Free access has a positive effect on the attitudes of young people toward the use of digital technology.*

### **5.3.9 Lifestyle and Attitude**

New information and communication technologies have wide usage and are having a profound impact in the everyday lives of countless people. Regardless of one's ideological position with respect to technology, it is changing the ways people coordinate in everyday life, the way they do business, the ways in which people make and maintain contact with each other, and changing the way young people interact (Valor and Sieber, 2003). Previous

research claimed that the use of new technologies, particularly the Internet and mobile phones, was fundamentally changing the lifestyle of younger generations (Tapscott, 1998; Chu, 1997). According to Ng, (2016) the use of mobile phones dominates the lifestyles of many people worldwide, principally the lifestyles of younger users. In another study, Grant, (2007) indicated that in life today the mobile phone plays a vital role for young people and many of them regard it as part of their lifestyle. In Finland, Wilska (2003) found that mobile phones and other information communication technologies (ICT) still constitute only a part of the lifestyles of young people. Bajarin, (2013) stated that mobile technologies have become the center of an increasingly digital lifestyle. For young people, this digital lifestyle focuses on near-constant access to the Internet, streaming entertainment, and being in touch with others. Barkley and Lepp, (2016) argue that nowadays mobile phones are no longer a simple technology for two-way communication, but they have become a way of life for many young people. As this generation grew up in the digital age, having a mobile phone and being online is considered a normal way of life. Based on the above theories, the following hypothesis was developed for analyzing the effect of lifestyle on the attitudes of young people toward the use of digital technology.

**H10** - *Lifestyle has a positive impact on the attitude of young people toward the use of digital technology*

### **5.3.10 Innovativeness and Attitude**

A number of concepts in the behavioral sciences have immediate relevance to consumer behavior, such as innovativeness. In the acceptance of novel technologies as a communication tool, innovativeness plays a significant role among young people. The first concept of innovativeness was investigated by Rogers, (1962) as "the degree to which an individual is relatively earlier in adopting an innovation than other members of his social system". A second concept was constructed by Midgley (1976) as "the degree to which an individual is receptive to new ideas and makes innovative decisions independently of the communicated experience of others". According to the above scholars, innovativeness is a personality construct that exists to a greater or lesser degree in all individuals. Later, Rogers



(2003) stated that the adopters of a new technology are typically young people who have a good income, a suitable level of education and are more responsive to innovation than non-adopters. Additionally, Rogers indicated that innovative persons have positive attitudes, the ability to communicate with others and high levels of social participation. To explain the diffusion rate of an innovation, Rogers classified five characteristics of innovation; Relative Advantage, Compatibility, Complexity, Trialability, and Observability. According to Agarwal and Prasad, (1997) innovativeness explains acceptance behavior toward the use of information technologies. Moore and Benbasat, (1991) concluded that among other factors, innovativeness is a positive factor that influences user acceptance of new technology. Based on the above theories we formulated the following hypothesis.

**H11** – *Innovativeness positively influences the attitude of young people toward the use of digital technology.*

### **5.3.11 Peer group influence and attitude**

The peer group influence on behavior of individuals gradually becomes more dominant. The peer group influence may serve as a model of influence behaviors and attitudes, whilst on the other hand, it may provide easy access, encouragement and an appropriate social setting for consumption (Glaser, Shelton and Bree, 2010). The peer group has been defined as that constellation of associates of similar age and interest (Lombardi, 1963). The peer group may strongly determine preference in the way of dressing, speaking, using illicit substances, sexual behavior, adopting and accepting violence, adopting criminal and anti-social behaviors and in many other areas of the young people's life (Padilla-Walker and Bean, 2009). An example of this is that the main motives for alcohol consumption given by young people are related to social events, which usually take place in the company of friends, namely: drinking makes holidays more fun, it facilitates approaching others, it helps relaxing or facilitates sharing experiences and feelings (Kuntsche et al., 2005).

The current studies on peer group influence in adolescence have mostly focused on substance use and health-related behaviors. For example, studies could confirm a positive association between self and peer-related risk behavior concerning smoking habits and drug use (e.g., Kirke, 2004; Maxwell, 2002), sexual activities (e.g., Sieving et al., 2006; Jaccard, Blanton, and Dodge, 2005) as well as physical exercise and health (e.g., Macdonald-Wallis et al., 2011; De la Haye, Robins, Mohr, and Wilson, 2010). In the use of modern technologies, the existing studies found that peer group have a significant effect on online purchase behavior, and such behavior is continually re-enforced by the individual's peer group (Niu, 2013). Eastman, (2014) found that peers see when their friends using mobile technology, they would also purchase and use such technologies. Because, young people can talk with their peers about novel technologies or can be a user of these technologies in the group. Therefore, it is significant to analyze the influence of peer group on attitude of young people toward the use of modern technologies such as mobile phone, internet and social network sites etc. Based on the above theories we formulated the following hypothesis.

**H12** – *Peer group influence positively influences the attitude of young people toward the use of digital technology.*

### **5.3.12 Attitude towards the use of Digital Technology**

In the study of marketing and information technology, attitude is an important concept. Fishbein, (1967) defined an attitude as “a learned predisposition of human beings.” According to Kolter, (2000) attitude “is a person's enduring favorable or unfavorable evaluations, emotional feelings, and action tendencies toward some object or idea.” Attitude is one of the main constructs in the theory of reasoned action (TRA), which was proposed by Fishbein and Ajzen in the early 1970s (later extended to become the technology acceptance model in management information systems research). The model links individual beliefs, attitudes, intentions, and behavior to describe the psychological process that mediates the observed relationship between attitudes and behavior (Fishbein et al., 1994; Fishbein and Ajzen, 1975).

Furthermore, attitude is an important construct for the investigation of information technologies. The technology acceptance model (TAM) predicts the use of information systems, and consists of five major constructs: perceived usefulness, perceived ease of use, attitude, intention, and use (Davis, 1989). The relationships between attitude, intention, and behavior have been studied and confirmed in numerous papers. Among current theories, the Technology Acceptance Model (TAM) is a well-known model that predicts and explains the underlying factors that motivate users to accept and utilize technology. The TAM model determines an individual's attitudes toward the use of new technologies, which ends in actual system use (Surendran, 2012; Wu and Wang, 2005; Lee et al., 2003; Davis et al., 1989). Furthermore, attitude reflects an individual's favorable and unfavorable feelings toward the use of technology (Davis et al., 1989). However, the role of attitude in the technology acceptance model is debated by (Dishaw and Strong, 1999; Ursavas, 2013). An attitude is related to users' positive or negative feeling about using a particular technology (Venkatesh, 2013). Ozluk, (2012) stated that parents and girls have positive attitudes towards the use of mobile phones because they provide a safe way to stay in touch with each other and to easily call for help in case of urgent need. The study of Porter and Donthu, (2006) indicated that attitude has a positive impact toward the use of the Internet and Internet usage. Based on the above studies this thesis proposes the following hypothesis in order to understand attitude of young people toward the use of digital technology in Muslim and developing societies.

**H13a** – *The attitude of young people towards the use of digital technology has a positive influence on their use of the Internet.*

**H13b** – *The attitude of young people towards the use of digital technology has a positive influence on their use of mobile phones.*

**H13c** – *The attitude of young people towards the use of digital technology has a positive influence on their use of the Social Networking Sites.*

The theoretical discussion has supported and justified the hypotheses of this investigation, which are outlined in the following list of assumptions (see Table 8).

**Table 8: Hypotheses of this study**

<b>H1</b>	Religion Coping has a positive influence on Religion Altruism.
<b>H2</b>	Religion Altruism has a positive impact on Religion Enrichment.
<b>H3</b>	Religion has a significant influence on the Gender Control toward the use of digital technology.
<b>H4</b>	Religion positively affect the Lifestyle of young people while they use digital technology.
<b>H5</b>	Religion has a significant impact on the free access of young people toward the use of digital technology.
<b>H6</b>	Religion as a negative impact on consumer innovativeness.
<b>H7</b>	Religion significantly impact on peer group while they use digital technology.
<b>H8</b>	Gender Control significantly affects the attitudes of young people toward the use of digital technology.
<b>H9</b>	Free access has a positive effect on the attitudes of young people toward the use of digital technology.
<b>H10</b>	Lifestyle has a positive impact on the attitude of young people toward the use of digital technology.
<b>H11</b>	Innovativeness positively influences the attitude of young people toward the use of digital technology.
<b>H12</b>	Peer group influence positively influences the attitude of young people toward the use of digital technology.
<b>H13a</b>	The attitude of young people towards the use of digital technology has a positive influence on their use of the Internet.
<b>H13b</b>	The attitude of young people towards the use of digital technology has a positive influence on their use of mobile phones.
<b>H13c</b>	The attitude of young people towards the use of digital technology has a positive influence on their use of the Social Networking Sites.

## **CHAPTER – SIX**

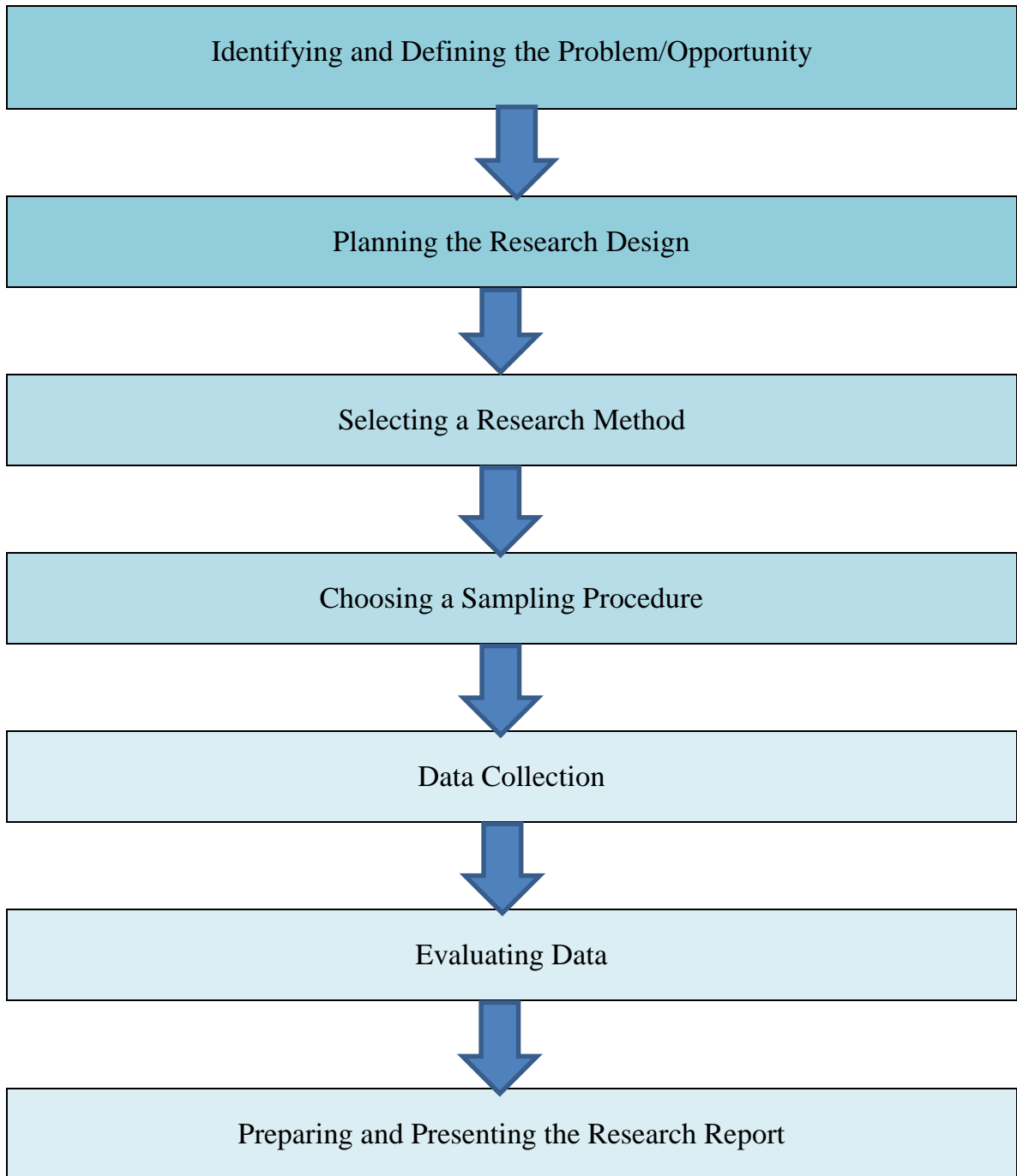
### **RESEARCH METHOD**

#### **6.1 Introduction**

The present Chapter will describe the methods and techniques, which were used in this study. This thesis used mixed method techniques, both quantitative (questionnaire survey) and qualitative (focus group discussion). The questionnaire can measure how young people use digital technologies, while focus group discussions allow participants to talk in a more open-ended way about using these devices. The use of mixed methods does not mean that any concession to other paradigms can be inferred. On the other hand, it is not the nature of the data itself, but the method used to seek knowledge that imposes the philosophical background. The rationale for choosing a mixed approach will be discussed and justified in terms of the research process, research design, development of the instrument, pilot study, population, sample and data collection, and data analysis.

In the initial stage of this research we identified and defined the research goals. Many studies have stated that digital technologies are a more widely used medium among young people than other ages. There are many factors that can influence the behavior of young people toward the use modern technologies. To find answers to the questions and objectives of the study we used focus group discussions for collecting primary data, and for collecting secondary data we reviewed the literature. In the sampling procedure we drew a sample based on a statistical formula which considers the situation of the study.

**Figure 5: The basic steps of the logic assumed in this investigation.**



## **6.2 Research Design**

Generally speaking, the research design is a plan of what to collect, from whom, how and when to gather the data, and how to examine the obtained data (Klein, 2016). For valid results, the design must be appropriate to answering the questions, which are under investigation. It is necessary to note that the research design includes type, purpose, period, scope, and environment. According to Cooper and Schindler, (2007) the main elements of research design are data collection design, sampling design, instrument development and data collection and preparation. Sekaran (2003) argues that the research design is the step aimed at designing the research study in such a way that the essential data can be gathered and analyzed to arrive at a solution. Malhotra and Birks (2007) stated that the research design is a framework or blueprint for conducting the marketing research project. Additionally, Malhotra commented that the research design specifies the details of the procedures necessary for gathering the information needed to structure or solve the research problems (Malhotra and Birks 2007). Overall, the research design is defined as the plan, structure, and strategy of investigation conceived to obtain answers to the research questions.

As stated above, the purpose of any research design is to obtain evidence, which addresses the research questions and objectives. There are three types of research design: exploratory, descriptive and causal. The researcher can achieve the study goals by using one of these designs. The purpose of this thesis was to analyze the behavior of Tajik young people toward the use of digital technology. Therefore, it was necessary to use an exploratory research design for understanding their behavior. Shukla, (2008) stated that exploratory research deals with exploring into a phenomenon. Additionally, Shukla, (2008) commented that in studying marketing, exploratory research design is used in cases when the researcher wishes to define the research problems more precisely, or he/she wants to gain insight into the research problem before an approach is developed. Exploratory research might involve a literature review for collecting secondary data, or conducting focus group interviews for collecting primary data (Shukla, 2008, p.32). According to these suggestions we collected secondary data from the literature review and primary data was collected from the focus group discussions.

On the other hand, exploration studies are a valuable means of discovering ‘what is happening, seeking new insights, to ask questions and to assess phenomena in a new light (Shajahan, 2005). Through exploration, researchers develop concepts more clearly, establish priorities, develop an operational definition, and improve the final research design (Cooper and Schindler, 2007). The exploration of new phenomena in this way can help the researcher’s need for a better understanding, may test the possibility of a more extensive study, or determine the best methods to be used in a subsequent study.

Questions about what, where, when, how much, by what means, etc. concern any inquiry or research study and constitute the research design. The research design is the conceptual structure within which research is conducted; it is the blueprint for the gathering, measurement and analysis of data. As such, the design includes an outline of the sequence of the research activities, techniques for data collection, whether it is necessary to formulate a strategy for data collection, writing the hypotheses and the operational implications for the final data analysis.

### **6.2.1 The Purpose of the Study**

The method used in this study was hypothesis testing in order to interpret and explain the nature of Tajiki society and its relationship with ICT use, and to establish the differences among age groups and other independent factors. In other words, hypothesis testing was chosen to explain the variance in the dependent variable. Hypothesis testing offers an enhanced understanding of the relationships that exist among variables, and can also establish cause and effect relationships.

### **6.2.2 The Type of Study**

There are two types of study: causal and correlation studies. This is a correlation study since the research is interested in defining the important variables that are related with the behavior instead of delineating the cause of one or more behaviors (a cause and effect relationship) - a causal study. Our study also tries to establish cause-and-effect relationships



through certain types of correlation analyses such as path analysis, just as some other researchers have attempted (Billings and Wroten 1978; Namboodiri et al., 1975).

### **6.3 The Rational for using mixed Method**

The studies which examined the use of digital technologies among young people either used surveys or a combination of qualitative and quantitative methods (Campbell, 2007; Katz and Sugiyama, 2005; Wei and Lo, 2006; Debaillon and Rockwell, 2005; LaRose et al., 2001; Leung and Wei, 1998). This thesis also uses a mixed-methods methodology, with qualitative and quantitative approaches to analyzing the behavior and attitudes of young people toward the use of digital technology.

Academicians recommend using qualitative methods, especially for exploratory studies to investigate little-known phenomenon. Furthermore, qualitative methods such as focus group discussions allow researchers to gain access to participants' feelings and subjective explanations of experiences and meanings attached to the phenomenon (Denzin and Lincoln, 2003; Marshall and Rossman, 1999). Therefore, by using qualitative methods the researcher can gain deeper understanding, uncover hidden meanings and form judgments about the issues associated with the topic by being a part of the participants' natural surroundings. There are several qualitative methods available for researchers who want to investigate a new phenomenon. They are as follows; ethnographic observations, focus-group discussions, and long interviews. We used the second one (see sections 6.3.1.1 to 6.3.1.2 for detail). In the second phase of the study we used a survey method with an unstructured questionnaire to collect data on a large sample of a young population to analyze the use of digital technologies and the impact and role of gender in the use of digital technology (see sections 6.3.2.1 to 6.3.2.3 for more detail).

### **6.3.1 Qualitative Research Design**

As was discussed in the introduction, the study integrates two different research methods, and in the section below the qualitative focus group discussion method is presented. In qualitative studies researchers mainly look to find a better way of understanding consumers thought processes and motivations. The qualitative research method is an unstructured, primarily exploratory design based on a small example, intended to provide insight and understanding of the topic (Malhotra and Birks, 2007).

#### **6.3.1.1 Focus Group - Definition**

A Commonly, accepted Focus Group Discussion (FGD) is a moderated group discussion to explore a set of questions regarding attitudes, beliefs, feelings, and emotional reactions. FGD are described as a non-directive and non-structured technique of collecting data (Bristol and Ferm, 1996; Krueger, 1998). In this technique, the focus is shifted from the individual to the group and attention is shifted from researching pre-specified models and assumptions to respondents' perspectives. On the other hand, with the help of focus group discussions, the researcher can get new ideas and learn the language that participants use to describe the topics of interest. The primary purpose of conducting focus group discussions is to gain insights by creating a forum where members feel sufficiently safe to express and to portray their feelings and behavior, at their pace and using their knowledge and logic (Malhotra and Birks, 2007). The focus group discussion has been defined as a "carefully designed discussion to obtain perceptions in a defined area of interest in a permissive, non-threatening environment" (Krueger, 1998). Walden, (2006) argued that focus group discussions can provide an opportunity to investigate answers, clarify responses and ask follow-up questions. Malhotra and Birks, (2007) stated that focus group discussion is "an examination conducted by a trained moderator between a small group of participants in an unstructured and natural manner" (p.182).

According to Seidman, (1998) a focus group discussion is "a group of several people interviewing on a particular theme or issue". The literature has no consensus on the number of participants and duration in a focus group discussion. But some studies argue that a well-

designed focus group discussion usually lasts between 1 to 2 hours (Morgan, 1997; Vaughn et al., 1996), and has 8 to 10 participants (Frey and Fontana, 1991), or 6 to 12 homogeneous strangers as the optimal number of participants (Morgan, 1997; Krueger, 1998; Hair et al., 2003; Peek and Fothergill, 2009).

For this thesis, the focus group discussions were developed before the quantitative stage. The reasons for this were in the prerequisite of gathering guidelines and previous knowledge of people's patterns of thinking, their language and vocabulary, and the way the groups diverge or converge in their opinions. Also, a focus group discussion can work as a complementary source of information in determining some of the relevant variables and the wording during the design of the questionnaire (Krueger, 1998).

#### **6.3.1.2 The Rationale of Using Focus Group Discussion**

The rationale for choosing a focus group discussion in this thesis was to inductively identify potential variables that are important in determining the behavior of young consumers towards the use of digital devices, and the ways in which individuals are influenced by socio-cultural factors in the use of digital technology, specifically mobile phones and the Internet. The subjects in a focus group are likely to have different views on a topic or issue and this helps to develop the questionnaire for the survey.

The fundamental reasons for using a focus group discussion in the present study are two-fold. First, as Churchill (1996) claims, the focus group discussion is one of the most common techniques employed for generating ideas and insights that could be helpful in designing the questions to be used in the survey stage. Second, the brainstorming and interactions among focus group discussion participants often facilitates serendipitous interactions leading to the discovery of feelings that might otherwise remain hidden (Bums and Bush, 1997). According to Hair et al., (2003), in group discussion one of the participants can spark comments and opinions from other members and generate spontaneous interplay among other participants. This is likely to enable the identification of new ideas and important issues.

### **6.3.2 Quantitative Research Design**

This study relies mainly on quantitative methods, and this section presents a description and justification of the choice and use of the quantitative method. Malhotra and Birks, (2007) stated that quantitative research is an analysis technique that seeks to collect data and is usually applied to some methods of statistical study (p.152). In other words, one may say that the survey method is a well-known technique in conducting quantitative research.

#### **6.3.2.1 Survey Method**

There are different types of research design: for example, experimental research, survey research, ethnographic methods, phenomenological research, grounded theory, heuristic inquiry, action research, discourse analysis, and feminist standpoint research (Crotty 1998). We applied a survey method because it is a positivist methodology and it was considered to be the most appropriate method for our investigation. A survey can be considered as any activity that collects data in an organized and methodical way about characteristics of interest from some or all units of a population using distinct concepts, methods, and procedures (Fellegi, 2003). The purpose of our survey process was to ask respondents a variety of questions regarding their behavior, intentions, attitudes, awareness, motivations and demographics and lifestyle characteristics toward the use of digital technology (Malhotra and Birks, 2007). There are four different techniques for conducting surveys: telephone interviews, personal interviews, mail interviews and electronic interviews (Malhotra and Birks, 2007). We used the second one.

#### **6.3.2.2 The Questionnaire as a Research Instrument**

A questionnaire is the basic quantitative research tool used in the data collection process. Sekaran, (2003) commented that the questionnaire is a pre-formulated written set of questions to which respondents record their answers, usually within rather carefully defined alternatives. A survey, whether it is an interview format or measuring instrument, is a formalized set of questions for finding information from respondents (Malhotra and Birks,

2007). Further, Malhotra and Birks, (2007) defined the questionnaire as a structured technique for data collection, consisting of a series of written or verbal enquiries that a participant answer (p.371).

### **6.3.2.3 The Rationale of Using Questionnaire**

The overall aim of employing the questionnaire in our study was to obtain data from a large population of Tajik youth about their attitudes toward the use of digital technology. We expected that this technique would enable us to establish relationships between key behavior-related digital technology user characteristics, and to generalize from the survey sample what would be applicable to the wider population. We decided to use a quantitative survey method to facilitate systematic analysis of reported behavior on the use of digital technology and, therefore, permit a higher level of analytical accuracy on the subject under investigation. In addition, the questionnaires provided anonymity for respondents, and given the breadth of issues explored the respondents could complete them at their own pace (Sukamolson, 2005). According to Malhotra and Birks, (2007) questionnaires are used to collect a variety of questions about individual's "behavior, intentions, attitudes, awareness, motivations, demographic and lifestyle characteristics" (p.168).

The rationale behind the use of the questionnaire method as a primary survey tool in this research is as follows:

1. The research goal was to collect data from a large population of young Tajik consumers about their behavior toward the use of digital technology.
2. It is an efficient method of data collection, where the respondents answer exactly what is required in order to measure the variables of interest.
3. It was used because quantified information was needed concerning a particular population.

The advantage of using a survey method is that it is less expensive and less time consuming than other techniques (Sharif, 2013). It is the most extensively used method in various economic and business studies. Before applying this method, the researcher did pre-

testing of the questionnaires to reveal any problems with the questions. We constructed the questionnaires in such a way that the score of individual's responses assigned him/her a place on a scale. It may be noted here that a scale is a continuum, consisting of the highest point (regarding some characteristic, e.g., Likert Scale) and the lowest point, along with several intermediate points between these two extremes. These scale-point positions are related to each other so that the first point (5 - Strongly Agree) is the highest point, the second point (4 - Agree) is less than 5 but greater than the third point (3 - Neither Agree, Nor Disagree), etc.

## **6.4 Location and Target Population of the Study**

### **6.4.1 Location**

The study took place in the Republic of Tajikistan, specifically in Dushanbe, the capital city. There were specific reasons for this choice. First, Dushanbe is a big city with a large population. Second, almost all major universities, government ministries, committees, and major businesses are in Dushanbe. Third, nearly all young people who live in Dushanbe are knowledgeable in the use of new technologies (Kosimov et al., 2015; Zerkalo, 2013).

### **6.4.2 Target group**

The subjects of the study were young people between the ages of 18 to 30 years-old. All subjects were from Dushanbe. There were several reasons for selecting this group of consumers. First as the majority (70%) of population in Tajikistan are young people, this segment of the market will impact on the development of digital technology in the country. Second, according to previous studies this group of consumers is an important market segment, because of their large size, their significant spending power and their potential for massive amounts of future spending power (Wolburg and Pokrywczynski, 2001). Rosen (2008) claims that this generation is so virtually exposed that even they live online. Kosimov et al., (2015) conclude that this group of consumers are the primary users of digital technology in the Tajik market. The sample population was selected from different universities and businesses in Dushanbe.

## **6.5 Sampling and Sample size**

In general, researchers are not able to survey a whole population. Therefore, Hinton, (1995) advised that when a researcher cannot study the whole population he or she should select a sample that is a subset of a population.

### **6.5.1 Focus Group Sample**

The present study conducted three focus group discussions to cover the major segments, thus these three groups were different from each other: one male, one female, and one mixed group. There were 8 to 10 participants in each group and all participants had technology and online experience to share when discussing use of modern technologies. We invited young people who had a wide experience in the use of digital technology so they could talk firsthand about their experiences with other participants. All participants were selected after a short discussion because we found that they had some practice with digital technology. We also invited participants with religious knowledge, because the aim of our study was to understand the influence of religion in the use of digital technology. It was not difficult to recruit participants as modern technology is a problematic topic in Tajikistan nowadays and so many participants were interested in the discussions. Another attraction was that the use of focus groups is a new research method in Tajikistan, and many participants were interested in showing their knowledge and understanding of new technologies. All participants voluntarily participated in the focus group discussions.

### **6.5.2 Sampling Design**

For our research purpose, we used a non-probability type of sampling method. The advantages of this kind of sampling are the availability and the speed with which data can be gathered (Cooper and Schindler, 2007). However, conducting the pilot study also confirmed the choice of sampling method, as the researcher encountered difficulties such as identifying, locating, and soliciting a response from the designated unit. The researcher then decided to resort to non-probability judgmental sampling. The large sample size was preserved so that there was no compromise in generalizing the findings of the study.

### 6.5.3 Sample plan

The steps involved in developing the sampling plan were;

- Sampling Frame: Tajik People
- Sampling Unit: Young Tajik People (Age group between 18-30 years-old)
- Sampling Element: Young Tajik Digital Technology Users
- Sampling Procedure: Non-probability Sampling
- Sample Size: 650+450

When there is no possibility of surveying a whole population (e.g. it can be too time consuming or costly) a representative sample is needed for the study. Therefore, it is necessary to clearly define the target population. Thus, the information we want to extract from a particular population or participant group should be valid and the samples should be representative. Additionally, the sample should have elements that reflect the characteristics, behaviors and attitudes of the population. In regard to this, Hair et al., (2013) states that for obtaining the necessary information for your study non-probability sampling will take less time and with lower cost.

The sample size can be determined by taking qualitative and quantitative factors into consideration. Following the formula applied to know the required sample size for present study;

$$n = \sigma^2 \left( \frac{Z}{SE} \right)$$

Where the  $Z$  = designates the confidence level, generally ranging from 90% to 95% (in our study  $\lambda=95\%$ ); the allowed maximum sampling error (SE) usually adopted is 0.5; finally, the  $(\sigma^2)$  stands for the population variation of the relevant variable under scrutiny (Malhotra and Birks 2007).



**Table 9: Required Sample Size**

Population Size	Confidence = 95% Margin of Error				Confidence = 99% Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	48	50
75	63	69	72	74	67	71	73	75
100	146	89	94	99	87	93	96	99
150	217	126	137	148	122	135	142	149
200	234	160	177	196	154	174	186	198
250	245	190	215	244	182	211	229	246
300	260	217	251	291	207	246	270	295
400	146	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1,067	427	636	827	1,119
1,500	306	515	759	1,297	460	712	959	1,376
2,000	322	563	869	1,655	489	808	1,141	1,785
2,500	333	597	952	1,984	524	879	1,288	2,173
3,500	346	641	1,068	2,565	558	977	1,510	2,890
5,000	357	678	1,176	3,288	586	1,066	1,734	3,842
7,500	365	710	1,275	4,211	610	1,147	1,960	5,265
10,000	370	727	1,332	4,899	622	1,193	2,098	6,239
25,000	378	760	1,448	6,939	646	1,285	2,399	9,972
50,000	381	772	1,491	8,056	655	1,318	2,520	12,455
75,000	382	776	1,506	8,514	658	1,330	2,563	13,583
100,000	383	778	1,513	8,762	659	1,336	2,585	14,227
250,000	384	782	1,527	9,248	662	1,347	2,626	15,555
500,000	384	783	1,532	9,423	663	1,350	2,640	16,055
1,000,000	384	783	1,534	9,512	663	1,352	2,647	16,317
2,500,000	384	783	1,536	9,567	663	1,353	2,651	16,478
10,000,000	384	784	1,536	9,594	663	1,354	2,653	16,560
100,000,000	384	784	1,537	9,603	663	1,354	2,654	16,584
300,000,000	384	784	1,537	9,603	663	1,354	2,654	16,586

Source: (The Research Advisors, 2006)

In our study the sample error is 0.5%. To achieve this percentage, we considered the reported level of confidence of 95%. For achieving this percentage, the Research Advisor (2006) provides a table from which researchers can select an appropriate sample size for his/her study according to the population size. The above table shows that it is necessary to select a sample of at least 384 participants if the population greater than 1,000,000 (The Research Advisors, 2006). The country where our study took place has a population of over 8,000,000. According to the specifications in the table above, at least 384 samples are required.

## **6.6 Data Collection Design**

The following is a summary of the data collection strategy:

**Data Collection Instrument:** The questionnaire was developed from the scales mentioned and used as the tool. The survey covered the constructs proposed in the model and available standard (and reliable) scales were used for measuring each construct.

**Data Collection Process:** We explained the purpose of the study in brief and presented the questionnaire. The researcher gave participants enough time to understand the questions and respond appropriately. At the end of this stage the questionnaires were collected.

## **6.7 Data Collection**

Data collection is the process of collecting and measuring information on variables of interest order to test the hypotheses, answer the research questions and evaluate outcomes that were generated in the study (Springshare, 2015) (details of data collection are provided in this section).

### **6.7.1 Qualitative study: Focus Groups**

#### **6.7.1.1 Focus Group Questions**

Usually researchers use different types of questions to obtain useful data from the focus group discussion. The guidelines for the present study were developed through reviewing the literature related to the behavior of young consumers toward the use of digital

technology. The questionnaires were reviewed for content and readability by two professors (one from the Faculty of Economics, University of Porto and one from Tajik State University of Commerce). A moderator conducted the focus group discussions, starting the discussions with engagement questions in order to introduce the topic under investigation. These questions acted as icebreakers between the moderator and participants and to make them comfortable with the topic of debate. These addressed general issues such as:

- What is your favorite (brand) of mobile phone and why?
- How do you feel when you look at other people’s mobile phones?
- In your view, how important is the Internet in life today?

Other types of questions (Exploration Questions) were used in the discussion as key questions, which covered the main research questions and sub questions. Using fundamental questions in focus group discussions is important because most of the detailed answers are gained from them. In our study the key questions were divided into three groups and sub-groups. In the first group the questions were about “things such as social, cultural and economic factors that have an influence on the behavior of young consumers towards the use of digital technology in Tajikistan”. In the second part, the questions were about “the influence of religion and gender roles towards the use of digital technology” and in the third part, the questions were about “barriers that influence the behavior of the young consumers when they use digital technology”.

#### **6.7.1.2 Conducting Focus Group Discussions**

In the first phase three focus group discussions (FGD) were conducted, which included eight to ten young people in each discussion group within an age range of 18-30 years. The FGD were conducted in May 2015, in Dushanbe, the capital of Tajikistan. In Tajikistan conducting such kind of study is very new, if participant do not feel comfortable or safe usually they will not participant in such kind of discussions, especially if there discuss some topics related religion. Therefore, the FGD were conducted in the universities, in order the participants, especially student feel comfortable to talk about their thought toward the use of modern technologies. In order the participants feel comfortable we also invited one

professor from the university, which they study, in order the student feel themselves comfortable and safe when they talk about modern technology and religion. At the beginning of each FGD first professors shortly discussed the aim of the present group discussion and then the moderator started the discussions.

A snowball sampling technique was used to recruit young people for qualitative research. Regarding the ideal number of focus group discussions to conduct, Morgan (1997) and Krueger (1998) agreed that three to five groups are usually adequate. Bloor et al., (2001) claimed that the final number of focus group discussions should reflect the research plan, including which sub-groups have been targeted. Regarding the ideal size for focus group discussion, Peek and Fothergill (2009) commented that the size of the group is central to the success of the focus group method. The sample size, number of groups and duration of the group discussions were considered both efficient and representative.

Focus groups were audio recorded and videotaped, and the audio was transcribed verbatim to ensure an accurate analysis of the discussions. The FGD lasted between 1hr30minutes to 1hr50 minutes. Groups were facilitated and led by a trained moderator. The selection and composition of the groups were threefold: a minimum of 8 participants, aged between 18 to 30 years-old, and everybody should have had experience with digital and online activities. To avoid gender censorship only one group was mixed gender. A more detailed overview of participants, including their ages, gender, marital status, and occupation are included in Tables 10, 11 and 12.

**Table 10:** Group 1- mixed gender, 8 participants, and 18-28 years-old.

**Table 11:** Group 2 – males, 10 members, 18-27 years-old.

**Table 12:** Group 3 –females, 8 members, 18-27 years-old.

**Table 10: Demographic Information of Group 1 Participants**

<b>No.</b>	<b>Gender</b>	<b>Abbreviation</b>	<b>Age</b>	<b>Marital status</b>	<b>Occupation</b>
<b>1</b>	Female	F1	25	Single	Professional
<b>2</b>	Female	F2	27	Single	Professional
<b>3</b>	Male	M3	28	Married	Professional
<b>4</b>	Male	M4	18	Single	Student
<b>5</b>	Male	M5	26	Married	Professional
<b>6</b>	Male	M6	24	Single	Student
<b>7</b>	Female	F7	20	Single	Student
<b>8</b>	Female	F8	19	Single	Student

**Table 11: Demographic Information of Group 2 Participants**

<b>No.</b>	<b>Gender</b>	<b>Abbreviation</b>	<b>Age</b>	<b>Marital status</b>	<b>Occupation</b>
<b>1</b>	Male	M9	23	Single	Student
<b>2</b>	Male	M10	27	Married	Professional
<b>3</b>	Male	M11	18	Single	Student
<b>4</b>	Male	M12	21	Single	Student
<b>5</b>	Male	M13	26	Married	Professional
<b>6</b>	Male	M14	22	Single	Student
<b>7</b>	Male	M15	25	Single	Professional
<b>8</b>	Male	M16	22	Married	Professional
<b>9</b>	Male	M17	21	Single	Student
<b>10</b>	Male	M18	23	Married	Student

**Table 12: Demographic Information of Group 3 Participants**

<b>No.</b>	<b>Gender</b>	<b>Abbreviation</b>	<b>Age</b>	<b>Marital status</b>	<b>Occupation</b>
1	Female	F19	22	Single	Student
2	Female	F20	27	Married	Professional
3	Female	F21	23	Single	Student
4	Female	F22	25	Single	Professional
5	Female	F23	25	Single	Professional
6	Female	F24	18	Married	Student
7	Female	F25	24	Single	Professional
8	Female	F26	21	Single	Student

## **6.7.2 Quantitative study: Survey**

### **6.7.2.1 Survey Sample**

In the second phase of this study we used a face-to-face paper and pencil survey using a structured questionnaire form. The survey was administered to 1100 young people aged 18 to 30 years-old in Dushanbe (see section 5.10 for details). The survey was carried out from 5<sup>th</sup> November, 2015 to 10<sup>th</sup> January, 2016. We use a simple random sample method for selecting survey participants.

### **6.7.2.2 Designing Survey**

To develop the questionnaire as the Instrument for collecting primary data we gathered preliminary information by using focus group discussions together with reviewing the existing literature, before going onto the questionnaire design stage for the main survey. The questionnaires were prepared based on the research questions and objectives in order to collect data pertaining to the factors that influence the behavior of young people. We used questionnaires that included closed-ended questions. For neutralizing the gender role, we split the questionnaires into two forms. The reason for splitting the questionnaires was that

there were some questions that would not be pertinent to female respondents (e.g. how often do you go to the Mosque?), or in female questionnaires there were questions that related to freedom in the use of digital technology which is not relevant to male respondents. Regarding the language used in the questionnaires, it was first framed in English under the guidance of the researcher's supervisor and, since Tajiki is the first language of Tajikistan, it was then translated into the Tajik language (see section 6.7.3 for details).

In general, the questionnaires were split into seven sections.

1. Mobile phone use
2. Internet use
3. Influence of religion
4. Gender roles in the use of digital technology
5. Control of the mobile phone and Internet
6. Future use of the mobile phone and Internet
7. Barriers to the use of the mobile phone and Internet

The final section of the questionnaires included 7 nominal-scale questions concerning the subject's personal information, i.e. gender, age, marital status, occupation, monthly family income, education level and the place where they lived before coming to Dushanbe.

### **6.7.3 Translation**

In the initial stage the questionnaires were drafted in English, and then because our study was conducted in Tajikistan we translated the questionnaires into the Tajik language. Every effort was made to construct the Tajik version to faithfully represent the English version. The questionnaires were translated by a bilingual professional in Tajikistan, and then the researcher and researchers' supervisor twice reread them to check the meaning of the questions and to adapt the questionnaire to a more understandable format for the respondents. After translation, we found that some questions and items had lost part of their meaning. In order to be clear and understandable, the questionnaires were proof-read by two bilingual professionals and one expert from the marketing field. Local experts advised adding Russian terminology in some of the questions, because there are some words that would be unclear

for many young people after a literary translation. Thus, all comments and recommendations of the experts were implemented where appropriate.

#### **6.7.4 Pre-testing the Questionnaire**

Pre-testing is a trial run with a group of respondents for detecting problems in the questionnaire instructions or design, and whether the respondents have any difficulty in understanding the questionnaire or whether there are any ambiguous or biased queries (Sekaran 2003). The pre-testing should be administered to a sample that is expected to respond similarly to the samples in which the study will eventually be applied. According to Hair et al., (2006) the purpose of pre-testing is to evaluate the items used in the questionnaire design. Sekaran (2003) advised that it is important to pre-test the questionnaire before applying it in a study to ensure that the respondents understand the questions posed and that there is no ambiguity and no problems associated with wording or measurement. Cohen et al., (2000) pointed out that the researcher should pre-test the questionnaire using a group of respondents who are drawn from the same potential population as the main study, but who will not receive the final refined version. The aim behind this is to avoid repetition, because answering twice to the same questions may affect the respondents' views.

To conduct the pre-tests, we chose a suitable sample from the university where one of the supervisors' lectures. For the young practitioner's sample, we used the government institution in which the researcher works. Concerning the sample number for the pilot study there are no requirements. Nevertheless, Verma and Mallick (1999) recommended that an instrument should be piloted with a group size similar to the sample for which it is destined. Further, Verma and Mallick suggested that the sample group should not be too large: 12 to 20 participants is usually adequate. In our case, the pre-tests were undertaken by twenty students and twenty practitioners from each organization. We conducted two pre-tests; the first pre-test took 10 days, and second one took 15 days.

##### **6.7.4.1 First Pre-Test**

In the first pre-test, twenty questionnaires were distributed among young people aged 18 to 30 years-old in the same universities and businesses, which was mentioned above. The



researcher distributed the questionnaires to the respondents and asked them to fill them out in the investigator's presence. The researcher asked the respondents to write their comments and suggestions regarding the questions which they didn't understand, or they didn't want to answer. In general, the researcher asked the respondents to:

- Identify any questions or sentences which were not clear or understood.
- Identify ambiguities and difficult questions.
- Make suggestions about excluding items which were not important in the questionnaire.
- Point out the extent of linguistic clarity.
- Note the topics that should be changed or adjusted.
- Present suggestions for adding or removing any issues.
- Note any ethical issues relating to the content and the language of the topics involved

The researcher collected the completed questionnaires with comments and recommendations for future examination. The researcher studied the comments and suggestions presented by the pilot survey respondents and made amendments as necessary. The pre-test contributed to the refinement of some questions and led to deleting some others or developing new ones. From the first pre-test the questionnaire was then significantly revised because the respondents had suggested some changes in the wording and appropriate sequencing of the questions (see section 6.8.1 for detail).

#### **6.7.4.2 Second Pre-Test**

To make sure that the final forms of the questionnaires were clear and suitable a second pre-test was conducted after the modifications and corrections suggested in the first study were incorporated. In the second pre-test, we also distributed questionnaires among young people from the same target group as the first pre-test. Following the same procedure as in the pre-test study, the researcher distributed the questionnaire to the respondents and asked them to fill it out and write down their remarks and suggestions. The respondents were asked to indicate whether any expressions were obscure, ambiguous or difficult to

understand, and to make any other notes or suggestions they considered appropriate. The researcher collected the responses in person. The returns showed that all pilot sample participants were happy with the questionnaire and no ambiguity was found in any of the questionnaires, except for a few minor mistakes which the researcher modified later (see section 6.8.1 for details).

### **6.7.4.3 Pilot Study**

In the final pre-stage, we conducted a pilot study with 100 respondents from the same sample group. A pilot study is considered to be a small-scale trial of the proposed procedures, materials, and methods, and sometimes also includes coding sheets and analytic choices. The point of instigating a pilot study is usually to test to revise and then finalize the materials and the methods. A pilot study can detect weaknesses in design and instrumentation and provide proxy data for selection. Other commentators state that a pilot study is conducted to uncover any problems, and to address them before the primary study is performed (Hosseini, 2012). It should draw subjects from the same target population and simulate the procedures and protocols that have been developed for data collection.

According to Cooper and Schindler (2007) the size of the pilot group should range from 25 to 100 subjects. As was noted above, in our study we distributed 100 questionnaires among young people aged 18 to 30 years-old in order to confirm the reliability of our questionnaires for further phases. Out of 100 questionnaires, 60 were distributed to female respondents and the remaining 40 were distributed among male respondents. The duration of the pilot study took 20 days. The justification of the findings from pilot study will be discussed in the section on the modification and changes to the questionnaire (see section 6.8.2 for details). It was also useful to establish the time required to answer the questionnaire.

## **6.8 Modification and Changes of the Questionnaire**

### **6.8.1 Results from the pre-tests**

In this section, all the changes and modifications which we made after receiving the questionnaires from the two pre-tests will be discussed. We found that there were some parts where modifications were required: e.g. to reduce or expand choices, provide explanations

before some questions and to add questions to provide some missing information related to the key questions. The results of the questionnaires from the two pre-tests showed where further elaboration was required to make the questionnaire clearer and more understandable. From the first two pre-tests, we found that using a 7-point scale was too complicated for the young people answering the questionnaire. Experts who have already used this kind of method noted that in Tajikistan this is new inquiry technique, and filling in such questionnaires would be complicated for young people. They explained that when we translate the questionnaires into the Tajik language there is not much difference between points on the scales, therefore young people would have difficulty in differentiating between them. The local experts advised that it was better to use scales with 3 or a maximum of 5 points. In order to preserve the psychometric properties of the original values and at the same time facilitate the response we decided to use five-point scales. The respondents from first two pre-tests commented that there were some words that they did not understand and advised that it would be better if we used Russian terminology, because the technologies which they use are mainly in the Russian language.

### **6.8.2 Results from the Pilot Study**

From the pilot study, we found that the respondents took a long time, 40 to 50 minutes or even more in some groups, in filling out the questionnaires. The result of pilot study showed that for many respondents this was their first experience with filling in this kind of questionnaire, and therefore they took a lot of time. Another thing that took uptime was that a majority of the respondents, especially in male groups, asked too many questions regarding the religious answers.

The feedback and suggestions provided by the pilot sample resulted in some changes to the questionnaire. The suggested adaptations involved wording, sentence constructions and synonymous terms that in the national language and even Russian could be misunderstood.

Another problem, which we found in the pilot study, was that females did not fill in the sections, which asked them about their social friends. The collaboration with a female researcher allowed us to interact directly with female group to find an explanation for their

concerns about the questions. They mentioned that if their brothers, husband, boyfriend, or future husband (fiancé) found out what they said it would be a big problem for them. Therefore, most of the females didn't talk about it. Therefore, in the next stage before the questionnaire was distributed, we briefly explained to female respondents that it is an anonymous study that no one would read it except the researcher, and this data will only be used for this study.

A main problem which we faced at the beginning was that we tried to distribute the questionnaire face to face with respondents. We met with a lot of resistance as seen in the responses below;

1. I don't know you, so why should I answer or help you?
2. Sorry, you have too many questions we don't have time to answer them.
3. Some of the respondents began to fill in the questionnaires, but when he/she saw questions related to religion they immediately stopped answering the questionnaire.
4. Some of the respondents from government institutions answered that "We cannot reply to such kinds of questions because the situation is not good in Tajikistan and it may influence our careers."
5. There was also fear and they thought that we were from law enforcement authorities, and were collecting information about religious people.

The solution to overcoming those problems was to ask for institutional support from the universities. Therefore, we began to distribute the questionnaires to the groups during lectures. Because of the researcher's previous experience as a government worker he had personal contact with many universities and enterprises. This gave the researcher an opportunity to contact four schools to prepare for questionnaire distribution during classes. Before distributing the questionnaires, the researcher and his colleagues first gained permission from each faculty and department. In each group, the questionnaires were handed out to the respondents during their lectures. Students were asked to fill in the questionnaires and return them to the researcher when they were finished. All respondents were allowed to ask any questions or report any part of the survey questions that seemed to be ambiguous.

During the distribution of the questionnaires, in almost all groups the students asked the researcher about certain points and questions. For instance, the first questions among most samples were: “Why do you have two different questionnaires? Are there any special questions in the other questionnaire?” More than half of the respondents asked questions about religion and if this was a religious survey. Because the topic of religion is very sensitive, the anonymity and confidentiality of all responses was assured. Some of the interviewees wanted to know whether they should put a plus sign or a tick on the scales which they chose. During the survey, we observed that males asked more unnecessary questions such as, what is the connection between technology and religion? why you are studying religion? will you change the Tajik digital market? Can you do something to reduce the price of the Internet and etc., then females.

Regarding the respondents who were professionals, the researcher asked some of his friends and colleagues from three enterprises for help by distributing the questionnaire among their friends and colleagues. Before distributing the surveys, the researcher trained and explained the meaning of all the questions and items to his friends and colleagues. Only one issue arose when the questionnaires were analyzed. We found that most of the respondents did not answer the questions about religion. Some of the respondents noted that they did want to respond to these questions because they were afraid.

### **6.8.3 Questionnaire Structure**

Following the constructs used in the models presented in Chapter Four, Tables 13-14 shows all constructs, items and the reliability ( $\alpha$  Cronbach). Two of those constructs were developed by us since there were a gap in the literature concerning the specificity of the measurement we need to capture. It was the case of Gender Control and Free Access constructs. All the reliability values fall under the acceptable range (Nunnally, 1978).

**Table 13: Questionnaire’s constructs and reliability for Female**

<b>Construct</b>	<b>items</b>	<b>Reliability (<math>\alpha</math> Cronbach)</b>
<b>Use of Mobile</b>  (Rosen et al., 2013; p. 2509-2510)	Using mobile phone during class or work time	<b>.800</b>
	Search for information with a mobile phone	
	Use apps (for any purpose) on a mobile phone	
	Check the news on a mobile phone	
	Browse the web on a mobile phone	
<b>Use of Internet</b>  (Milianny, 2013; p.329)	Seeking information linked job	<b>.759</b>
	Seeking local news	
	Seeking international news.	
	Improving knowledge and refine skills	
<b>Use of Social Network</b>  (Rosen et al., 2013; p. 2509-2510)	Click “Like” to a posting, photo, etc.	<b>.959</b>
	Comment on postings, status updates, photos, etc.	
	Read postings	
	Browse profiles and photos	
	Post photos	
	Post status updates	
	Check Facebook and Odnoklassniki at work or school	
	Check your Odnoklassniki page from your smartphone	
	Check your Facebook page from your smartphone	
Check your Facebook and Odnoklassniki page or other social networks		
<b>Attitude</b>	I think it is important to keep up with the latest trends in technology	

(Rosen et al., 2013; p. 2509-2510)	I feel it is important to be able to access the Internet anytime I want.	<b>.735</b>
	I feel it is important to be able to find any information whenever I want online	
<b>Gender Control</b>	To what extent was the control over Social networks (Odnoklassniki, Facebook or other) use by your husband?	<b>.965</b>
	To what extent was the control over Internet site use by your husband?	
	To what extent is the control over mobile phone use by your husband?	
<b>Life Style</b>  (Richins, 2004; p. 217)	I would be happier if I could afford to buy more things	<b>.769</b>
	I wouldn't be any happier if I owned nicer things	
	Buying things gives me a lot of pleasure	
<b>Free Access</b>	Playing games	<b>.755</b>
	Buy product online (clothes/fashion, electronics)	
	Watch online movies	
<b>Product Innovation</b> (Donthu and David, 1996; p.74)	I like new and different styles	<b>.825</b>
	I like a great deal of variety	
	I like to try different things	
<b>Peer group Influence</b>  (Reynolds and William, 1971)	I can think of at least two people whom I have told about some products/brands in the last six months	<b>.786</b>
	I feel that, I am generally regarded by my friends and neighbors as a good source of advice about products/brands	
	My friends come to me more often than I go to them for information about products/brands	
	My friends and neighbors often ask my advice about some of products/brands they plan to buy	
	I pray because I find it satisfying	

<b>Religious Coping</b>  (Abu Raiya et al., 2008; p. 89-94)	When I face a problem in life, I read the Holy Quran to find consolation	<b>.891</b>
	I pray because if I do not, Allah will disapprove of me	
	I read the Holy Quran because I would feel guilty if I did not	
	I read the Holy Quran because I find it satisfying	
	I read the Holy Quran because I feel that Allah is talking to me when I do that	
	Except in prayers, how often do you read or listen to the Holy Quran?	
<b>Religious Enrichment</b>  (Tiliouine and Belgoumidi, 2009; p. 118-119)	Read Prophet's Sayings	<b>.860</b>
	Try to learn by heart some Koranic verses	
	Recite some Koranic verses when beginning work	
	Read/Listen to Prophets' biography	
	Read/ listen to Koran	
	Watch, listen or attend in the religious meeting	
<b>Religious Altruism</b>  (Tiliouine and Belgoumidi, 2009; p. 118-119)	Tolerate others for God's sake	<b>.821</b>
	Give away Charity as religious duty	
	Advise others to do good and avoid sin	
	Care about neighbors and their wellbeing	
	Prefer to deal with people whose religious commitment high	



**Table 14: Questionnaire’s constructs and reliability for Male**

<b>Construct</b>	<b>items</b>	<b>Reliability (<math>\alpha</math> Cronbach)</b>
<b>Use of Mobile</b>  (Rosen et al., 2013; p. 2509-2510)	Connect to the social networks on a mobile phone	<b>.713</b>
	Search for information with a mobile phone	
	Use apps (for any purpose) on a mobile phone	
<b>Use of Internet</b>  (Miliany, 2013; p.329)	Individually learn about religion	<b>.815</b>
	Online reading Quran	
	Online reading books	
	Online listening Quran	
<b>Use of Social Network</b>  (Rosen et al., 2013; p. 2509-2510)	Comment on postings, status updates, photos, etc.	<b>.911</b>
	Read postings	
	Browse profiles and photos	
	Post photos	
	Post status updates	
	Check your Odnoklassniki page from your Smartphone	
	Check your Facebook and Odnoklassniki page or other social networks	
<b>Attitude</b>  (Rosen et al., 2013; p. 2509-2510)	I think it is important to keep up with the latest trends in technology	<b>.770</b>
	I feel it is important to be able to access the Internet any time I want	
	I feel it is important to be able to find any information whenever I want online	
<b>Life Style</b>	I have all the things I really need to enjoy life	<b>.716</b>
	Buying things gives me a lot of pleasure	

(Richins, 2004; p. 217)	I like to own things that impress people	
	I would be happier if I could afford to buy more things	
<b>Free Access</b>	Playing games	<b>.742</b>
	Buy product online (clothes/fashion, electronics)	
	Watch online movies	
<b>Product Innovation</b> (Donthu and David, 1996; p.74)	I like new and different styles	<b>.838</b>
	I like a great deal of variety	
	I like to try different things	
<b>Peer group Influence</b>  (Reynolds and William, 1971; p. 453)	I feel that, I am generally regarded by my friends and neighbors as a good source of advice about products/brands	<b>.796</b>
	My friends come to me more often than I go to them for information about products/brands	
	I sometimes influence the types of products/brands my friends buy	
	My friends and neighbors often ask my advice about some of products/brands they plan to buy	
<b>Religious Coping</b>  (Abu Raiya et al., 2008; p. 89-94)	How often do you go to Mosque?	<b>.856</b>
	I read the Holy Qur'an because I would feel guilty if I did not	
	Except in prayers, how often do you engage in d'iker or tasbih?	
	When I face a problem in life, I will try to find solution from the Internet	
	How often do you pray?	
<b>Religious Enrichment</b>	Enjoy listening to Koran	
	Ask for advice or read religious books in order to clarify matters in my life	
	Weekly time watch/read/listen to religion	

(Tiliouine and Belgoumidi, 2009; p. 118-119)	Read Prophet's Sayings	<b>.900</b>
	Try to learn by heart some Koranic verses	
	Recite some Koranic verses when beginning work	
	Read/Listen to Prophets' biography	
<b>Religious Altruism</b>  (Tiliouine and Belgoumidi, 2009; p. 118-119)	Help people in their difficulties for God's sake	<b>.870</b>
	Tolerate others for God's sake	
	Give away Charity as religious duty	
	Advise others to do good and avoid sin	
	Care about neighbors and their wellbeing	
	Prefer to deal with people whose religious commitment high	

## 6.9 Conducting the Survey

Distribution of the final survey started on the 5th of November, 2015, and the process took two months. Before starting to distribute the questionnaires, we asked and obtained a letter from each university addressed to the respective directors of each department. The letters identified the researcher and his study and asked the administrator for their co-operation in this study. This procedure is common in Tajikistan, as without permission from the administration of an institution no one can do any kind of study in governmental institutions. The questionnaires were handed out to the respondents during regular lectures. Respondents were asked to fill in the questionnaires and return them to the researcher and teachers who were cooperating in this study. All respondents had enough time to complete the questionnaire and they were allowed to ask questions or mention any of the survey questions that seemed to be ambiguous. In case of young practitioners, as we noted above, because of the researcher's

previous experience in government institutions this gave him an opportunity to contact his colleagues and ask for help to distribute the questionnaires among their friends and colleagues.

### 6.10 Response Rate

A total 1100 questionnaires was distributed to the respondents. The respondents were Tajik young people aged 18 to 30 years-old. From 1100 questionnaires 650 were given to females, and 450 to males. Of the 1100 questionnaires 955 were returned, yielding 86 percent response rate. Of the returned questionnaires 784 provided a usable response. This means that there was a 72% response rate, as described in Table 15. The reason behind the low percentage of usable responses in the returned questionnaire was that even after we assured the female respondents that it was an anonymous study and no one else would read it, many of them didn't fill in the sections which asked about their social network activity. This shows that because of cultural and traditional rules, females in Tajikistan still do not have freedom in their use of modern technologies. Regarding this issue female noted that still we are not feel free in the use of digital technology and therefore we don't want that our males know about our secrets, especially about our male friends. Another issue was that majority of respondents didn't answer many questions which were related to religion. Part of the reason could be because of recent problems with terrorism. Therefore, many respondents who didn't fill in the questionnaire mentioned that they didn't want to answer such kinds of questions.

**Table 15: Overall Response Rate of Survey**

Source	Total Distributed	Total Response	Response Rate
Female	650	422	65 %
Male	450	362	80 %
<b>Total</b>	<b>1100</b>	<b>784</b>	<b>72 %</b>

## **6.11 Profile of the Respondents**

Before the data analysis we did a descriptive analysis in order to provide the necessary information relating the demographic profiles. We did data analysis with a total of 784 respondents, and from the total samples there were slightly more females 422 (54%) than males 362 (46%). A majority of 68.5% of the respondents were single, 27% were married, and 4.5% were divorced. Regarding age, the majority of the respondents were between 16 to 25 years-old (82.5%) because the study considered young people aged 16 to 30 years-old as the main sample group. Related to occupation, 62.2% of respondents were students, 22.7% were practitioners, and 15.2% were other occupations. According to the monthly family incomes, 44.8% of the respondents reported their monthly family incomes as more than 1000 TJS (120 euros), 22.4% reported between 701 to 1000 TJS (80-120 euros), 16.9% showed between 501-700 TJS (60-80 euros), 7.7% 301-500 TJS (35-60 euros), and 8.3 % reported less than 300 TJS (35euros). Table 16 helps to illustrate the profile of the respondents in more detail.

**Table 16: Characteristics of the Respondent**

<b>Variables</b>	<b>Value</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>	Male	362	46,2%
	Female	422	53,8%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>
<b>Age</b>	16 to 20 years-old	321	41,0%
	21 to 25 years-old	326	41,5%
	26 to 30 years-old	137	17,5%
	<b>Total</b>	<b>784</b>	<b>100%</b>
<b>Marital status</b>	Married	211	27,0%
	Single	538	68,5%
	Divorced	35	4,5%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>
<b>Occupation</b>	Student	468	60,0%
	Practitioner	195	25,0%
	Other	121	15,0%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>
<b>Monthly Family Income</b>	Less than 300 TJS	58	7,0%
	301 - 500 TJS	57	7,0%
	501 - 700 TJS	132	17,0%
	701 - 1000 TJS	178	23,0%
	More than 1000 TJS	359	46,0%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>
<b>Education Level</b>	11 years of schooling	48	6,0%
	College Graduate	69	9,0%
	Undergraduate incomplete	273	35,0%
	Undergraduate complete	190	24,0%
	Post-Graduate	204	26,0%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>
<b>Where did you live, before coming to Dushanbe city?</b>	Rural Area and Center of Region	301	38,4%
	Small and big Cities	483	61,6%
	<b>Total</b>	<b>784</b>	<b>100,0%</b>

## **6.12 Data analysis**

The following sections will provide the reader with the statistical techniques which were applied to analyze the data and justify each test.

### **6.12.1 Choice of Software Package**

In this study, the Statistical Package for Social Science (SPSS-21) and AMOS version 21.0 for Windows was chosen as the computer program for data analysis. SPSS software is used by social scientists and other professionals for statistical analysis. SPSS provides a broad array of applications for univariate, bivariate and multivariate statistical analysis (Green and Salkind, 2003). It is regarded as the most broadly available and widely used comprehensive statistical computer package available for marketing research (Zikmund, 2000; Malhotra and Birks, 2007) and for this reason the researcher chose it.

### **6.12.2 Choice of Statistical Techniques**

The primary considerations that influence the selection of tests include the objectives of the analysis, the focus on the analysis, sample type and size, parametric versus non-parametric tests and the level of measurement (Aflfi and Clark, 1996; Diamantopoulos and Schlegelmilch, 1997; Bums, 2000). In this study the researcher mainly used Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and other statistical techniques, such as path model analysis.

#### **6.12.2.1 Exploratory Factor Analysis (EFA)**

Exploratory factor analysis is used to categorize the underlying factors or latent variables for a set of variables. The study accounts for the relationships (i.e., correlations, co-variation, and variation) among the items (i.e., the observed variables or indicators) (Field, 2009; Haig, 2005). Moreover, authors argue that exploratory factor analysis (EFA) is based on the mutual factor model, where each observed variable is a direct purpose of one or more common factors (i.e., the underlying latent variables) and one unique element (i.e., error - or item - specific information). It partitions item variance into two components: (1) Common

variance, which is accounted for by underlying latent factors, and (2) unique variance, which is a combination of indicator-specific reliable variance and random error. Exploratory factor analysis is often considered to be a data-driven approach to identifying a smaller number of underlying factors or latent variables. It may also be used for generating fundamental explanatory theories and determine the underlying latent variable structure; however, confirmatory factor analysis (CFA) testing or another approach to theory testing is needed to confirm the EFA findings (Hair, 2006). Also, social sciences researchers frequently use this technique for the reduction of factors. According to this stance, Field, (2009) suggested that EFA use full to drop the items that are not relevant for the study and we can drop the items on the basis of their factor loadings. This is one of the importance of the EFA. EFA and CFA are based on the common factor model, so both are related to mathematical procedures (Korukcu at el., 2012). EFA can be used as an exploratory first stage through the development of a test, and then CFA may be used as a second phase to examine whether the structure identified in the EFA works in a new example. In other words, CFA can be used to confirm the factor structure identified in the EFA. Unlike EFA, CFA needs pre-specification of all aspects of the model to be tested and is more theory determined than data-driven. If a new measure is being established with an adamant theoretical framework, then it may be possible to skip the initial EFA step and go directly to the CFA.

### **A. Methods in EFA**

The first thing we need to recognize is that there are several methods for unearthing factors in our data. The method which we choose will depend on what we hope to do with the analysis. Tinsley and Tinsley (1987) give an excellent account of the different methods available. There are two aspects to consider: whether we want to generalize the findings from our sample to a population and whether we are exploring our data or testing a particular hypothesis. Assuming the researcher wants to explore his/her data, then they need to consider whether they want to apply their findings to the sample collected (descriptive method) or to generalize their results to a population (inferential methods). When factor analysis was first developed it was assumed that it would be used to explore data to generate future hypotheses. As such, it was understood that the technique would be applied to the entire population of



interest. Therefore, certain methods assume that the sample used the whole population, and so results cannot be extrapolated beyond that particular example. Principal component analysis is a case of one of these techniques, as main factors analysis (principal axis factoring) and covariance image analysis (model factoring). Of these, principal component analysis and major factors analysis are the preferred methods, and are usually similar in results. When these approaches are used conclusions are restricted to the sample collected, and generalization of the results can be achieved only if analyses using different samples reveal the same factor structure.

## **B. Analysis and Interpretation of Result**

### **1. Sample size**

Sample size affects the validity and outcome of many statistical tests in areas such as correlation, covariance, reliability and validity statistics. The sample size for factor analysis has numerous 'rules of thumb'. The standard practice suggests that a researcher have at least 10–15 participants per variable. This rule is mentioned on numerous occasions but its empirical basis is unclear (Nunnally, 1978). Kass and Tinsley, (1979) suggested having between 5 and 10 members per variable up to a total of 300 (beyond which test parameters tend to be stable regardless of the participant to variable ratio). As well, Tabachnick and Fidell (2007) recognize that 'it is heartening to have at least 300 cases for factor analysis' (p. 613). In this regards, Comrey and Lee, (1992) provided the following guidance in determining the adequacy of sample size. Comrey and Lee, defined 100 sample size as poor, 300 as a good, 500 as very good and 1000 or more as excellent. They urged researchers to obtain samples of 500 or more observations whenever possible in factor analysis studies.

MacCallum et al., (1999) have shown that the smallest sample size or unit to variable ratio depends on other aspects of the research design. In short, their investigation indicated that as communalities become lower the importance of sample size increases. With all communalities above 0.6, relatively small samples (less than 100) might be entirely sufficient. With communalities in the 0.5 range samples between 100 and 200 can be sufficient, provided there are relatively few factors, each with only a small number of indicator variables. In the worst scenario of low communalities (well below 0.5) and a greater

number of underlying factors, they recommend samples above 500. What's clear from this work is that a sample of 300 or more will probably implement a stable factor solution, but that a prudent researcher will measure enough variables to adequately gauge the factors that they would probably expect to find (Field, 2009).

## **2. KMO and Bartlett's test**

KMO and Bartlett's test of sphericity produces the Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's test. The KMO can be calculated for individual and multiple variables and characterizes the ratio of the squared correlation between variables to the squared partial correlation between variables. The KMO statistic varies between 0 and 1. A value close to 1 indicates that patterns of relationships are relatively compact, and so factor analysis should yield distinct and reliable factors (Field, 2009). Kaiser, (1974) suggests that accepting values greater than 0.5 is barely acceptable (values below this should lead you to either collect more data or rethink which variables to include). Furthermore, values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are high and values above 0.9 are superb (Hutcheson and Sofroniou, 1999).

## **3. Communalities**

The total variance of a specific variable will have two components: some of it will be shared with other variables or measures (common variance) and some of it will be specific to that measure (unique variance). We tend to use the term unique variance to refer to the variance that can be reliably attributed to only one measure. However, there is also variance that is unique to one test but not reliably so; this difference is named error or random variance. The proportion of common variance present in a variable is known as the communality. The closer to 1 the values of communalities are, the better our factors are at explaining the original data. It is logical that the more factors retained, the greater the communalities will be (because less information is discarded); therefore, the communalities are useful indices of whether too few factors have been retained (Field, 2009).

#### **4. Rotated Component Matrix (Factor Loadings)**

Once a factor structure has been found, it is vital to decide which variables make up which factors. The factor loadings were a gauge of the substantive importance of a given variable to a given factor. Therefore, it makes sense that we use these values to place variables with factors. It is possible to assess the statistical significance of a factor loading. There are various reasons why this option is not as easy as it seems (Jones S. , 2002). Typically, researchers take a loading of an absolute value of more than 0.3 to be important. However, the significance of a factor loading will depend on the sample size. Stevens (2002) produced a table of critical values against which loadings can be compared. To summarize, he recommends that for a sample size of 50 a loading of 0.722 can be considered significant, for 100 the loading should be greater than 0.512, for 200 it should be greater than 0.364, for 300 it should be greater than 0.298, for 600 it should be greater than 0.21, and for 1000 it should be greater than 0.162. These values are based on an alpha level of .01 (two-tailed), which allows for the fact that several loadings will need to be tested (see Stevens, 2002, for further detail). Therefore, in very large samples, small loadings can be considered statistically meaningful. It was also noted that greater than 0.7 factor loadings find as good factor loadings (Field, 2009).

#### **5. How Many Factors:**

The decision on how many factors to use depends on many things, and the researcher has to decide on how many factors he wants from all observed variables. There are many assumptions regarding how many factors should be extracted, but in general, scientists consider eigenvalues. It is probably best to run a primary analysis with the Eigenvalues over 1 and scree plot and compare the results. Haig, (2005) and Field, (2009) recommended that if the two criteria give different results, then examine the communalities and decide for yourself which of the two tests to believe.

## 6. Correlations Coefficient:

In correlation matrix we can check the singularity, multicollinearity, and convergent validity of variables. Although mild multicollinearity is not problematic for factor analysis, it is recommended to avoid extreme multicollinearity (i.e. variables that are very highly correlated) and singularity (variables that are correctly linked). If the value of correlation is greater than .90, it is a sign of multicollinearity (Harrington, 2009).

## 7. Reporting Exploratory Factor Analysis:

It is necessary to consider the following items:

1. Methods of EFA
2. Value of KMO and Bartlett's test of sphericity
3. Value of Communities for each observed variable
4. Factor loadings for each observed variable

The table below demonstrates the crucial parameters of Exploratory Factor Analysis, including the accepted values of the parameters.

**Table 17: Exploratory Factor Analysis**

Exploratory Factor Analysis		
	Required	Reference
Sample size	Recommend between 5 and 10 participants per variable up to a total of 300	Kass and Tinsley (1979)
	300 is a good sample size, 100 is poor and 1000 is excellent.	Comrey and Lee (1992)
	It also depends on consideration of communalities and factor loadings	MacCallum, Widaman, Zhang, and Hong (1999)

<b>KMO and Bartlett's test</b>	Values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are very good and values above 0.9 are superb	(Hutcheson and Sofroniou, 1999).
<b>Factor Rotation:</b>	Orthogonal rotation: varimax, quartimax and equamax Oblique rotation: direct oblimin and promax	(Field, 2009)
<b>Communality</b>	The closer the values of communalities are to 1, the better our factors are at explaining the original data.	(Field, 2009)
<b>Rotated Component Matrix</b>	Greater than 0.7 is considered as good factor loadings	(Field, 2009)
<b>Correlations Coefficient</b>	If the value of correlation is greater than .90, it is a sign of multicollinearity. (Considered in multiple regression)	(Field, 2009)

### 6.13 Structural Equation Modelling (Measurement and Structural Model)

Structural equation modeling is a general and large family of statistical analyses used to test measurement models (Confirmatory Factor Analysis), i.e., relationships among indicators and latent variables and to examine the structural model of the relationships among latent variables. According to Byrne, (2010) structural equation modeling (SEM) is statistical methodology that takes a confirmatory (i.e., hypothesis testing) approach to the analysis of a fundamental theory bearing on some phenomenon (p.3). Hoyle, (1995) defined SEM as a comprehensive statistical approach to testing a hypothesis about relations among observed and latent variables. MacCallum and Austin, (2000) conclude that SEM is used to test hypothesized patterns of direction and no direction relationships among a set of observed (measured) and unobserved (latent) variables. Typically, this theory represents “causal” processes that generate observations on multiple variables (Satorra and Bentler, 2000).

In SEM, the measurement model (MM) and structural model (ST) are considered as the two main components. The measurement model operates with observed and latent variables (i.e., the CFA model) and the structural model runs only with observed variables

(Byrne, 2010). In social science, CFA can be used for multiple purposes including, but not limited to, the development of new measures, evaluation of the psychometric properties of new and existing measures, and examination of method effects. CFA can also be used to study construct validation and whether a measure is invariant or unchanging across groups, populations, or time.

There are numerous software packages for conducting confirmatory factor analyses, and all of them can be used to perform CFA, SEM, and other studies such as LISREL M plus AMOS, EQS SAS CALIS and so on. The present study used AMOS-21 for analyzing measurement modeling and other requirements of analysis.

### **6.13.1 Estimation Methods**

The available estimation methods include maximum likelihood (ML), weighted least squares (WLS), generalized least squares (GLS), and unweighted least squares (ULS). If the model includes one or more categorical indicator variables or if there is extreme non-normality in data ML is not appropriate to use, and in that case alternative estimation methods can be used.

### **6.13.2 Model Fit Indices**

In CFA, there are different types of Model fit indices such as Absolute Fit Indices, Parsimony Correction Indices, Comparative Fit Indices, and Predictive Fit Indices. The next sub-section will justify all kinds of model fit indices, which will then be listed in the summary.

### **6.13.3 Absolute Fit Indices:**

An Absolute Fit Indices assumes that the best fitting model has a fit of zero. According to McDonald and Ho, (2002) and Hair et al., (2006) the absolute fit indices are a direct measure of how well a priori model fits the sample data. These actions provide a first indication of how well the proposed theory fits the data (Hooper et al., 2008).

#### **a. Model Chi-Square ( $\chi^2$ )**

The most common absolute fit index in the model is chi-square ( $\chi^2$ ), which tests whether the model fits exactly in the populace. There are many limits to the model chi-square (e.g., it is dependent on sample size and will nearly always be significant with large specimens), but it is useful for testing nested models, which are discussed later in this chapter. Other absolute fit indices include the Root Mean Square Residual (RMR), which is the average discrepancy among the covariances in the input matrix and the covariances predicted by the model. Because the RMR is affected by the metric of the input variables, it can be difficult to interpret. The Standardized Root Mean Square Residual (SRMR) is based on the discrepancy between the correlations in the data matrix and the correlations predicted by the model, which is standardized and therefore easier to interpret and consequently is preferred over the RMR (Brown, 2006).

#### **6.13.4 Parsimony Correction Indices**

The parsimony correction indices incorporate a penalty for poor parsimony; therefore, more complex models will be viewed as having an imperfect fit. The root mean square error of approximation (RMSEA) tests the extent to which the model fits reasonably well in the population; it is sensitive to model complexity, but unlike the model chi-square, it is relatively insensitive to sample size. Close fit (CFit) indicates the probability (p) that RMSEA is less than or equal to 0.05 (Brown, 2006).

#### **6.13.5 Comparative Fit Indices**

Comparative fit indices are used to evaluate the fit of a model relative to a more restricted, nested baseline model. Examples include the comparative fit index (CFI) and the Tucker-Lewis index (TLI) or non-normed fit index (NNFI).

#### **6.13.6 Predictive Fit Indices**

Predictive fit indices “assess model fit in hypothetical replication samples of the same size and randomly drawn from the same population as the researcher’s original sample. These indexes may be seen as population-based rather than sample based” (Kline, 2005). The

Akaike information criterion (AIC) is used with maximum likelihood (ML) estimation and “favors simpler models” so, in some sense it is also a parsimony fit index (Kline, 2005). The AIC is used to compare between two (or more) non-nested models tested on the same dataset. A smaller AIC suggests that the model is more likely to replicate, has fewer parameters, and fits better; therefore, when comparing models the one with the smaller AIC is chosen as the “better” model. The expected cross-validation index (ECVI) is also used when comparing models and will result in the same rank ordering of models as the AIC (Kline, 2005). Similar to the AIC, the ECVI is population-based and parsimony adjusted. The fit predictive indices are used for comparing models, so unlike the other categories of fit indices, there are no rules for what represents acceptable fit.

### **6.13.7 Recommendations for Assessing Acceptable Model Fit**

There are numerous guidelines available for “acceptable” model fit. Brown, (2006) recommends RMSEA close to 0.06 or less; SRMR close to 0.08 or less; CFI close to 0.95 or greater; and TLI close to 0.95 or higher. It is essential to note that these are not rigid guidelines, and Brown comments that his use of “close to” is purposeful. According to Kline, (2005) model chi-square, RMSEA, 90% confidence interval for RMSEA, CFI, and SRMR are reported. Kline (2005) commented that “RMSEA  $\leq$  .05 indicates approximate close fit; values between .05 and .08 suggest reasonable error of approximation and RMSEA  $\geq$  .10 recommends poor fit”. CFI “greater than roughly .90 may indicate reasonably good fit of the researcher’s model” (Kline, 2005) and SRMR value “less than .10 is considered favorable” (Kline, 2005). It is important to note that although Brown (2006) and Kline (2005) recommend reporting several of the same fit indices, their criteria for acceptable fit are different, with Brown (2006) being a bit more conservative.

### **6.13.8 Modification Indices**

Modification indices (MI) are data-driven indicators of changes to the model that are likely to improve model fit. MI is analogous to single DF/  $\chi^2$  tests; therefore, an MI greater than 3.84 (or roughly 4) indicates a change that will probably result in a significant improvement in model fit. MI can propose changes to any aspect of the design, including



adding paths between latent variables, adding ways from latent variables to observed variables not originally specified as indicators of that latent variable, adding error covariance between observed variables, and so forth. MI for covariance suggests adding error covariance either between two errors or between an error and a latent variable. MI for variances suggests adding variances between latent variables. MI for regression weights recommend adding regression paths to the model; for example, suggested paths can be from a latent variable to an observed variable or one observed variable to another. Many of the modifications proposed by the MI may not make sense given theory and prior research; such nonsensical changes should not be done regardless of how large the parameter change would be.

### **6.13.9 Localized Areas of Strain**

Residuals can be examined to classify restricted areas of strain. Standardized residuals greater than 1.96 (for  $p < 0.05$ ) or 2.58 (for  $p < 0.01$ ) may indicate areas of strain. Positive standardized residuals indicate that the model's parameters underestimate the relationship, whereas negative standardized residuals indicate the model's parameters overestimate the relationship.

### **6.13.10 Sample Size for SEM**

Ten samples for every observed variable is considered as very good, seven sample sizes are good, and five is acceptable. It also suggest that , less than 100 samples is considered “small” and 100 to 200 is “medium” greater than 200 is “large” (Kline, 2005). Lee and Song, (2004) stated that produces accurate parameter estimates and reliable goodness of fit test when the ratio of sample size to parameters is 4:1 or 5:1.

### **6.13.11 Reporting of Confirmatory Factor Analysis**

For CFA, the following model fit indices are very important;

- Absolute Fit Indices: GFI, AGFI, (RMR / RMSR)
- Incremental Fit Indices: CFI, TLI, IFI, NFI, NNFI
- Parsimony Fit Indices: RMSEA, PGFI, PCFI, PNFI,
- Modification Indices, Localized Areas of Strain.

All the accepted values of above parameters of Confirmatory Factor Analysis are summarized in the table below.

**Table 18: Confirmatory Factor Analysis**

	<b>Required</b>	<b>Reference</b>
<b>Sample Size</b>	-less than 100 is considered “small” -100 to 200 is “medium” -greater than 200 is “large”,	(Kline, 2005); (Hair et al., 2013)
	When the ratio of sample size to parameters is 4:1 or 5:1. It “produces, accurate parameter estimates and reliable goodness of fit test.”	(Lee and Song, 2004, p. 680)
<b>Estimation Methods</b>		
<b>Normal Data</b>	Maximum likelihood (ML) estimation	
<b>Non-Normal Data</b>	1. Robust ML (MLM) estimator 2. Asymptotically distribution-free (ADF) 3. robust weighted least squares (WLSMV) 4. ULS	(Brown, 2006).
<b>Factor Loadings</b>	(Standardized Regression Weight) Factor loadings As a general rule of thumb, loadings above 0.71 are excellent, 0.63 very good, 0.55 good, 0.45 fair, and 0.32 poor	(Tabachnick and Fidell, 2007)
<b>Model Analysis</b>		
<b>Chi-square (<math>\chi^2</math>) &amp; DF</b>	$\chi^2/df$ or CMIN/df –less than 2 for this value is a very goodfit but less than 3 or 4 is also acceptable	(Kline, 2005); (Hair et al., 2013)
<b>Absolute Fit Indices</b>		
<b>GFI</b>	Goodness-of-fit index, the acceptable value is above 0.80, while above 0.90 means an excellent fit.	(Kline, 2005); (Hair et al., 2013)
<b>AGFI</b>	Adjusted Goodness-of-fit index close to GFI - acceptable value is above 0.80, while above 0.90 means an excellent fit.	
<b>(RMR / RMSR)</b>	Root Mean Square Residual (RMR / RMSR) close to 0.08 or less	
<b>Incremental Fit Indices</b>		
<b>CFI</b>	Comparative Fit Index (CFI) > 0.90 (should be higher than NFI)	
<b>TLI</b>	Tucker Lewis Index TLI close to 0.90 or greater	
<b>IFI,</b>	Incremental Fit Index (IFI) - > 0.90	
<b>NFI</b>	Normed Fit Index (NFI) - > 0.80	
<b>NNFI</b>	Non-Normed Fit Index (NNFI) - > 0.90	
<b>Parsimony Fit Indices</b>		
<b>RMSEA</b>	Root mean square error of approximation RMSEA is less than or equal to 0.06	
<b>PGFI, PCFI, and PNFI</b>	PGFI, PCFI and PNFI: acceptable values are > 0.90	(Kline, 2005); (Hair et al., 2013)
<b>Modification Indices</b>	MI greater than 3.84 (or roughly 4) indicates a change that will probably result in a significant improvement in model fit.	(Kline, 2005); (Hair et al., 2013)
<b>Localized Areas of Strain</b>	Standardized residuals greater than 1.96 (for $p < 0.05$ ) or 2.58 (for $p < 0.01$ ) may indicate areas of strain.	(Kline, 2005); (Hair et al., 2013)

## **6.14 Summary**

In the methodology chapter, we briefly discussed tools and techniques used to prove the stated objective and hypothesis of this research. We also highlighted the theory and importance of statistical procedures, including Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Measurement Modeling Analysis (MMA), Structural Model Analysis, etc. In the next section under heading “Data Analysis and Interpretation,” this study will test the set of hypotheses of this research. It will also analyze all the observed variables to measure the latent variable. With the help of Exploratory Factor Analysis (EFA) we will test the loading of all items of this study and with SEM approach, we will confirm the items for the study with their latent variables. The statistical approach will ensure validity and reliability of all constructs through Cronbach Alpha, Item to Total Correlation, Composite Reliability (CR), Average Variance Extraction (AVE) and Square Root of AVE Analysis. To test preposition of this research, the present study used different statistical techniques such as Person Correlation Coefficient, Simple Regression Multiple Regression, and Factor analysis.

## **CHAPTER – SEVEN**

### **DATA ANALYSIS**

This chapter presents the results from qualitative (focus group discussions) and quantitative analyses (survey). This chapter is organized into two main parts – the first part presents the qualitative analysis and the second part presents the quantitative analysis.

#### **7.1 Qualitative Analysis**

For qualitative analysis, the digitally recorded group discussions were transcribed and then translated into English by the researcher. As Marshall and Rossman (1999) recommend, the main technique for data analysis involves “reading, reading, and reading once more through the data, which forces the researcher to become familiar with those data in intimate ways” (p. 153). Therefore, after re-reading the reports of discussions several times, the emergent themes corresponding to the research questions of this study were spotted and noted down. Then the specific examples of evidence supporting these themes were added to the main analysis.

A long group discussion with young Tajiks showed that they use digital technologies for a variety of activities and there are many factors that influence their behavior and attitudes. Therefore, a variety of themes and ideas were identified concerning the use of digital technology among young people, such as: beginning to use the Internet, mobile phones and social networking, the importance of digital technology in life today, negative and positive aspects of digital technology, freedom in the use of technology, gender roles, the extent of female users of digital technology and its use in the views of Islam. In the section below we present the results of the qualitative study (Focus Group Discussions) on the use of digital technology among young people.

##### **7.1.1 Ages of respondents on the use of Digital Technology**

In regard to respondents age, the result showed that our samples started to use mobile phones around 2006 - 2007 and their use of the Internet started around the years 2009 - 2010.

It means that our respondents were somewhere ages between 8 to 10 years old while they started they use of modern technologies. In terms of gender characteristics, females reported that they started to use digital technologies a few years later. According to Corley and Hook, (2012) when access to the technology has grown some differences have been noted between male and female. It may mean that from early ages females are less attracted to technology. In the case of Tajikistan, as we mentioned in the methodology chapter, since the country is a patriarchal society there are different socio-cultural rules for men and women. For instance, in families the parents pay more attention to the education of boys than girls. Another thing that is very strictly observed in this country is that girls should remain virgins until marriage. Therefore, parents are more restrictive about permitting girls to use mobile phones and the Internet, especially social networks such as Odnoklassniki. Concerning this issue, female respondents commented that their parents and brothers are afraid of these modern technologies, because they think that when they use these services they talk with strangers and so it may impact their dignity. Males, in short, stated that “We don't want our sisters or our future wives talking with strangers.” Even many girls stated that they wanted to be under male control, because according to their thinking “If a man controls you it means that he loves you”. So, this is also a reason pushing men to control their women.

### **7.1.2 The importance of mobile phones and the Internet in the life of young people in Tajikistan**

From the discussion with the participants we found that the use of digital technology such as mobile phones and the Internet has become a significant tool in the lives of young people. Almost all participants reported that after they started to use these digital devices their life became easier, especially student life. Participants also stated that the world in which we live has become digitized, whether we want it or not. We cannot escape it because this digital world will not allow us to live apart from using it. With the development of these technologies almost all human activities are associated with digital devices. In our findings, we report some primary variables that are significant for young people in their use of digital technology. Table 19 summarizes these findings.

### **Table 19: The importance of mobile phones and the Internet**

- Our life became easier
- It facilitates making progress
- We can be in touch with friends and relatives who live abroad
- We can find answers to all our questions on the Internet
- We can find solutions to our problems
- With the use of these digital devices we can save money, time and energy
- With the help of the Internet we can learn more about religion

**Source: Focus group discussion**

Some of the participants' comments related to the importance of mobile phones and the Internet are listed below:

- *“The importance of the internet is that; earth has become like the palm of our hand. Whatever we need, we can find it from the Internet with one click.” (M - 16)*
- *“The internet is more important for students and teachers, specifically for science. It is like air for them.” (M - 6)*
- *“The importance of the Internet is that; whatever we don't know about religion we can find it from the Internet. Because in our society, not everyone has enough knowledge about religion.” (F - 21)*
- *“For us (females) the Internet is more important for women's issues such as: (cooking, type of clothing etc.). The Internet shows and teaches us everything, it has become like a mother for us.” (F - 1)*

#### **7.1.3 The positive and negative aspects of Digital Technology.**

From the discussion of the participants it was found that young people clearly know about many negative and positive aspects of mobile technology and the Internet. Nevertheless, most of them use it in inappropriate ways. There were different ideas among these young people on the negative aspects. Some of the participants commented that the “Tajik people don't know how to use these things and people are still not ready to use these

new digital devices.” One of the participants opined that the reason is because Tajik youth don’t have enough experience in the use of these digital devices. Despite all the negative aspects, the participants also noted some positive aspects of digital technologies. They said that these digital devices have become like teachers for them. “Whenever or whatever we need, we turn for help to these technologies.” Apart from general opinions, the study highlights some specific ideas in the section below, and more detailed aspects shown in Table 20.

- *“If we compare these digital devices with a knife we can see that, with a knife we can cut meat or kill someone. The use of these digital devices is the same. (For example: in Tajikistan, most of the conflicts and misunderstandings start from use of these things, specifically among teenagers).” (M – 6)*
- *“With use of these digital devices our life became easier. We can solve our problems on time and we can send or receive any letter or information quickly and easily.” (M - 17)*
- *“When we read something about women’s rights from another culture or country, such as how to behave with your husband, mother-in-law and so on, then it will influence our behavior, because when we will try to behave in the same way, and sometimes this becomes a reason for conflict, it might even go as far as divorce.” (F - 23)*
- *“Apart from all positive aspects, these digital devices have more negative aspects for females. As the majority of our females do not study or are homemakers, they have more free time. When they start to talk by mobile phone or chat on the Internet, many times their brother or husband will learn about this and it will be a problem for them. In the case of married females most of them will get a divorce.” (F - 24)*

The table below presents the positive and negative aspects of mobile phones and the Internet that were reported by young Tajiks.

**Table 20: Positive and negative aspects of digital technology**

<b>Positive</b>	<b>Negative</b>
<ul style="list-style-type: none"> <li>• Widening people's worldview</li> <li>• Finding necessary information</li> <li>• Finding answers to any question</li> <li>• Finding solutions to every problem</li> <li>• Solving problems in time</li> <li>• Saving money, time and energy</li> <li>• Life becomes easier</li> <li>• Can keep in touch easily</li> <li>• Invite friends and relatives to events</li> <li>• Increasing collectivism</li> <li>• Improving knowledge</li> <li>• Learning different languages</li> <li>• People become more equal</li> </ul>	<ul style="list-style-type: none"> <li>• Effects on health</li> <li>• Watching movies and pictures which are prohibited for young people (porno)</li> <li>• Joining different extremist groups</li> <li>• Increased conflicts between young people<sup>1</sup></li> <li>• Becoming liars</li> <li>• Becoming lazy</li> <li>• After playing games – trying to play in reality.</li> <li>• The number of divorces increased</li> <li>• Using social networks to find a girlfriend/boyfriend among young people<sup>2</sup></li> <li>• Females are more under the control of males</li> <li>• Dependence of these digital devices is like dependence on tobacco</li> <li>• People become nervous</li> <li>• Loss of sleep</li> <li>• Makes people become individualistic</li> <li>• Used while eating (antisocial)</li> </ul>

*Source: Focus Group Discussion*

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<sup>1</sup> Between boys for commenting and liking girls photo, between school boys for playing online games etc.

<sup>2</sup> In Tajikistan, it is implacable to find girlfriend/boyfriend on the Internet. In most families, do not accept the choices, which make their kids on the Internet. Therefore, we consider it as negative aspect.



#### **7.1.4 Freedom towards the use of Mobile Phones and the Internet in Tajikistan**

The result of these discussions showed that young people in Tajikistan still don't have freedom in the use of digital technology such as mobile phones and the Internet. The study found several reasons for this, such as; they are afraid to write down their thoughts, ideas, comments, etc. on the Internet. They are afraid that these things will be harmful to their safety. One of the participants noted that, *we should not give a "like" everywhere. It is dangerous; anything can happen and we are afraid of it (F-23)*. The study found that young people don't have freedom at universities in the use of mobile phones and the Internet. The reason is, according to the universities and schools rules the use of mobile phones and the Internet during class is not allowed. The respondents reported that at home they are freer in the use of the Internet than mobile phones. Regarding this situation, one of the participants explained that *"At home we cannot freely talk by phone near some of the senior members of the family" (M-6)*. The respondents also reported that families who have good religious knowledge will not limit their womenfolk in the use of these digital technologies. One of the participants from the female group stated that *"As our family had a good religious knowledge they never forbid females from using modern technologies, because they know and believe that we use them in appropriate ways" (F- 26)*. In addition, she stated that according to Islamic norms learning new things is obligatory.

#### **7.1.5 Gender roles in the use of Digital Technology.**

In regard to demographic roles the study found that males are freer than females in the use of digital technologies such as mobile phones and the Internet. Females also noted that, they don't want to be free. Almost all participants (males and females) noted that females should not use these digital devices, because they noted that females are truthful and while they adapt to using these digital devices they will lose their faith and become shameful. The respondents from the male group reported that females should not be equal to males in the use of these modern devices. They noted that females can use these technologies but should be under control of a man. Almost all participants strongly disagree with the use of

social networks like “Odnoklassniki”<sup>3</sup>. The respondents reported that in Tajikistan the majority of young people use “Odnoklassniki” to find a girlfriend or boyfriend, and that because of this the number of the quarrels and divorces has increased in their country. Apart from the above perceptions, we recorded some specific views on gender differences in the use of the digital technology among young people;

- *“If someone calls our sisters, we will immediately pay attention to them, wanting to know who is calling and why. Therefore, most of our sisters are afraid and use it secretly.” (M – 3)*
- *“Actually, this is tradition. When a female is not a student or doesn’t work anywhere, we do not allow them to use a mobile phone.” (F - 1)*
- *“The females are truthful, they can easily fall into the trap and then most of the problems and misunderstandings will start in the family. The female who is not studying or doesn’t work should not use it at all.” (M - 5)*
- *“God says that; the female is truthful. How can we not accept this?” (F - 21)*
- *“In case of gender differences, the males should not only control females but should save them from sin. Because since our society is not totally Islamic, therefore there is much depravity. (F - 24)*
- *“There should be differences. Why? Because, the nature of the male will not accept this. Therefore, in the presence of males the females should use these digital devices less.” (F- 26)*

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<sup>3</sup>Odnoklassniki, (OK. ru), is a social network service for classmates and old friends. It is popular in Russia and former Soviet Republics.

### **7.1.6 Why Tajik males impose restrictions on females in the use of modern technology.**

According to the above comments, the respondents reported that most Tajik males are very jealous and they will not trust females who use mobile phones and the Internet. The study found the reason for this is that Tajik males think that females mainly use digital devices to talk with male strangers. Therefore, they don't want this behavior and most of them will not allow their sisters or wives to use these technologies. But, according to the women, the males don't want the females' to have a broader worldview. They think that when females' worldviews become wider or when they know how to use these digital devices, they will start to check their mobile and social network pages and will know about their (males') secrets and so on. Therefore, in most families the use of mobile phones and the Internet is prohibited for females. Despite the jealousy and distrust of males, the majority of females use these technologies secretly. Almost all males, specifically single males, stated that "When we get married we will not allow our wife to use these digital devices." Some selected opinions on this topic are presented below.

- *"As almost all of our population is Muslim, and Muslim men have one thing, "dignity". Their dignity will not allow their sisters and wives talk with male strangers. The main fear of the male is that they don't want their sisters and wives to fall into the trap of these digital devices" (M- 6)*
- *"From my point-of-view, the main reasons are jealousy and distrust. And another reason is that nowadays most young people who get acquainted by mobile phones and on the Internet, will get divorced after few months. My point is that the number of divorces has increased" (M - 14)*
- *"I think the main reason is distrust. They are afraid that when the females learn how to use these digital devices, then they can check their mobile and social pages and will know about their (the males) secrets" (F - 22)*
- *"The main reasons are jealousy and distrust. For example, the son of one of our relatives says that he will marry a girl who doesn't know how to use these digital devices. He said that she should be separated from these technologies" (F - 24)*

From all these views the study lists the main reasons why some Tajik males will not allow their sisters or wives to use digital devices. These reasons are shown in the list below:

- Jealousy and distrust
- They don't want their females to talk with strangers
- They afraid that if the females' worldview becomes wider then they cannot control them
- They don't want to lose the traditions of their ancestors (Which means that females should always be under the control of males)
- The impact of religious norms
- The low educational levels
- The low standard of living
- The number of divorces has increased

The study found that the main reason behind these restrictive attitudes is that young Tajiks are not prepared for the lack of filters and restrictions in using digital technology, and therefore they will face many difficulties and problems.

#### **7.1.7 Numbers of females using digital technology in Tajikistan**

According to the large number of females, the study found that they are not entirely free in the use of the mobile phone and the Internet, specifically married women. Almost all participants noted that females could use these modern technologies, but under the control of males. The study found that few females do not agree to being under control, but they didn't show strong disagreement either. Some of the males agree with the use of the Internet and simple mobile phones, but they totally disagree with females using social networks and smartphones. Almost all participants think that when a female who is not a student or a homemaker has more free time and doesn't know what to do they will be bored, and so if a stranger call or writes to them they will be open to a relationship. This will become the main reason for conflict and divorce in the family. In the male view, females who become students and move to the big cities should use a simple mobile phone to stay in touch with their families. But if she is not a student or married then she shouldn't use these technologies at

any time in her life. In short, as in many other Muslim societies, there is a stereotypical view of women as sexual creatures that are unable to resist sexual temptation. Selected comments on the percentage of females using mobile phones and the Internet showing the restrictions on females in the use of these digital tools are seen in the comments below:

- *“The females must be under control, because the heart of the females is sensitive and the females like to hear more compliments from males. If some male stranger makes more good compliments than her husband or boyfriend by SMS or in the chatroom, it will easily influence the females’ behavior and attitude. Therefore, the females must be under control in the use of these digital devices. When I marry, before using these things I will ask my husband” (F - 1)*
- *“The females should use the Internet, but why should she use social networks like “Odnoklassniki”? Usually people use social networks to find friends. But why does a female who is married need a friend? Her husband is her friend. There is no friendship between males and females. From tradition is a saying that “the female has long hair and short mind”. Another thing is that when females use these digital devices, specifically social networks without the permission of her husband, it will be considered as treason.” (M - 6)*
- *“The females should use a simple mobile phone just to make calls, but not the Internet. They should not use smartphones which allow them to connect to the internet” (M - 15)*
- *“The females who are single or married should talk on a mobile phone in the presence of the senior person (female) in the family when her husband is not at home” (M - 9)*
- *“The females whose husband is a labor migrant or working abroad should talk by mobile with her husband in the presence of the mother-in-law. Because when their husbands are absent, if they use a mobile phone or the Internet they may start to talk with some stranger, then it will become a problem for them.” (M - 10)*

- *“The married females should not use these digital devices. The reason is that when some male stranger says more good words than her husband does, then she will begin to talk with him and then when her husband finds out about this it will be the reason for conflicts and divorces” (F - 21)*

### **7.1.8 The Influence of religion on the use of digital technology.**

From the comments of the participants it was clear that in their view the use of digital technology is allowed in Islam and not prohibited. But some of its representatives, or mullahs, in Tajikistan are against it. In this regards, participants stated that not all mullahs in Tajikistan have a good religious knowledge especially about Islam. Therefore, by restricting use of the new things such as utilizing of digital technology they wish to become famous among the people. For instance, they say that use of digital technology is prohibited for female, which is majority of males are support their thought. The participants reported that in Islam watching pornography, chatting with strangers on the Internet or talking with strangers by mobile phone before (Nikah) “engagement” is prohibited and considered as sinful. In case of married people, it is the same thing. But, as was stated by the participants, if people use these digital devices for study or work purposes Islam allows it. *Islam says that a person should learn from birth till death (F-26)*. The respondents stated that in Islam there is no difference between males and females in the use of digital technology. Some of the participants commented as follows:

- *“Islam never prohibits it when the males and females use these digital devices for their benefit. But, if their use brings harm to them or to society, then Islam is totally against the use of these devices. In general, Islam says the learning of science is the responsibility of everyone” (M - 4)*
- *“Islam exhorts its followers to learn, and to use new equipment and technology to improve their knowledge” (M - 6)*

- *“Islam is not against these things. But we should not forget that when we open websites, on most of them the first thing we see are ads for porno pictures or videos. From that fact one can be certain that females should not use the Internet, because they will lose their faith and become shamed. That is an important thing for Muslim females.” (M - 17)*
- *“From the point-of-view of Islam, the use of these digital devices is not prohibited. There is no any Hadith or Ayat in the Quran about this. Our prophet says “that science is obligated to each Muslim,” but he doesn’t say how to learn or the way of the learning. The main issue is to learn the things which are of benefit to us or society. Islam advocates these new things, because with help of these new technologies it is easy to learn. Many materials or books are in the Arabic language, and with the help of the internet we can translate and study them” (F - 26).*
- *“Islam will not prohibit these, but the representatives of Islam prohibit them. They have negative thoughts about females who use the Internet or mobile phone” (F - 23).*

In addition to the above comments, the study found that young people in Tajikistan don’t have much knowledge about Islam, although almost 90% of the population is Muslim. The study found that females consider the rules of Islam while they use digital technology more than males do. Most of the males use the name of Islam to limit females in their use of these digital devices. Some of the participants were from the Islamic University, and one of them commented that the main reason why some of the males will not allow their sisters and wives to use these technologies is that when they go to the mosque for prayer if they hear anything related to females they accept it very quickly. Then they come home and will not allow their sisters and wives to do that thing. Another participant (female) noted that in Tajikistan it is common to believe in a mullah’s words more than those of a scientist.

### 7.1.9 Discussion and conclusion

From the above discussion, it shows that the use of digital technology such as mobile phones and the Internet is quite widespread among young people in Tajikistan. Following the rapid growth in the use of mobile phones and the Internet among young people the majority of them use digital devices in inappropriate ways. The participants noted that the reason for the improper use of digital technology is that young people still don't know how to use these new technologies. Digital devices are mainly used by young people to listen to music, to watch movies or to chat with friends and the opposite sex. A small percentage of young people use these digital devices for learning purposes or to improve their knowledge, etc.

The majority of young people use these digital devices, especially mobile phones to connect to the social networks such as "Odnoklassniki," which in many cases becomes a reason for conflicts and misunderstanding between youth<sup>4</sup>. This is the most popular social network in Russia and Central Asian countries, and in many cases its use has led to divorce in numerous families. The study found that in most families nowadays, if parents or other member of the family learn that their daughters or wives are using this social network then negative thoughts immediately come to mind. They think that females use this social network only to make new acquaintances. Related to this issue the study found that families who are more traditional, do not have good education nor a good standard of living will limit their females in the use of digital devices. In contrast, the study also found that families who have a wider worldviews and good religious knowledge do not have the same problem.

The study found that females are guided more by religion than males in their use of digital technology. In many cases males are freer than females in the use of digital technology. The result of the discussion showed that many Tajik males use Islamic sayings to restrict females in their use of digital devices. This limitation is more related to married women.

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<sup>4</sup> In Tajikistan, the majority of young people use Odnoklassniki for chatting with friends and to find boyfriend and girlfriend. But, in many cases because putting like or comments under girl's photos they do conflicts.



## **7.2 Quantitative Analysis**

### **7.2.1 Introduction**

This chapter presents the results of the survey analysis. In the first phase this section provides the result of descriptive analysis regarding the age of participants when they started to use digital technology, their frequency of digital technology use (e.g. the Internet, mobile phones, and social networks), the importance of digital technology in life today (see sections 7.2.2 to 7.2.2.8). This chapter also presents the results of the EFA, CFA, and SEM path analyses (section 6.3).

The present study analyzed two measurement models based on gender discrimination and the role of associated factors in the use of digital technology. The first measurement model was tested with female respondents and the second test with male respondents. The main objective of testing two different models is to neutralized the gender influence in the formulation and validation of measurement models, and considering the theoretical assumption of the study. In the first phase, the Exploratory Factor Analysis (EFA) has been done for data reduction or structure detection method. In the second phase, the study did Structural Equation Modeling (SEM) to test measurement models (Confirmatory Factor Analysis), i.e., relationships among indicators and latent variables and to examine the structural model of the relationships among latent variables. According to all parameters of the SEM, the female and male models both fit well. For testing tentative sets of hypotheses, the researcher used Statistical Package for Social Science (SPSS-21) and AMOS-21. The following sections will discuss the techniques and results of the analysis.

### **7.2.2 Descriptive analysis**

The present section will provide general information about the age of young people when they started to use mobile phones, the Internet and other modern technologies. This section also reports information about the frequency of use and the importance of these modern technologies in the lives of young people. Tables 21 to 28 illustrate the responses on the age of the samples when they started the use of digital technologies, the frequency of use

of mobile phones, the Internet and social networks with digital devices, and the importance of digital technologies in the life of young people.

### 7.2.2.1 Age of Mobile Phone Users

Regarding age, the majority of the respondents (female 68 %, male 64%) reported that they started using mobile phones between 16 to 20 years-old. Male respondents reported that 23.5% of them started to use mobile phones between 11-15 years-old, while females in this age reported 11.6%. Females between 21-25 years-old (14%) reported that they started to use this device a bit later than males of this age (7.7%). The results show that females started using mobile phones a bit later than males.

**Table 21: When did you start to use a Mobile Phone?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
<b>From 10 years-old</b>	5	1,2%	13	3.6%
<b>11 to 15 years-old</b>	49	11,6%	85	23.5%
<b>16 to 20 years-old</b>	287	68,0%	232	64.1%
<b>21 to 25 years-old</b>	59	14,0%	28	7.7%
<b>26 to 30 years-old</b>	22	5,2%	4	1.1%
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### 7.2.2.2 Age at first using the Internet

Related the use of the Internet the majority of respondents, both females and males (62%), reported that they started using the Internet between 16 to 20 years-old. The male respondents reported that 16.6% of them started using the Internet between 11-15 years-old, while females of this age range were lower at 7.3%. Males reported that 16.6% of them only started using the Internet between 21-25 years old, compared to 21.3% of females in this age

range. The reason is that majority of the young people come from the rural areas and villages where they don't have a wide access to the internet. Another reason is that in the big cities young males can go anytime to the internet coffees while females cannot. These issues can be the reasons for late starting use of the modern technologies for young females. On the other hand, as we mentioned in the chapter two, Tajikistan is a patriarchal country where men's have more freedom than female do. Therefore, females started the use on the Internet a bit latter.

**Table 22: When did you start using the Internet?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
<b>from 10 years-old</b>	1	0.2%	6	1.7%
<b>11 to 15 years-old</b>	31	7.3%	60	16.6%
<b>16 to 20 years-old</b>	262	62.1%	227	62.7%
<b>21 to 25 years-old</b>	90	21.3%	60	16.6%
<b>26 to 30 years-old</b>	38	9.0%	9	2.5%
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### 7.2.2.3 Frequency of Mobile Phone Use

Regarding the frequency of mobile phone use, the result shows that the majority of the respondents (females 27.5% and males 27.9%) use their mobile phones every hour. In terms of duration, 23% of females and 22.4% of males reported that they use a mobile phone 1 to 3 hours per day. In addition, 18.2% of females and 15.7% of males reported that they use a mobile phone more than 3hours per day.

**Table 23: How often do you use a Mobile Phone?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
A few times a month	21	5.0%	5	1.4%
A few times a week	33	7.8%	40	11.0%
More than 3 hours per day	77	18.2%	57	15.7%
1 to 3 hours per day	97	23.0%	81	22.4%
Less than 1 hour per day	78	18.5%	78	21.5%
Every hour	116	27.5%	101	27.9%
Total	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

#### 7.2.2.4 Frequency of Using the Internet

Regarding the frequency of Internet use, the result showed that the majority of respondents (26.3% female and 24.3% male) use the Internet a few times a week. In terms of duration, 19% of females and 22.1% of males reported that they use the Internet 1 to 3 hours per day. As well, 15.9% of females and 17.1% of males reported that they use the Internet less than 1 hour per day. In general, the result shows that young people in Tajikistan do not have wide access to the Internet.

**Table 24: How often do you use the Internet?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
A few times a month	75	17.8%	32	8.8%
A few times a week	111	26.3%	88	24.3%
More than 3 hours per day	43	10.2%	43	11.9%
1 to 3 hours per day	80	19.0%	80	22.1%
Less than 1 hour per day	67	15.9%	62	17.1%
Every hour	46	10.9%	57	15.7%
Total	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### 7.2.2.5 Use of a Social Network (Odnoklassniki)

Regarding the use of a social network (Odnoklassniki<sup>5</sup>) the result of the descriptive statistics showed that majority of the respondents started to use Odnoklassniki between 16 to 18 years-old. In general, the result shows that females in almost all age ranges started to use Odnoklassniki later than males. Even so, 27.3% of the females reported that they don't use the Odnoklassniki social network at all.

**Table 25: When did you start to use Odnoklassniki?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
<b>16-18 years-old</b>	113	26.8%	180	49.7%
<b>19 - 21 years-old</b>	114	27%	96	26.5%
<b>22-24 years-old</b>	40	9.5%	36	9.9%
<b>25-27 year-old</b>	17	4.0%	13	3.6%
<b>28-30 years-old</b>	23	5.5%	3	0.8%
<b>Never used</b>	115	27.3%	34	9.4%
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### 7.2.2.6 Use of the Facebook Social Networking Service

Regarding the use of the Facebook social networking service, the majority of respondents (females 58% and males 49.4%) reported that they don't use Facebook. In general, the result of the descriptive statistics shows that both females and males do not use Facebook very much.

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<sup>5</sup>Odnoklassniki – OK.ru is a social network service in Russia and post-soviet countries.

**Table 26: When did you start to use Facebook?**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
<b>16-18 years-old</b>	57	13.5%	73	20.2%
<b>19 - 21 years-old</b>	53	12.6%	66	18.2%
<b>22-24 years-old</b>	38	9.0%	30	8.3%
<b>25-27 years-old</b>	14	3.3%	10	2.8%
<b>28-30 years-old</b>	15	3.6%	4	1.1%
<b>Never used</b>	245	58.0%	179	49.4%
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

#### 7.2.2.7 Importance of Mobile Phones

The majority of the respondents (females 41.7% and males 42.5) reported the mobile phone is an important device in their life. Next, 38.6% females and 32.6% males reported the mobile phone as very important for them. Following 11.8% females and 13.8% males were neutral. A small percentage (2 to 8 %) of the respondents reported the mobile phone as having low or no importance.

**Table 27: Importance of the Mobile Phone in your Life**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
<b>Not important</b>	10	2,4	11	3,0
<b>Low importance</b>	23	5,5	29	8,0
<b>Neutral</b>	50	11,8	50	13,8
<b>Important</b>	176	41,7	154	42,5
<b>Very important</b>	163	38,6	118	32,6
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### 7.2.2.8 Importance of the Internet

The majority of the respondents (females 40.3% and males 37.6%) reported that the Internet provides an important information service in their life. Next, 30.1% of females and 35.9% of males reported that the Internet is very important for them. Following this, 17.8% of females and 16% of males showed neutrality. A small percentage (3 to 7%) of the respondents reported the Internet importance as low or not important.

**Table 28: Importance of the Internet in your life**

Valid	Female		Male	
	Frequency	Percent	Frequency	Percent
Not important	20	4,7	11	3,0
Low importance	30	7,1	27	7,5
Neutral	75	17,8	58	16,0
Important	170	40,3	136	37,6
Very important	127	30,1	130	35,9
<b>Total</b>	<b>422</b>	<b>100,0%</b>	<b>362</b>	<b>100%</b>

### **7.2.3 Descriptive Analysis of the Measurement Model**

In the first phase the researcher checked the absolute value of Skewness and Kurtosis. According to expert recommendations, absolute values of Skewness greater than 3.0 indicate the distribution is extremely skewed, absolute values of Kurtosis greater than 10.0 suggest a problem, and values greater than 20.0 indicate a potentially serious problem with kurtosis (Kline, 2005). For this study, the absolute value of Skewness and Kurtosis showed no single variables with an absolute value of Skewness greater than 3 and Kurtosis greater than 10 for both female and male models. Therefore, based on the recommended expert criteria there is no concern regarding normality in the measurement models (Kline, 2005). Appendices A - B show the mean, median, standard deviation (SD), and Skewness and Kurtosis.

#### **7.2.3.1 Confirmatory Factor Analysis**

The testing of the measurement model is the crucial stage in the development and analysis measures. Given the importance of measurement model testing, the current study tests latent and observed variables to understand the affecting variables in the use of digital technology. The measurement model tests twelve latent variables in the female model and eleven latent variables in the male model. As was noted in the previous section, in the female model we add one more latent variable, gender control, in order to gauge the perception of young females according to their control by family. The twelve latent variables are as follows; Use of Mobile (UOM), Use of the Internet (UOI), Use of Social Network (UOSN), Religious Coping (RC), Religious Altruism (RAL), Religious Enrichment (REN), Attitude (ATT), Peer Group Influence (PGI), Lifestyle (LS), Free Access (FA), Product Innovation (INN), and Gender Control (GC). The section below will provide the results from both samples.

The first form of measurement model showed the correlation between all latent variables for female model ranges from (UOM - GC) 0.004 to (UOI - UOM) 0.756, and for male model ranges from (FA - RAL) 0.002 to (UOI - UOM) 0.759, and these correlations suggest that latent variables are associated and still fit the rule of discriminant validity, as no correlation value between two different construct values reached over .85 (Brown, 2006).



The loadings for all 130 observed variables in female model ranged from (GC2) .993 to (UOI20) 0.057, and in male models ranged from (UOSN7) 0.835 to (ATT11) 0.09 (see Appendices C-D). The indicator recommended that this study needed to drop items if the factor loading is less than .5, as this is considered poor loading. All loadings and correlations between latent variables are significant ( $p < 0.05$ ). Using the norms (Tabachnick and Fidell, 2007), after deleting items with the CFA guidelines, all factor loadings are considered very good to excellent, and all indicator variables significantly load on the expected latent variables.

In the first phase of the measurement model test, the researcher achieved model fit indices for females such as CMIN/DF= 2.86, GFI = .658, CFI = .713, NFI= .694, IFI= .709, TLI= .718, and RMSEA = .060, and for males CMIN/DF= 1.99, GFI = .555, CFI = .624, NFI= .457, IFI= .627, TLI= .615, and RMSEA = .053. Considering all these values the model is an acceptable fit, but there is still scope to improve the model fit indices (Hair et al., 2013).

After testing the first form of the measurement model, the modification indices (MI) showed there was room for improvement of the measurement model as the (MI) estimates suggested some changes in the model and in the analysis of series of the CFA model. This study implements all changes that can improve the measurement models and researcher retested the models after implementing the one-to-one modification parameter. We add the covariance between two observed variables with the MI guidelines. Ultimately, as the testing series of the measurement model showed there was no change in some factor loadings it indicates poor factor loading. Items that showed a poor factor loading of less than 0.500, were excluded from further confirmatory factor analysis – 74 from the female model and 81 items from the male model (see Appendices E-F).

According to all experts recommendation the present study achieved a fairly good model fit indices (see Table No. 31 and 32 for more details). The correlations between all latent variables for females ranged from (GC - LS) 0.005 to (UOI - UOM) 0.646, and for males ranged from (INN - RC) 0.001 to (RC - REN) 0.771, (see Appendices G-H) and these correlations suggest that latent variables are associated and still fit within the norms of discriminant validity (Brown, 2006).

The loadings for all fifty-six observed variables for females' range from (GC2) 0,993 to (UOI7) 0,507, and for males all forty-nine observed variables range from (OUI11) 0.859 to (LS12) 0.515. All loadings and correlations between latent variables are significant ( $p < 0.05$ ). With the standard statistical values of acceptance of measurement model with the guideline of Tabachnick and Fidell, (2007), all factor loadings are considered very good to excellent, and all indicators variables significantly load on the expected latent variables. In the final measurement model this study achieved good model fit indices for females, such as CMIN/DF = 1.881, GFI = .824, NFI = .831, IFI = .931, CFI = .912, TLI = .901, RMSEA = .046, and for males CMIN/DF = 1.536, GFI = .847, NFI = .826, IFI = .932, CFI = .931, TLI = .924, RMSEA = .039. Considering the recommendation of (Kline, 2005; Hair et al., 2013), for assessing acceptable model fit criteria (**CMIN/DF < 2, GFI > .80, NFI > .80, IFI > .90, CFI > .90, TLI > .90, RMSEA < .06**); we can state that the present measurement model is a good acceptable fit.

## **7.2.4 Assessment of Reliability and Validity**

### **7.2.4.1 Assessment of Reliability**

Reliability is the consistency of measurements. The advantage of valuation reliability is that it is based on estimates of model parameters. Earlier in this study we computed Cronbach's Alpha to measure the internal consistency "reliability" of the constructs. The results for this study showed that the Cronbach's Alpha for all constructs is greater than 0.7, which falls into the range of good reliability (Churchill, 1979). To determine the reliability of the constructs in confirmatory factor analysis the composite reliability (CR) and average variance extracted (AVE) values were calculated. Reliability is acceptable if the composite reliability value exceeds 0.70 and AVE is not less than 0.50 (Fornell and Larcker, 1981). For this study the results showed that all constructs had acceptable values of CR and AVE greater than 0.5 and 0.7, as recommended by the experts (Fornell and Larcker, 1981) (see Table 29 - 30).

**Table 29: Measurement Model for Females**

<b>Results of the Measurement Model for Final Study (Female)</b>				
<b>Constructs and Indicators</b>	<b>Std. Regression wt.</b>	<b><math>\alpha</math> Cronbach h</b>	<b>CR</b>	<b>AVE</b>
<b>Use of Mobile</b>		<b>.800</b>	<b>0.802</b>	<b>0.550</b>
Using mobile phone during class or work time	0,582			
Search for information with a mobile phone	0,785			
Use apps (for any purpose) on a mobile phone	0,647			
Check the news on a mobile phone	0,648			
Browse the web on a mobile phone	0,675			
<b>Use of Internet</b>		<b>.759</b>	<b>0.763</b>	<b>0.554</b>
Seeking information linked job	0,507			
Seeking local news	0,715			
Seeking international news.	0,827			
Improving knowledge and refine skills	0,603			
<b>Use of Social Network</b>		<b>.959</b>	<b>0.958</b>	<b>0.694</b>
Click “Like” to a posting, photo, etc.	0,839			
Comment on postings, status updates, photos, etc.	0,836			
Read postings	0,911			
Browse profiles and photos	0,894			
Post photos	0,866			
Post status updates	0,876			
Check Facebook and Odnoklassniki at work or school	0,702			
Check your Odnoklassniki page from your smartphone	0,857			
Check your Facebook page from your smartphone	0,697			
Check your Facebook and Odnoklassniki page or other social networks	0,826			
<b>Attitude</b>		<b>.735</b>	<b>0.751</b>	<b>0.511</b>
I think it is important to keep up with the latest trends in technology	0,577			

I feel it is important to be able to access the Internet anytime I want.	0,894
I feel it is important to be able to find any information whenever I want online	0,632

<b>Gender Control</b>	<b>.965</b>	<b>0.967</b>	<b>0.908</b>
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To what extent was the control over Social networks (Odnoklassniki, Facebook or other) use by your husband?	0,924
To what extent was the control over Internet site use by your husband?	0,993
To what extent is the control over mobile phone use by your husband?	0,940

<b>Life Style</b>	<b>.769</b>	<b>0.777</b>	<b>0.542</b>
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I would be happier if I could afford to buy more things	0,843
I wouldn't be any happier if I owned nicer things	0,731
Buying things gives me a lot of pleasure	0,617

<b>Free Access</b>	<b>.755</b>	<b>0.757</b>	<b>0.510</b>
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Playing games	0,715
Buy product online (clothes/fashion, electronics)	0,678
Watch online movies	0,747

<b>Product Innovation</b>	<b>.825</b>	<b>0.831</b>	<b>0.624</b>
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I like new and different styles	0,723
I like a great deal of variety	0,898
I like to try different things	0,736

<b>Peer group Influence</b>	<b>.786</b>	<b>0.799</b>	<b>0.503</b>
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I can think of at least two people whom I have told about some products/brands in the last six months	0,527
I feel that, I am generally regarded by my friends and neighbors as a good source of advice about products/brands	0,789
My friends come to me more often than I go to them for information about products/brands	0,752

My friends and neighbors often ask my advice about some of products/brands they plan to buy 0,740

**Religious Coping** **.891** **0.883** **0.525**

I pray because I find it satisfying 0,622  
 When I face a problem in life, I read the Holy Quran to find consolation 0,720  
 I pray because if I do not, Allah will disapprove of me 0,530  
 I read the Holy Quran because I would feel guilty if I did not 0,778  
 I read the Holy Quran because I find it satisfying 0,846  
 I read the Holy Quran because I feel that Allah is talking to me when I do that 0,832  
 Except in prayers, how often do you read or listen to the Holy Quran? 0,691

**Religious Enrichment** **.860** **0.858** **0.504**

Read Prophet’s Sayings 0,787  
 Try to learn by heart some Koranic verses 0,728  
 Recite some Koranic verses when beginning work 0,750  
 Read/Listen to Prophets’ biography 0,726  
 Read/ listen to Koran 0,673  
 Watch, listen or attendant in the religious meeting 0,575

**Religious Altruism** **.821** **0.823** **0.587**

Tolerate others for God’s sake 0,649  
 Give away Charity as religious duty 0,748  
 Advise others to do good and avoid sin 0,813  
 Care about neighbors and their wellbeing 0,740  
 Prefer to deal with people whose religious commitment high 0,597

\*CR= Composite Reliability, AVE= Average Variance Extracted

Use of Mobile (UOM), Use of the Internet (UOI), Use of Social Network (UOSN), Religious Coping (RC), Religious Altruism (RAL), Religious Enrichment (REN), Attitude (ATT), Peer Group Influence (PGI), Lifestyle (LS), Free Access (FA), Product Innovation (INN), and Gender Control (GC)

**Table 30: Measurement Model for Males**

<b>Results of the Measurement Model for Final Study (Male)</b>				
<b>Constructs and Indicators</b>	<b>Std. Regression wt.</b>	<b><math>\alpha</math> Cronbach</b>	<b>CR</b>	<b>AVE</b>
<b>Use of Mobile</b>		<b>.713</b>	<b>0.725</b>	<b>0.565</b>
Connect to the social networks on a mobile phone	,750			
Search for information with a mobile phone	,504			
Use apps (for any purpose) on a mobile phone	,527			
<b>Use of Internet</b>		<b>.815</b>	<b>0.822</b>	<b>0.542</b>
Individually learn about religion	,697			
Online reading Quran	,795			
Online reading books	,560			
Online listening Quran	,859			
<b>Use of Social Network</b>		<b>.911</b>	<b>0.908</b>	<b>0.586</b>
Comment on postings, status updates, photos, etc.	,762			
Read postings	,858			
Browse profiles and photos	,853			
Post photos	,784			
Post status updates	,739			
Check your Odnoklassniki page from your Smartphone	,678			
Check your Facebook and Odnoklassniki page or other social networks	,661			
<b>Attitude</b>		<b>.770</b>	<b>0.774</b>	<b>0.535</b>
I think it is important to keep up with the latest trends in technology	,652			
I feel it is important to be able to access the Internet any time I want	,827			
I feel it is important to be able to find any information whenever I want online	,705			
<b>Life Style</b>		<b>.716</b>	<b>0.788</b>	<b>0.559</b>
I have all the things I really need to enjoy life	,515			
Buying things gives me a lot of pleasure	,683			

I like to own things that impress people	,531			
I would be happier if I could afford to buy more things	,649			
<b>Free Access</b>		<b>.742</b>	<b>0.746</b>	<b>0.598</b>
Playing games	,629			
Buy product online (cloths/fashion, electronics)	,663			
Watch online movies	,811			
<b>Product Innovation</b>		<b>.838</b>	<b>0.839</b>	<b>0.635</b>
I like new and different styles	,782			
I like a great deal of variety	,810			
I like to try different things	,798			
<b>Peer group Influence</b>		<b>.796</b>	<b>0.798</b>	<b>0.599</b>
I feel that, I am generally regarded by my friends and neighbors as a good source of advice about products/brands	,673			
My friends come to me more often than I go to them for information about products/brands	,775			
I sometimes influence the types of products/brands my friends buy	,661			
My friends and neighbors often ask my advice about some of products/brands they plan to buy	,710			
<b>Religious Coping</b>		<b>.856</b>	<b>0.849</b>	<b>0.529</b>
How often do you go to Mosque?	,718			
I read the Holy Qur'an because I would feel guilty if I did not	,704			
Except in prayers, how often do you engage in d'iker or tasbih?	,774			
When I face a problem in life, I will try to find solution from the Internet	,743			
How often do you pray?	,696			
<b>Religious Enrichment</b>		<b>.900</b>	<b>0.901</b>	<b>0.565</b>
Enjoy listening to Koran	,704			
Ask for advice or read religious books in order to clarify matters in my life	,756			
Weekly time watch/read/listen to religion	,753			

Read Prophet's Sayings	,748
Try to learn by heart some Koranic verses	,785
Recite some Koranic verses when beginning work	,777
Read/Listen to Prophets' biography	,736

<b>Religious Altruism</b>	<b>.870</b>	<b>0.871</b>	<b>0.532</b>
---------------------------	-------------	--------------	--------------

Help people in their difficulties for God's sake	,664
Tolerate others for God's sake	,781
Give away Charity as religious duty	,785
Advise others to do good and avoid sin	,770
Care about neighbors and their wellbeing	,728
Prefer to deal with people whose religious commitment high	,633

**\*CR= Composite Reliability, AVE= Average Variance Extracted**

Use of Mobile (UOM), Use of the Internet (UOI), Use of Social Network (UOSN), Religious Coping (RC), Religious Altruism (RAL), Religious Enrichment (REN), Attitude (ATT), Peer Group Influence (PGI), Lifestyle (LS), Free Access (FA), Product Innovation (INN).



#### **7.2.4.2 Assessment of Validity**

Validity refers to how well an instrument measures the particular concept it purports to measure. In other words, validity is concerned with whether we measure the right concept (Sekaran and Bougie, 2009). The scale used for this study has high face validity as all the measurement items have been developed based on a careful review of the available literature (Hair et al., 2013). The content validity of the measures and questionnaire were assessed through examination by experts in the area. Primary changes were made to clarify or delete some statements according to recommendations or comments from the experts (Kidader and Judd, 1986).

The construct validity consists of convergent and divergent validation. Concerning the convergent validation, we analyzed Item-to-Total Correlations between the same construct. It showed high correlations (greater than .8) between the same construct items. The divergent validation was carried out through correlation between different construct items and it showed low correlation (less than .6) between different construct items (Bagozzi et al., 1991). The convergent validity is acceptable, as all the item loadings exceed 0.60 (Hair et al., 2013). The scale showing discriminate validity of the latent variables shows the value of correlation coefficient amongst all latent variables is less than .85 (Harrington, 2009), and it is also verified through correlation between different construct items (less than .6).

To examine discriminant validity, we also compared the shared variances between constructs with the AVE values of the individual reflective constructs. As shown in the “Correlation matrix and discriminant validity assessment” tables (Correlation and Squared roots of the AVE) below, the diagonal contains the square root of the AVE values of our constructs. All the AVE values exceeded those of the off-diagonal elements in the corresponding rows and columns, satisfying discriminant validity, and we can say that Square root of AVE is greater than the inter-construct correlations (Hair et al., 2013). Tables 24 and 25 illustrate the validity of the measurement model for both models.

**Table 31: Validity of the measurement model for Females**

<b>Correlation and Squared roots of the AVE for Females</b>														
	<b>CR</b>	<b>AVE</b>	<b>UOI</b>	<b>UOSN</b>	<b>GC</b>	<b>LS</b>	<b>FA</b>	<b>INN</b>	<b>PGI</b>	<b>RC</b>	<b>REN</b>	<b>ATT</b>	<b>RAL</b>	<b>UOM</b>
<b>UOI</b>	<b>0.763</b>	<b>0.554</b>	0.674											
<b>UOSN</b>	<b>0.958</b>	<b>0.694</b>	0.209	0.833										
<b>GC</b>	<b>0.967</b>	<b>0.908</b>	0.021	0.119	0.953									
<b>LS</b>	<b>0.777</b>	<b>0.542</b>	0.131	0.130	0.005	0.736								
<b>FA</b>	<b>0.757</b>	<b>0.510</b>	0.217	0.191	0.027	0.070	0.714							
<b>INN</b>	<b>0.831</b>	<b>0.624</b>	0.275	0.208	0.115	0.287	0.248	0.790						
<b>PGI</b>	<b>0.799</b>	<b>0.503</b>	0.303	0.156	0.015	0.304	0.199	0.459	0.709					
<b>RC</b>	<b>0.883</b>	<b>0.525</b>	0.129	0.038	0.029	0.003	0.066	0.041	0.050	0.725				
<b>REN</b>	<b>0.858</b>	<b>0.504</b>	0.240	0.040	0.001	0.000	0.036	0.084	0.094	0.637	0.710			
<b>ATT</b>	<b>0.751</b>	<b>0.511</b>	0.195	0.224	0.061	0.312	0.183	0.208	0.036	0.125	0.099	0.715		
<b>RAL</b>	<b>0.823</b>	<b>0.587</b>	0.192	0.016	0.013	0.055	0.039	0.254	0.201	0.392	0.645	0.147	0.698	
<b>UOM</b>	<b>0.802</b>	<b>0.550</b>	0.646	0.303	0.040	0.190	0.226	0.213	0.268	0.020	0.010	0.153	0.027	0.671

\*CR= Composite Reliability, AVE= Average Variance Extracted; UOI = Use of Internet; UOSN = Use of Social Network;  
 GC = Gender Control; LS = Lifestyle; FA = Free Access; INN = Product Innovation; PGI = Peer Group Influence;  
 RC = Religious Coping; REN = Religious Enrichment; ATT = Attitude; RAL = Religious Altruism; UOM = Use of Mobile.

**Table 32: Validity of the measurement model for Males**

<b>Correlation and Squared roots of the AVE for Males</b>													
	<b>CR</b>	<b>AVE</b>	<b>FA</b>	<b>LS</b>	<b>ATT</b>	<b>PGI</b>	<b>INN</b>	<b>REN</b>	<b>UOI</b>	<b>UOM</b>	<b>UOSN</b>	<b>RC</b>	<b>RAL</b>
<b>FA</b>	<b>0.746</b>	<b>0.598</b>	0.705										
<b>LS</b>	<b>0.788</b>	<b>0.559</b>	0.361	0.699									
<b>ATT</b>	<b>0.774</b>	<b>0.535</b>	0.173	0.118	0.732								
<b>PGI</b>	<b>0.798</b>	<b>0.599</b>	0.314	0.437	0.094	0.706							
<b>INN</b>	<b>0.839</b>	<b>0.635</b>	0.379	0.685	0.074	0.495	0.797						
<b>REN</b>	<b>0.901</b>	<b>0.565</b>	0.012	0.236	0.076	0.203	0.018	0.752					
<b>UOI</b>	<b>0.822</b>	<b>0.542</b>	0.303	0.107	0.110	0.100	0.038	0.467	0.736				
<b>UOM</b>	<b>0.725</b>	<b>0.565</b>	0.376	0.313	0.264	0.381	0.387	0.083	0.253	0.604			
<b>UOSN</b>	<b>0.908</b>	<b>0.586</b>	0.357	0.262	0.063	0.289	0.369	0.086	0.095	0.585	0.765		
<b>RC</b>	<b>0.849</b>	<b>0.529</b>	0.014	0.142	0.015	0.188	0.001	0.771	0.535	0.081	0.129	0.728	
<b>RAL</b>	<b>0.871</b>	<b>0.532</b>	0.012	0.210	0.130	0.213	0.070	0.659	0.314	0.179	0.098	0.515	0.729

\*CR= Composite Reliability, AVE= Average Variance Extracted; FA = Free Access; LS = Lifestyle; ATT = Attitude;  
 PGI = Peer Group Influence; INN = Product Innovation; REN = Religious Enrichment; UOI = Use of Internet;  
 UOM = Use of Mobile; UOSN = Use of Social Network; RC = Religious Coping; RAL = Religious Altruism.

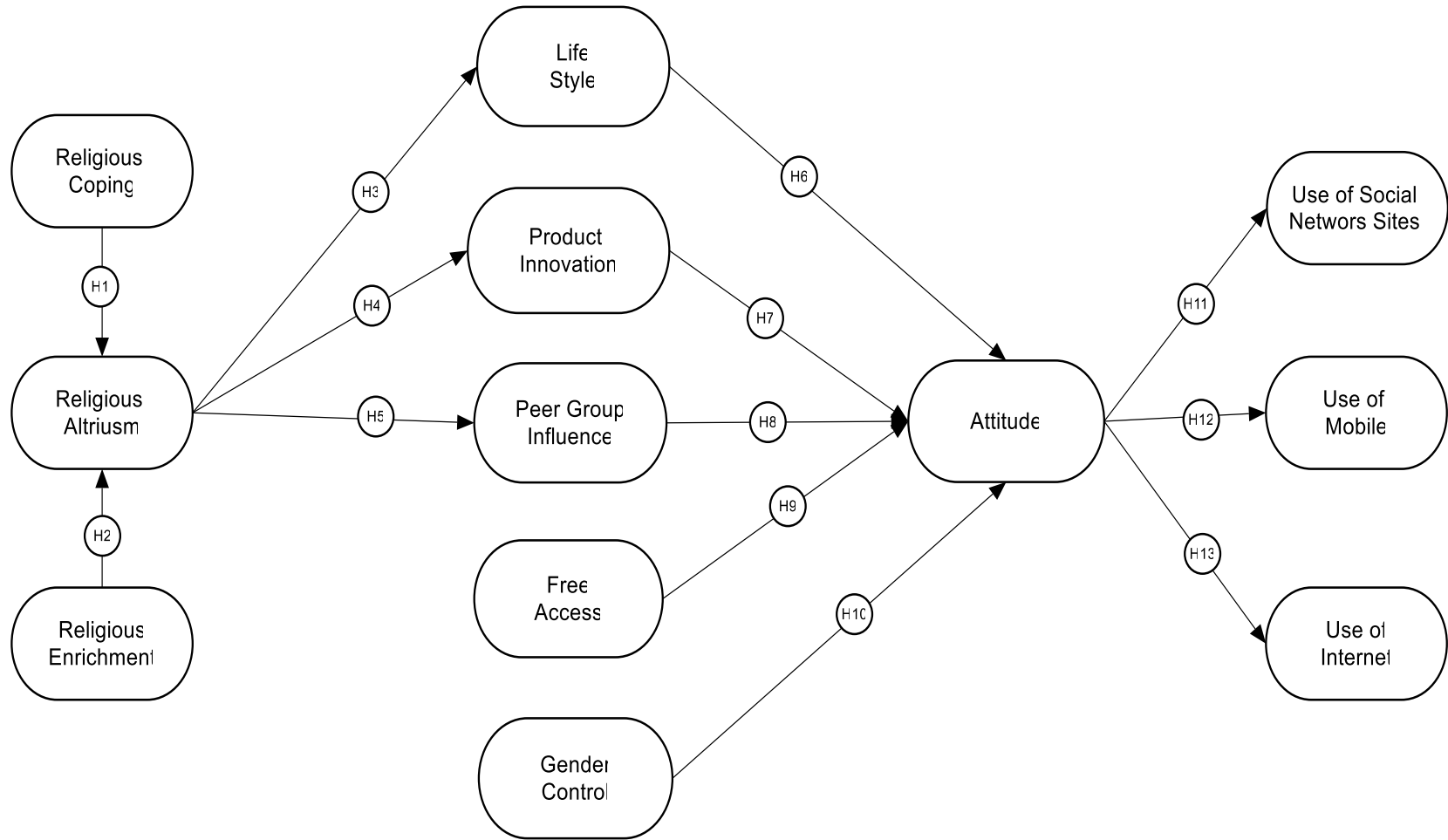
### **7.2.5 Path Model Analysis (Hypothesis Testing).**

We undertook hypothesis testing in order to determine and describe the strength and directions of the relationships between the independent and dependent variables. This method was used to determine the factors such as religion, gender control, lifestyle, free access, innovation and attitude, which influence the behavior of young people when they use mobile phones and the Internet.

Structural equation modeling (SEM) can be defined as a class of methodologies that seeks to represent hypotheses about the means, variances, and covariances of observed data in terms of a smaller number of "structural" parameters defined by a hypothesized underlying model (Hair et al., 2013). However, an outline of the history of the method can help us focus on the main problems that this method is trying to solve. An important, although somewhat neglected practice in SEM, is the interpretation of the structural coefficients. Indeed, a review of substantive studies using SEM shows that once goodness of fit is established, rarely are the structural parameters interpreted (Kline, 2005). If the goal of the model is to move beyond explanation and toward utilizing the model to address specific substantive questions, then interpretation of the parameters is crucial. This is not to suggest that goodness of fit is unimportant. Indeed, a serious lack of fit may be due to specification errors that would, in turn, lead to biased structural coefficients. However, the evidence suggests that goodness of fit dominates the modeling effort with little regard to whether the model estimates are sensible or informative (Hair et al., 2013).

Specifically, it is important to consider that the goodness-of-fit test of the model based on, say, the likelihood ratio chi-square statistic, is now going to be based on many more degrees of freedom than usual. In general, it is possible to partition the total degrees of freedom into those based on restrictions in the measurement part of the model, and those based on restrictions in the structural part of the model. Usually the degrees of freedom from the measurement part of the model are greater than those from the structural part of the model. However, it is the structural part of the model that is typically the focus of substantive inquiry, with the measurement part serving to provide unbiased estimates of structural model parameters. Thus, it is possible to reject a relatively well-fitting structural model because of a poorly developed measurement model.

**Figure 6: SEM Path Model of Female Respondents**



**Table-33: Notes for Model - Female**

Number of distinct sample moments	<b>1596</b>
Number of distinct parameters to be estimated	<b>124</b>
Degrees of freedom (1596 - 124)	<b>1472</b>
Chi-square	<b>3605,293</b>
Degrees of freedom	<b>1472</b>
Probability level	<b>,000</b>

**Table - 34: SEM Model of Female Respondents**

	<b>Path</b>	<b>R-Square</b>	<b>β-Value</b>	<b>S.E.</b>	<b>t-Value</b>	<b>P</b>	<b>Result</b>
<b>HF-1</b>	Religious Coping lead religious Altruism	.050	.031	.029	1.056	.291	Rejected
<b>HF-2</b>	Religious Enrichment leads religious Altruism	.603	.369	.045	8.152	***	Supported
<b>HF-3</b>	Religious Altruism positively influences Life style	.081	.130	.093	1.391	.164	Rejected
<b>HF-4</b>	Religious Altruism Influences Product Innovation	.256	.478	.110	4.362	***	Supported
<b>HF-5</b>	Religious Altruism positively influences Peer Group Influence	.218	.299	.083	3.597	***	Supported
<b>HF-6</b>	Life style positively influences Attitude	.302	.191	.038	5.034	***	Supported
<b>HF-7</b>	Product innovation positively influences Attitude	.193	.105	.030	3.451	***	Supported
<b>HF-8</b>	Peer group positively influences Attitude	.071	.052	.042	1.234	.217	Rejected
<b>HF-9</b>	Free access positively influences Attitude	.170	.162	.058	2.804	.005	Supported
<b>HF-10</b>	Gender Control positively influences Attitude	.105	.043	.021	2.002	.045	Supported
<b>HF-11</b>	Attitude positively influences Use of Social Networks	.279	.552	.112	4.932	***	Supported
<b>HF-12</b>	Attitude positively influences Use of Mobile Phones	.237	.247	.066	3.750	***	Supported
<b>HF-13</b>	Attitude positively influences Use of the Internet	.274	.281	.067	4.168	***	Supported

Note: Method= Maximum Likelihood Estimates \*\*\*p<0.001, \*\*p<0.01, \*p<0.05,

Chi-square = 3605.29, Degrees of freedom = 1472, Probability level = .000,

### 7.2.6 Analysis - Females

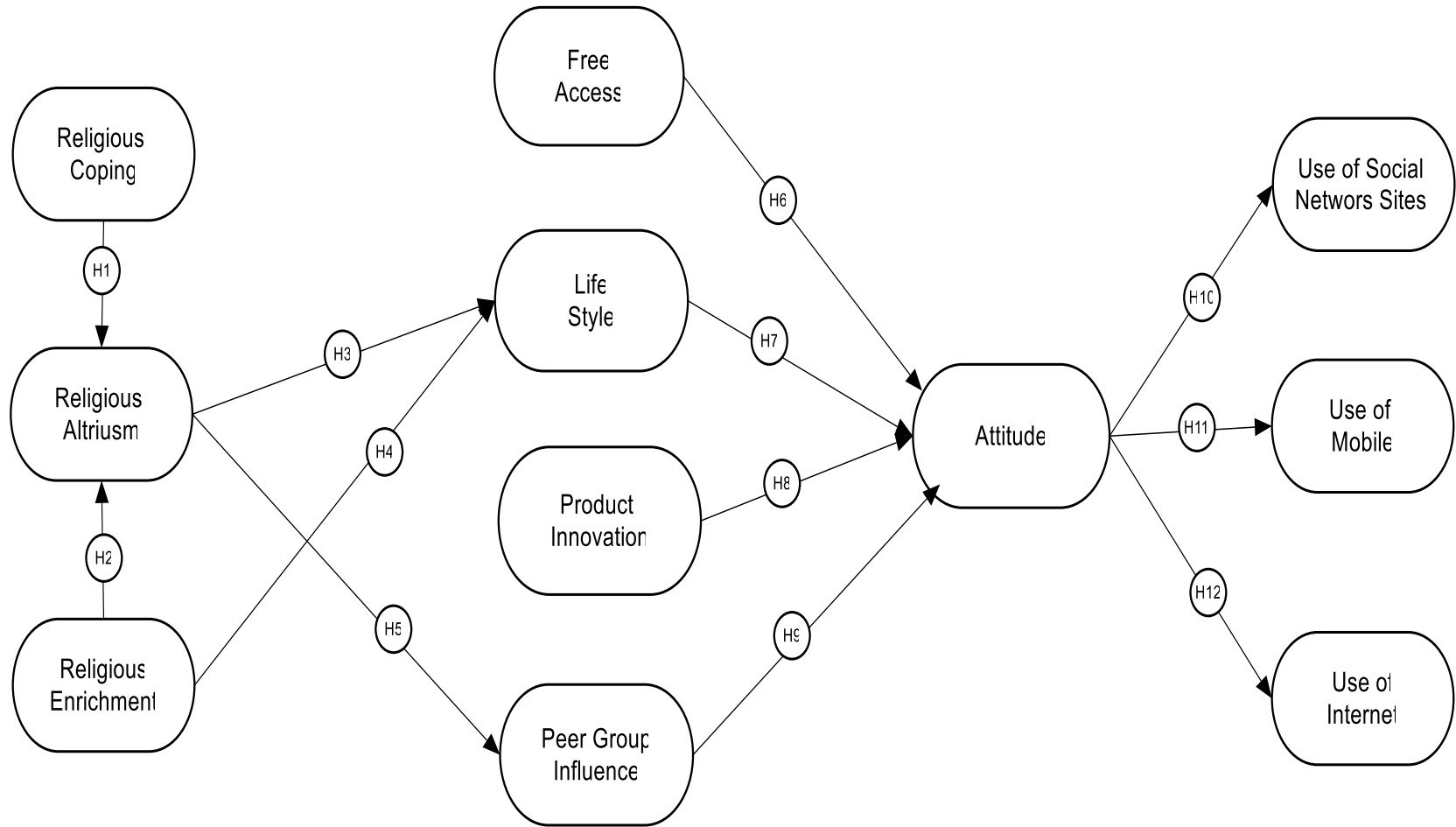
This model revealed that the Religious Coping ( $\beta_1 = .031$ ), did not influence Religious Altruism, and Religious Altruism ( $\beta_3 = .130$ ) did not positively influence Lifestyle. It was also noted that the Peer Group ( $\beta_8 = .052$ ) positively influences Attitude of digital technology users. The model fits achieved for the female respondents' path model are **CMIN/DF= 2.449, GFI =.764, AGFI =.744, NFI= .769, IFI= .849, CFI = .849, RMSEA =.059**. With consideration of all these values, the model is an acceptable fit with the data (Hair et al., 2013).

Furthermore, despite the fact that the models are fairly different in terms of numbers of parameters, the overall fit of the models is not substantially different. The fit of the three models is significantly different in terms of their respective  $x^2$  values, and most of the parameters that distinguish the models from each other yield statistically significant estimates.

While testing the (SEM) Path Model for female respondents we found that out of a total of thirteen paths, ten were statistically significant at the significance level of 0.05. In addition, we analyzed the individual path of the model. Analyzing the result of path model data analysis, it showed that Religious Enrichment lead Religious Altruism ( $\beta_2 = .369$ ). Religious Altruism Influences Product Innovation ( $\beta_4 = .478$ ) and Peer Group Influence ( $\beta_5 = .299$ ). Lifestyle ( $\beta_6 = .191$ ) and Product Innovation positively ( $\beta_7 = .105$ ) influence Attitude of female digital technology users. Also, Free access ( $\beta_9 = .162$ ) and Gender Control ( $\beta_{10} = 0.43$ ) factors positively influence attitude. The attitude of female respondents positively affects the use of Social Network ( $\beta_{11} = .552$ ), Use of Mobile Phones ( $\beta_{12} = .247$ ) and use of the Internet ( $\beta_{13} = .281$ ).



**Figure 7: SEM Path Model of Male Respondents**



**Table-35: Notes for Model - Male**

Number of distinct sample moments	<b>1225</b>
Number of distinct parameters to be estimated	<b>110</b>
Degrees of freedom (1225 - 110)	<b>1115</b>
Chi-square	<b>2565.510</b>
Degrees of freedom	<b>1115</b>
Probability level	<b>,000</b>

**Table - 36: SEM Model of Male Respondents**

	<b>Path</b>	<b>R-Square</b>	<b>β-Value</b>	<b>S.E.</b>	<b>t-Value</b>	<b>P</b>	<b>Result</b>
<b>HM-1</b>	Religious coping lead religious Altruism	.124	.098	.041	2.404	.016	Supported
<b>HM-2</b>	Religious Enrichment lead religious Altruism	.611	.548	.064	8.593	***	Supported
<b>HM-3</b>	Religious Enrichment positively influences Life style	.159	.194	.107	2.210	.030	Supported
<b>HM-4</b>	Religious Altruism influences Life Style	.113	.154	.121	1.272	.203	Rejected
<b>HM-5</b>	Religious Altruism influences Peer Influence	.221	.250	.073	3.416	***	Supported
<b>HM-6</b>	Free access positively influences Attitude	.184	.177	.066	2.677	.007	Supported
<b>HM-7</b>	Life Style positively influence Attitude	.098	.075	.053	1.401	.161	Rejected
<b>HM-8</b>	Product Innovation positively influences Attitude	.018	.013	.046	.275	.783	Rejected
<b>HM-9</b>	Peer Influence positively influences Attitude	.066	.060	.060	1.002	.316	Rejected
<b>HM-10</b>	Attitude positively influences Use of Social Networks	.123	.197	.099	1.981	.048	Supported
<b>HM-11</b>	Attitude positively influence Use of the Internet	.144	.152	.068	2.217	.027	Supported
<b>HM-12</b>	Attitude positively influence Use of Mobile Phones	.295	.309	.083	3.708	***	Supported

Note: Method= Maximum Likelihood Estimates \*\*\*p<0.001, \*\*p<0.01, \*p<0.05,

Chi-square = 3605.29, Degrees of freedom = 1472, Probability level = .000,

### 7.2.7 Analysis - Males

This model revealed that Religious Altruism does not influence Life Style ( $\beta_4 = .154$ ). Life Style ( $\beta_7 = .075$ ), Product Innovation ( $\beta_8 = .013$ ) and Peer Influence ( $\beta_9 = .060$ ) not positively influence Attitude. The model fit achieved for the male respondent path model are **CMIN/DF = 2.301, GFI = .768, AGFI = .745, NFI = .729, IFI = .826, CFI = .825, RMSEA = .060**. With consideration of all these values, the model is an acceptable fit with the data (Hair et al., 2013).

After confirming the measurement model analyses the study tests the path model to understand the relationship between the affecting variables towards the use of digital technology. While testing the (SEM) Path Model for male respondents we found that out of a total of twelve paths eight were found to be statistically significant at the significance level of 0.05. Further, we analyzed the individual paths of the model. Analyzing the result of the path model data analysis, it showed that Religious Coping lead Religious Altruism ( $\beta_2 = .098$ ). Religious Enrichment positively influences Religious Altruism ( $\beta_2 = .548$ ) and Lifestyle ( $\beta_3 = .194$ ). Religious Altruism influences Peer Influence ( $\beta_5 = .250$ ) and Free access positively influences Attitude ( $\beta_6 = .177$ ). The Attitude of male respondents positively affects the Use of Social Network ( $\beta_{10} = .197$ ), Use of Mobile Phones ( $\beta_{11} = .152$ ) and Use of the Internet ( $\beta_{12} = .309$ ).

### 7.2.8 Concluding Remarks

After testing a series of measurement models, we reached a statically acceptable measurement. Analysis found 56 observed variables to measure twelve constructs in the female measurement model and 49 observed variables to measure eleven constructs in male measurement model. For confirmatory factor analysis, the present study considered Kline's (2005) criteria and all values such as factor loadings, CMIN/DF, CFI, NFI, IFI, TLI, and RMSEA, suggesting that the measurement model of this study are acceptable fit model.

Statistical testing confirmed the validity and reliability retained from 56 measurements in the female models and 49 measurements in the male model (APPENDICES

E – F). Also the proper conduct of CFA requires a series of steps and decisions including the specification of the measurement model (based on prior evidence and theory), selection of a statistical estimator appropriate for the type and distributional properties of the data (e.g., ML), choice of a latent variable software, evaluation of the acceptability of the model (e.g., overall goodness of fit, focal areas of strain in the solution, interpretability/strength of parameter estimates), and the interpretation and presentation of results. Structural equation modeling is, arguably, one of the most popular statistical methodologies available to quantitative social scientists as structural equation modeling provides a very general and convenient framework for statistical analysis that includes several traditional multivariate procedures. For example, factor analysis, regression analysis, discriminant analysis and canonical correlation as special cases.

While analysing the path model for male and female, we found some differences in both model. The conceptual models were based on a more occidental literature that assume and defends that religion as an influence on gender and on the access to technology. But that didn't verify on these models, so we have to delete these two paths such as Religious Altruism to Free Access and path of Religious Altruism to Gender Control. These two paths are not statistically significant in path model analysis if we consider the female respondents. In regard with the male respondents, we found the same result, so we delete the two paths such as Religious Altruism to Free Access and path of Religious Altruism to Innovation.

Another explanation for that it could be related to fact that the sample is, in its majority, young, and that the religion theme it's deep in this culture and society, that it's consider to be a "normal" thing, with less impact on the gender differences, free access and innovation.

## **CHAPTER EIGHT**

### **CONCLUSION**

#### **8.1 Introduction**

This thesis has contributed to current understandings of the young people behavior towards the use of digital technology, in particular, mobile phones and internet technology among young people in Dushanbe city, capital of Tajikistan. It also examined the factors that significantly influence on the behavior of the young people while they utilize digital technologies; these factors are religion, gender control, lifestyle, innovativeness etc. This study investigated the role of gender toward the use of modern technologies in the Muslim society too. It also gathered pertinent information relating to the usage and importance of the modern technologies in the daily life of Tajik youth.

As was noted in previous section, in Tajikistan, the use of information technology began in 1990, but from 1995 it started to wide their audience usage (Adinabay, 2013). The significance of the introduction and the penetration of the information technologies such as Internet, mobile phones, and social networks in Tajikistan stems from the fact that it defies to the boundaries, traditional cultural factors such as traditions, religion, and gender characteristics. Therefore, the Internet, mobile phones and social network sites are an area of focus in this research since they are a relatively new communications platform, they have spread rapidly, they have been adopted mostly by young people who use them more ardently compared to the rest of the population (Kosimov et al., 2015), and they allow the free in-flow and out-flow of information simultaneously across a conservative country that is controlled by religion and traditions. The arrivals of these new technologies brought many things with themselves that significantly changed the lives of the young people in Tajikistan into the better side. On the other hand, the advent of the modern technologies brought many problems and difficulties to the Tajikistan society too, especially among young generation, therefore it was essential to study behavior of Tajik youth toward the use of modern technologies from scientific point of view. The use of modern technologies might be considered even more of

a threat by the older generations, who are concerned about its negative effects on the young generation who are very enthusiastic in their adoption of new technology (Adinabay, 2013).

As the main goal of this study was to analyze behavior of the young consumers toward the use of digital technology, it was necessary to explore the factors that significantly influencing the behavior of the Tajik youth in the use of modern technologies. Regarding the influential factors, the present study presented that religious factors significantly impact in the use of digital technologies among young people in Tajikistan, because Tajik people as other Muslims organize their lives mainly based on cultural and religious values. Religious factors may play as an important factor to develop a positive attitude of young digital technology users. In the present study, from both in qualitative and quantitative approach was found that the effect of free access (before marriage freedom from family and after marriage freedom from husband) in the use digital technology in case of female respondent in Muslim populated countries is restricting them from the use of digital technology, with this prospective, it's very important communicate the positive message to those, who can avail the free access to the female Muslim digital technology users.

Furthermore, because this study goal was to understand the gender role toward the use of digital technology in Muslim context, the data have been obtained from young people who usually live with their family and are attached to their parents according to culture and Islamic law, and it was important to look at the use of modern technologies within the family context. The family is the most significant social institution in Tajikistan. The structure of the family in Tajikistan is generally compatible with the nation's religion, customs, traditions, and culture. Despite rapid modernization, the family is the first and primary source of guidance for young people and is responsible for controlling their everyday behavior. Currently, with the new era of advanced technology in households and its use by Tajik family members, it might be expected that parents control extends toward the use of modern technologies while young people might become more aware of their right to free access of modern technology usage. Such family control over technology consumption might operate particularly on Tajik young females, who do not have equal free access of many activities with young males.

The current studies have indicated that in the family parents play a key role in shaping how their kids use information technologies in the household (Barkin et al., 2006). Parents can apply different strategies to control over use of modern technologies, because they know the character of their children. Gender is a crucial factor that determines or affects the level of parental mediation on technology use. Ultimately, parents tend to use more mediation activities for younger children and girls than for older children or for boys (Mendoza, 2009; Nikken and Jansz, 2006). This is true of western households as well as of those in the Middle East. But, the strategies of Tajik families for controlling the use of modern technologies might differ from western countries. This is because in Tajikistan, the use of all information communication technologies, are already controlled by government regulations. In Tajikistan there is also Law of the Republic of Tajikistan "On the responsibility of parents in training and education of children", which was accepted on August 2011, №762, that urges the parents to control over their children. This law also increases the responsibility of the parent in the controlling of their childrens.

On the other hand, the society such as Tajikistan, which is known for gender inequality and heavy restrictions on the activities of women, the modern technologies might be viewed as a threat in that it may foster the emancipation of Tajik women by offering them the opportunity to have equal rights with males and experience the freedoms they are denied in within their conservative society. The use of mobile phones and internet technology has indeed been perceived as an ethical, religious, and cultural threat which might ultimately lead to the fragmentation of social and gender barriers. Therefore, for this study it was necessary to understand the gender differences between young people in their technology habits and especially in regard to their use of the internet, mobile phones and social network sites.

The present study also found that the social networking is the best source for viable to the young generation to attached to the world and understand the world in one button including the culture, demographics, diversities, language, and many more things. Strong cultural identity and community and family connections, which can be enhanced through social media, are linked to improved educational and health outcomes. With the understanding the importance of the use of social networking local government agencies



must implement some plan of action which will improve the use of social networking amongst the young population of their country. While talking about the positive side of use of digital technology, we also have to think about the other side of use digital technology that how it will affect negatively to the society at large and its disadvantages too. In this view, there is need to developed the awareness and knowledge of how to protect children and young people from the dangers of digital technology including the use of mobile, internet social media etc: There are a range of potential dangers for children and young people from the use of the internet and digital technology including cyber bullying, grooming, and e-security issues of fraud, identity theft and online addiction.

The world of digital technology is changing rapidly with new and exciting Smartphones, tablets, PCs, and games consoles becoming increasingly advanced. The growth in apps and cloud-based services also means that more and more online content is readily available and sharable. For many young people, staying connected via social networking sites such as Facebook, Twitter, Instagram and Odnoklassniki is increasingly part of their growing up experience. Access to the internet is a positive and important part of both, young and old generation, providing access to a world of learning, entertainment, socializing, business and more. But, there are various external and internal factors in the environment that affect the use of digital technology, some are affect positively and some are negatively. In this view, also many underdeveloped and developing countries facing the negative use of digital technology. In some developed country, young people get addicted with many social networking, which is affect negatively. On the other hand, some developing countries also facing these problems. In the positive scenario, the development of digital technology helps many developing countries to grow their economy rapidly and knowledge enrichment amongst their young generation, which will lead the brighter future for the country and individual. In this prospect the present study was based on, to understand the factors that affect the use of digital technology amongst young Tajik people.

## 8.2 Discussion

This thesis was concerned to investigate the way how young people in Tajikistan used the internet, mobile phones, and social network sites and the factors that influence on their behavior, while they use digital technology tools. This study also examined the constraints placed on the use of these technologies by family and religious circumstances that were often manifest most clearly in gender differences in engagement with new technologies.

Initially the present study analyzed two measurement model based on gender discrimination and the role of associated factors in the use of digital technology. Measurement models were tested in regards with female respondent and male respondent. As was noted in the previous chapters that the reason for testing two model it was that during conducting of focus group discussion the researcher found that there are two distinct worlds in Tajikistan – men and women. The measurement analysis performed with the help of Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM) to test measurement models (Confirmatory Factor Analysis). With the guideline of EFA and CFA the result showed that all parameters in both measurement models fit well with present data set, according to the experts' recommendations.

We used all extracted measures to test the path model, which was validated in the initial phase of this research. The study also tests two path models which are based on the gender discrimination of respondent. While testing, the Path Model the gender discrimination was not only the reason that researcher test two Path Models. But literature related to the digital technology and consumer behavior; suggest that there is dissimilarity in the affecting factors in the use of digital technology in regards with gender of respondents. It was found that the gender control factor is very crucial when we studied the use of digital technology with consideration of female user, but in case of male users this factor is not that important as the male has more free access than female in the use of digital technology.

Within the family, the gender roles are very well defined. As the girls' public life (outside the household sphere) is quite under control of the male elements, the use of digital technologies, such as social networks and mobile phone represents a run away for interaction with whom they wish free of those social restrictions.

The role of information technology in all areas of the private sector and in government is now paramount for continued growth and stability in our societies. Information technology has become the lynchpin in the way we think, act and operate as a society. The significance of the growth of new technologies, the Internet and the rapid deployment of information and creation of information is the “potential” for change these phenomena are creating. These are pressing issues for modern governments as the new technologies are contributing to the creation of faster communications, the sharing of information and knowledge, and the emergence of new forms of our respective cultures. Networked communities are quickly evolving through the Internet, and citizens are increasingly using the new technologies to organize themselves so their voices can be heard, and to develop tools to attempt to influence government policy and programs at the political and public administration level. When we analyzed the usage and importance of the digital technology amongst young Tajik people’s in their daily life activity, we found that the usage and importance for them is quite good but when we turn out in case of female respondent it’s not that good. That explains the significant differences between gender elements, which quite often are stressed by the family and kept tight by the government/authorities.

It was also noted that there is also a tiny percentage of people not aware or interested in use of digital technology and some also think that the digital technology is not important part of their life. Supported by the results this can be explained by cultural hindrance to use digital technologies. Our research contributes to the literature by formulating and validating the measures and structural models in the use of Digital Technology under a cultural context very peculiar and at our best knowledge not yet studied in this country. The findings of this thesis provided useful information, which was facilitated in the development of digital technology. It is also expected that, these results help to extend the existing research boundaries and understand the practical implications of digital technology in Muslim populated countries, which is a cornerstone for rendering stability to the economy.

### **8.2.1 Findings of the Study**

The present research was started with the aim, to understand the behavior of young Tajikistan consumers towards the use of digital technology, and with this prospective we found that young people in Tajikistan mainly started the use of the modern technologies, in particular mobile phone and internet after age 16-year-old, because of cultural and traditional values. In Tajikistan, it is common that do not allow young people who study in higher school to use these new technologies. The present study also found that the majorly religious such as, Religious Coping, Religious Practice, Religious Belief, Religious Altruism, and Religious enrichment, plays a vital role in the use of digital technology in Tajik society. Considering other significant findings of this research, is the development of measurement scale to measure the impact of factors which are associated and affects the use of digital technology amongst young Tajik people, which previously were not studied. This thesis also tests two measurements and two structural models. The main object to test two measurements and two structural models was to neutralize the gender discrimination effect. In qualitative and quantitative analysis, it was noted that the free access for female in the use of mobile phones, internet and social networks is the key elements that it restricts the Tajik female in the use of digital technology, because of cultural and traditional values.

#### **8.2.1.1 Findings from Qualitative approach**

Following are the findings from qualitative method;

- From the Focus Group Discussions (FGD) we found that, young people in Tajikistan started the use of Mobile Phones between 2006 - 2007 and the use of the Internet started between in the years of 2009 - 2010. Regarding gender characteristics, we found that girls started the use of digital technologies a few years later, because of the cultural and traditional rules. This issue also indicates that, since Tajikistan is a patriarchal society, there are different socio-cultural rules for man and women. For instance, as was noted previously, in Tajikistan parents pay more attention for education, jobs, hobbies, entertainments and etc., of the boys than girls. The result showed that, in family parents

usually expect that girls should learn about household task because of the cultural and traditional rules, as it is mandatory for girls to learn all these task before getting married.

- From the discussion of the respondents we found that, the use of digital technology such as Mobile Phone and Internet became a significant tool in the life of young people. Almost all participants reported that, when they started the use of modern technologies their life became easier, specifically student life. Participants also stated that, the world which we live in, become digitized, we want or not we cannot, because this digital world will not allow us to live away him. It is true, because with development of the technologies almost all human activities associated with these digital devices and today's young generation can't imagine their life without these modern tools.
- In the focus group discussion (FGD), young people clearly reported that they know about negative and positive aspects of the modern technologies, but, anyhow still most of them use digital technologies in inappropriate ways. There are different thoughts among young people related to the negative aspects of the digital technology in their daily life. Some of the participants commented that, initially many Tajik people don't know how to use these new things and people still not ready to use these new digital devices. On the other hand, other participants noted that, the reason behind all these issues is that, Tajik youth don't have enough experience in the use of novel technologies. Despite all negative aspects, the participants also noted the positive aspects of these digital technologies. They stated that, these modern devices became like teacher for us. Whenever or whatever we need, we will run for the help to these technologies. They also noted that easily, cheaply and in one click we can find and satisfy our needs.
- The result of the FGD showed that, young people in Tajikistan still don't have free access in the use of the digital technology such as mobile phone and internet. From their discussion, we found that, young people are afraid of writing their thought, ideas, and comments on the internet. They commented that the reason of their fear is that their writing, thought, ideas from the internet could be harm for their safety and future carriers. We also found that, young people are not free at the universities and schools to use mobile phone and internet. The reason is that, according to the unofficial law it is not allowed to

use mobile phones and internet at the universities and schools during classes. The respondents stated that in many cases at the universities many teachers don't know how to use modern technologies, therefore, they don't allow students to use mobile, tablet, laptop, and other digital technologies during lectures. In case of home, respondents reported that at home they have more free access in the use of digital technology, especially boys.

- According to the role of the man toward the use of digital technology in the gender control, both respondents reported that most of the Tajik males are very jealousy and they will not trust to the females who use mobile and internet, especially social network sites. From the discussions, we found that, Tajik males think that while females use these modern devices they only use them to talk with some stranger male. Therefore, they don't want and most of them will not allow their sisters/wives to use these technologies. Regarding to this issue, female respondents commented that, Tajik males don't want that worldview of their females become wider. Because they are afraid that when female's worldview become wider, they will start to know how to use these digital technologies, and then they will start to check their mobile phones and social network pages and will know about their secrets and so on. Therefore, in most Tajik families' use of mobile technologies and internet, especially social network sites are prohibited for the females. Despite to the jealousy and distrust of the males, there are many women that utilize these devices secretly and sometimes this will be problem in the family. Therefore, almost all males' specifically single males stated that when we get married we will not allow our wife to use these digital devices.
- In the discussion, many of both male and female stated that female should be under control while they use these modern technologies. From the discussions, we found that, a few females were not agreeing with other respondents, but they didn't show their strongly disagree. Regarding to this issue, some of the males are agree in the use of the internet and simple mobile. But, they are totally disagreeing in the use of the social networks and Smartphones. Our finding shows that, almost all participants think that, when the female who are not a student or who are a homemaker have more free time and

doesn't know what to do, then they will get boring and at that time if any stranger call or write them, they will start to talk. Then it will be the main reasons of the conflicts and divorces in the family. From point view of the males, the females who become a student and moves to the cities should use simple mobile to be in touch with her family. But, if she is not a student or a married she shouldn't use till end of her life.

- Regarding the impact of the religion toward the use of digital we found that the families who have a good religious' knowledge, they will not limit their females in the use of digital technology. From the discussion, its became clear that from the point view of Islam the use of digital technology is allowed and Islam never prohibit if user utilize them in appropriate ways. But, some of the representatives, priest of the Islam or mullahs in Tajikistan will against, because many mullahs (Mullah is a leader in mosque) in Tajikistan do not have enough religious knowledge and by this way wants become famous among people. We also found that from the point view of Islam watching porno pictures and videos, follows the mischief and murder, chat with stranger person in the internet or talk with stranger person on the mobile phone before (Nikah) "engagement" is prohibited and it will consider as sin. The participants noted that, if people use these modern devices for the study or work purpose, Islam allows it. The respondents stated that in Islam there are no differences between male and female in the use of the digital technology. Apart from all above comments we found that, young people in Tajikistan don't have enough knowledge about Islam too, while almost 90% of the population is Muslim.
- From the discussions, we found that, females consider Islam's norms while they use digital technology, but male don't. In the discussion, most of the males mentioned that they use the name of the Islam to limit their sisters/wives toward the use of digital technologies. In the discussions, there were participants from Islamic University, and one of them commented that, the main reason why some of the males will not allow their sisters and wives to use these technologies is that, when they go to the mosque for prayer and if they hear anything related to the females, they will accept it very fast and then they will come and will not allow their sisters and wives to do that thing. Another participant

(female) noted that, in Tajikistan it is common to believe mullah's words then any scientist person, therefore in many cases mullahs consider young people as the main followers.

### **8.2.1.2 Finding from Quantitative approach**

The following section will provide result from survey method.

- The descriptive statistical analysis showed that the majority of the respondents both female and male (62%), reported that they started the use of the Internet age between 16 to 20 years old. 16.6 percent of the male respondents reported that they start the use of the Internet between aged 11-15 years old, while female of this age showed (7.3%) lower percentage. Male between aged 21-25 years old 16.6% reported that they start use of Internet a bit late than female (21.3%) of this age.
- Regarding the use of mobile phones, majority of the respondents (female 68 %, male 64%) reported that they started the use of Mobile Phones between aged 16 to 20 years old. 23.5 percent of the male respondents reported that they start the use of Mobile Phone between aged 11-15 years old, while female of this age reported (11.6%). Females between ages 21-25 years old (14%) reported that they start use of this device a bit later than the male of this age with (7.7%). According to the use of Mobile Phone, the result shows that females started the use of this device a bit later than male.
- Regarding frequency use of Internet, the result showed that majority of the respondent (female 26.3% and male 24.3%) utilize the Internet a few time a week. Next the result showed that, female 19% and male 22.1% use the Internet 1 to 3 hour per day. Then, 15.9% female and 17.1% male reported that they use the Internet Less than 1 hour per day. In general, the result shows that young people in Tajikistan do not have a wide access to the internet; therefore, they do not utilize the internet whenever or anytime they wish.
- Regarding frequency use of Mobile Phone, the result showed that majority of the respondent (female 27.5% and male 27.9%) use their mobiles every hour. Next, female 23% and male 22.4% reported that they use mobile phone 1 to 3 hour per day. Then,



18.2% female and 15.7% male reported that they use a mobile phone more than 3 hours per day.

- Concerning the use of social network (Odnoklassniki) the result of the descriptive statistics showed that majority of the respondents started the use of Odnoklassniki between the ages 16 to 18 years old. In general, the result shows that female in almost all ages started the use Odnoklassniki later than male. Even, 27.3% of the females reported that they don't use social network Odnoklassniki at all.
- About the use of the social network (Facebook) majority of the respondents (female 58% and male 49.4%) reported that they don't use Facebook. In general, the result of the descriptive statistics shows that both females and males do not much use Facebook.
- Regarding the importance of the mobile phones in today's life, majority of the respondents (female 41.7% and male 42.5) reported that Mobile Phone is an important device in their life. Next, 38.6% female and 32.6% male reported that Mobile Phone is very important for them. Following 11.8% female and 13.8% male showed their neutrality. Then, few percentage 2 to 8 percent of the respondents reported that Mobile Phone is low or not important.
- Regarding the importance of the Internet in today's life majority of the respondents (female 40.3% and male 37.6%) reported that the Internet is an important information media in their life. Next, 30.1% female and 35.9% male reported that the Internet is very important for them. Following 17.8% female and 16% male showed their neutrality. Then, few percentage 3 to 7 percent of the respondents reported that the Internet is low or not important.
- The testing of the measurement model is the crucial stage in the development and analysis measures. With the importance of measurement model testing we test latent and observed variables to understand the affecting variables toward the use of digital technology. Measurement model tests total twelve latent variables in female's model and total eleven latent variables in male's model. Measurement models of this study achieved good model fit indices for females such as **CMIN/DF = 1.881, GFI = .824, CFI = .912, RMSEA = .046**, and for males such as **CMIN/DF = 1.536, GFI = .847, CFI = .931 RMSEA = .039**

with this values, it can state that the present measurement models are well acceptable fit with the present data set.

- The results of both measurement models analysis showed that the Cronbach's Alpha for all constructs is greater than 0.7, which falls into the range of good - reliability. On the other hand, to determine the reliability of the constructs in confirmatory factor analysis, the composite reliability (CR), and average variance extracted (AVE) values were calculated. Reliability is acceptable as composite reliability value exceeds 0.70 and AVE not less than 0.50. In this research thesis, the results displayed that all constructs showed acceptable values of CR and AVE are greater than 0.5 and 0.7. The both measurement models also proved the validity of model including construct validity, face validity, convergent validity, divergent validation, and discriminate validity.
- While testing the (SEM) Path Model for female respondent we found that out of total thirteen paths ten paths found statistically significant at the significance level of 0.05. Further, we analyzed the individual path of the model. Analyzing the result of path model data analysis, it showed that religious enrichment leads religious Altruism ( $\beta_2 = .369$ ). Religious Altruism influence the Product Innovation ( $\beta_4 = .478$ ), and Peer Group Influence ( $\beta_5 = .299$ ). Lifestyle ( $\beta_6 = .191$ ) and Product Innovation positively ( $\beta_7 = .105$ ) influence Attitude of female digital technology users. Also, Free Access ( $\beta_9 = .162$ ) and Gender Control ( $\beta_{10} = 0.43$ ) factors positively influence attitude. The attitude of female respondent positively affects the use of Social Network ( $\beta_{11} = .552$ ), Use of Mobile ( $\beta_{12} = .247$ ) and use of Internet ( $\beta_{13} = .281$ ). This model revealed that the Religious Coping ( $\beta_1 = .031$ ), not leads Religious Altruism, and Religious Altruism ( $\beta_3 = .130$ ) not positively influences the Lifestyle. It was also noted that the Peer Group ( $\beta_8 = .052$ ) positively influence affect Attitude of the digital technology users. The model fit achieved for the female respondent path model are **CMIN/DF= 2.449, GFI =.764, AGFI =.744, NFI= .769, IFI= .849, CFI = .849, RMSEA =. 059**. With consideration of all these values, the model is an acceptable fit with data.
- Path Model for male respondent we found that out of total twelve paths eight paths found statistically significant at the significance level of 0.05. Further, we analyzed the

individual paths of the model. Analyzing the result of path model data analysis, it showed that Religious Coping Lead Religious Altruism ( $\beta_2 = .098$ ). Religious Enrichment positively influence the Religious Altruism ( $\beta_2 = .548$ ) and Lifestyle ( $\beta_3 = .194$ ). Religious Altruism influence the Peer Influence ( $\beta_5 = .250$ ) and Foredoom positively influence attitude ( $\beta_6 = .177$ ). The attitude of male respondent positively affects the use of social network ( $\beta_{10} = .197$ ), use of mobile ( $\beta_{11} = .152$ ) and use of the internet ( $\beta_{12} = .309$ ). This model revealed that Religious Altruism does not influence the Life Style ( $\beta_4 = .154$ ). Life Style ( $\beta_7 = .075$ ), Product Innovation ( $\beta_8 = .013$ ) and Peer Influence ( $\beta_9 = .060$ ) not positively influence the attitude. The model fit achieved for the male respondent path model are **CMIN/DF = 2.301, GFI = .768, AGFI = .745, NFI = .729, IFI = .826, CFI = .825, RMSEA = .060**. With consideration of all these values, the model is an acceptable fit with data.

- In the hypotheses testing with the female respondent data, we found that Religious coping not leads religious altruism ( $p = .291$ ), religious altruism not influence the life style ( $p = .164$ ) and peer group not influence affect attitude ( $p = .217$ ), in the use of digital technology which includes use of mobile, use of internet and use of social networks.
- In the hypotheses analysis for female respondent data we also found that religious enrichment leads religious altruism ( $p = .000$ ), religious altruism influence the product innovation ( $p = .000$ ), religious altruism positively influence the peer group influence ( $p = .000$ ), life style positively influence attitude ( $p = .000$ ), product innovation positively influence attitude ( $p = .000$ ),
- Free access positively influence attitude ( $p = .005$ ), gender control positively influence attitude ( $p = .045$ ), attitude positively influence use of social network ( $p = .000$ ), attitude positively influence use of mobile ( $p = .000$ ), and attitude positively influence use of internet ( $p = .000$ ).
- With the data of male respondent, it was found that, religious altruism not influence the life style ( $p = .203$ ), life style not influence attitude ( $p = .161$ ), product innovation not influence affect attitude ( $p = .783$ ), and peer group factor not positively influence attitude ( $p = .316$ ).

- With consideration of male respondent it was also found that, religious coping leads religious altruism ( $p = .016$ ), religious enrichment leads religious altruism ( $p = .000$ ), religious enrichment positively influence the life style ( $p = .030$ ), religious altruism influence the peer influence ( $p = .000$ ), foredoom positively influence attitude ( $p = .007$ ), attitude positively influence use of social network ( $p = .048$ ), attitude positively influence use of internet ( $p = .027$ ), attitude positively influence use of mobile ( $p = .000$ ), this result is based on the use of digital technology which consist the use of Mobile, use of Internet and use of social network.

### **8.3 Contributions**

#### **8.3.1 Academic Contributions**

There are several of contributions of the present study. First of all, this study contributed to the empirical understanding of the legitimacy of traditional theories such as TAM theory. This thesis proposed two conceptual models based on gender role that have been analyzed the factors that influence on the behavior of Tajik youth toward the use digital technology. The models, which were underlying for this thesis, were based on the review of related literature and theoretical component of the technology acceptance model TAM. TAM is well-known model among other models that clarifies the process of acceptance of new technologies. This model also explains why an individual choose or use a particular technology and not another one. The advantage of the model is that, it explains and predicts the behavior of users toward the use of technology (see Saleem, 2013; Davis, 1989 for detail). Mainly such model was developed in the west and has scarcely been applied to Central Asia and other regions contexts. Therefore, this research contributes to understand the validity of such theory to explain the modern technology setting in Tajikistan. The first model was tested with consideration of female respondent and the second was tested with male respondent. The purpose of developing two models was to neutralize the gender role in the use of technology.

Secondly, this research contributes significantly to existing understandings the factors such as religion and gender control, that significantly influence on the behavior consumers while they utilize modern technologies in which has not previously been studied in this society. This thesis studied the gender control and religious factors in order to understand the effect of modern technologies on the behavior of Muslim consumers, where in Muslim society have people mainly organized their lives based on the cultural, religious, ethics, and traditional values. The focus group discussions and survey method provided a more fully informed understanding about how gender control and religious factors influenced on the behavior of Tajik young in the use of digital technology. As far as we know there is a gap in the literature concerning the modeling of digital behavior integrating the religion variables in the Islam context. Therefore, our research can be instrumental not only to be replicated in other Muslim countries/societies and to allow cross cultural comparison regardless of dominant faith.

Thirdly, this thesis has considered the nature use of modern technologies among young people in the domestic sphere and has drawn attention to the importance of gender differences in the Tajikistan context. Although current research indicated that gender differences affect the way how men and women use modern technologies in terms of context and activity. But, this study has indicated that in Tajikistan as Muslim society there are gender differences in the use of modern technologies, where males have more right in the use of modern technologies than females do. It means that males have more opportunities accessing to the modern technologies, in particular, to the internet and social network sites than the females. Even though that the Internet empowered Tajik women by allowing them to express themselves, communicate with others, campaign and participate in virtual social activities, Tajik women's Internet use is still lagging behind due to gender inequality in Tajikistan.

It is clear that, Islamic women are culturally/religiously constrained to a more restricted use of digital technologies. Despite all this control and supervision there are tendency towards a more frequent/intense use of those tools in a subtler, secretive, and cautious ways by women regardless of society and family pressure and authority.

Finally, this study provided a series contribution to knowledge as follows:

- This thesis provided a big picture regarding the use of digital technology in general and in Tajikistan, in particular.
- This thesis provided a relatively clear description and understanding of models and theories of technology acceptance that has been synthesized from theoretical and practical viewpoints.
- This thesis provided overall picture about how Tajik youth use digital technologies in their daily activities.
- This thesis illustrated the effects of some religious aspects as moderators along with other moderators on the influence of key determinants toward usage behavior.
- This thesis provided a major contribution to the existing knowledge and literature were the application of Structural Equation Modelling (SEM). The application of SEM promoted a better quality of the research associated with the use of digital technology in a cultural context. SEM has useful features, especially in modelling multivariate relations, and there are no widely and easily applied alternative methods of this kind (Byrne 2010).
- This thesis contributed significantly to the global understanding of the behavior of Tajik youth toward the use of modern technology through the development of the research model in a Tajik cultural context.
- This thesis contributed, also, to understand that this type of consumer might be quite difference between the occidental perspective and the Islamic perspective.

### **8.3.2 Managerial and Social Contributions**

- As aim of the present study was to analyze behavior of young consumers towards the use of digital technology in Tajikistan, study developed and validated the measurements to measure the various affecting factors in the use of digital with the special reference of Tajikistan. This validate measures can easily accessible to the research, those doing and wishing to conduct the research in Muslim populated countries. With implantation of this

it will reduce the little efforts of the research and save the time and money which need to development and validation of measurement.

- The results of this study provide empirical evidence of the importance of the demographic profile of consumers in the use of digital technology. This study provides evidence that marketers need to think about demographics of their target group of consumers before formulating the marketing strategies related to the use of digital technology users in Muslim populated countries. As study revealed that the sub category of young age group user of digital technology is important and as they said they start the use of digital technology in early young age, with this result digital technology marketers can even set their strategies with understanding of this young age effect in the use of Mobile, Internet and Social Network.
- From a practical standpoint, the results also highlight the importance of gender effect in the use of digital technology. Marketers should highlight what aspects of their digital product are distinct from competitors and help to build consumer trust in regards of gender discrimination and also build the confidence in the mind of user which will ensure that digital technology won't affect negatively.
- As we are living in the technology era and the usage of digital technology always enhance make easy and fast the work, which ensure efficient and effective work not only at private but also in government offices. Also, path model proved that, religious perception influences the use of digital technology. Consideration of this effect government agency can take advantage of this and can attract large number of people with advertising which involves religious message in the use of digital technology.
- In case of both respondents it was noted that the attitude of male and female respondent positively influence use of mobile, use of internet and use of social network, and with effect of this we have to understand the importance of digital technology users attitude. It's very important to understand the attitude of digital technology users to enhance the use of digital technology. For mobile manufacture, internet provider, social networking websites and government offices those wish to enhance their e-services, it's important to all of them to understand the attitude of their existing as well as potential users, and with

this help of this all these can effectively implement their strategies which will ensure the enhancement in the use of digital technology.

- Researcher in the field of digital technology and consumer behavior can use the finding of this research to revalidate their research findings. As the result of present study showed the somehow religious factors affects the use of digital technology with this prospect, it's also important to understand for the digital technology provider that, religious aspects are important to run the digital technology business in the Muslim populated countries.

## **8.4 Limitations and Future Research Direction of the Study**

### **8.4.1 Limitations of the Study**

We made every possible effort to complete the present research work in all its aspects but because of a number of uncontrollable factors, the research has following limitations.

- The Central Asia being multilingual and with different demographic characteristics the samples drawn may not be representative of the entire population of Tajikistan. Therefore, caution needs to be observed while generalizing the findings to other parts of the country. The scope of the study is limited to the digital technology and to the urban middle and upper middle - class families living in the urban areas. Demographic profile further restricts the generalization ability of results. While attempts have been made to keep the demographic profile similar across the three cities, some of the factors needed standardization.
- Since the results pertain to only a select group of respondents and specific decision - making process, they strongly indicate the need for additional work to examine a number of methodological and practical questions.
- Some of the limitation of the research reported here are due to the nature of research design and sample. Judgmental sampling, selection of areas in the cities for data



collection places restrictions on the generalization – though not necessarily on the applicability of the findings.

- There is the possibility of respondent's bias owing to conservative social norms prevalent in Tajikistan. Being an issue of personal information of themselves and their family, especially the income, friends, and other personal questions the respondents may have given answers desirable from the social point of view.
- There is a possibility of respondent bias from answering what he/she would like to or desires to purchase rather than what they actually buy.
- For future researches we can suggest that the study, in a deeper and in a qualitative way also, about the perception of the religion influence in the day-to-day life; it will be also interesting to analyze the impact of religion construct in other types of product buying behavior.

#### **8.4.2 Future Research Direction of Study**

At the end of every research project the researcher has to propose some suggestion for future researcher. The present project listed the below suggestions for future researchers in order to consider while they do research related to this topic. The use of digital technology and factors associated with it amongst the young Tajiks users was the keen interest of this study.

- Other researchers with future research scope prospective can re-test the validity and reliability of developed measures to understand the factors that affect the use of digital technology, which will help to build the generalization of present study measurements.
- While retesting the developed measures, it can be done with consideration of different age group as like this study performed with the help of young users so other could be with the elder or matured class of peoples.

- The path models of present study can also be re-testing with consideration of different region or different class of respondent which will help to generalize the path models of this study.
- It will be very interesting to find out how (from which point it initiated and how it causes) the freedom from family restrict the use of digital technology amongst young Tajiks females, this kind of study will give the insightful the how females are restricting to use of digital technology including mobile, internet, social media and so on.
- Also in the view of future research scope it will be very interesting to conduct the similar study with different demographics and religious region such as Christian, Hindus or Buddhism populated countries and can compared the present study outputs, such kind of study will ensure whether some religious ideology will affect the use of digital technology or not.
- As this study considers majorly Mobile Phone, Internet and Social Network Sites, future studies can be extent with consideration of more digital technological things such as Laptop, Personal Computers, personal digital assistant (PDA), etc.

## CHAPTER NINE

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## APPENDICES

### APPENDIX - A

Descriptive Statistics and Assessment of Normality - Female											
Items Codes	Mean	Median	SD	Skewness	kurtosis	Items Codes	Mean	Median	SD	Skewness	Kurtosis
UOI1	2.23	2	1.225	0.787	-0.3	LS4	1.97	1	1.333	1.181	0.114
UOI2	1.96	2	1.105	0.907	-1.236	LS5	1.55	1	0.948	2.009	3.934
UOI3	3.29	3	1.413	-0.238	-1.236	LS6	4.09	5	1.235	-1.233	0.434
UOI4	2.85	3	1.432	0.146	-1.29	LS7	3.07	3	1.307	0.046	-1.035
UOI5	2.83	3	1.476	0.168	-1.321	LS8	2.67	3	1.47	0.334	-1.248
UOI6	3.17	3	1.375	-0.095	-1.285	LS9	3.01	3	1.423	0.154	-1.284
UOI7	2.55	2	1.353	0.469	-0.964	LS10	1.39	1	0.968	2.655	6.257
UOI8	2.23	2	1.38	0.826	-0.598	LS11	2.85	3	1.422	0.29	-1.208
UOI9	2.83	3	1.372	0.252	-1.111	LS12	3.08	3	1.506	-0.092	-1.4
UOI10	1.69	1	1.132	1.608	1.667	LS12	2.76	3	1.536	0.34	-1.335
UOI11	1.72	1	1.114	1.59	1.621	LS114	3.33	3	1.409	-0.194	-1.261
UOI12	1.91	2	1.12	1.163	0.644	FA1	1.74	1	1.033	1.366	1.223
UOI13	1.68	1	1.1	1.648	1.903	FA2	2.34	2	1.333	0.611	-0.829
UOI14	1.63	1	1.05	1.847	2.815	FA3	2.16	2	1.177	0.624	-0.609
UOI15	2.89	3	1.479	0.166	-1.384	FA4	1.54	1	0.856	1.645	2.476
UOI16	2.1	2	1.19	1.023	0.271	FA5	1.29	1	0.697	2.144	9.431
UOI17	2.87	3	1.361	0.192	-1.187	FA6	1.83	1	1.108	1.238	0.704
UOI18	1.76	1	1.16	1.36	0.66	FA7	1.75	1	1.076	1.494	1.545
UOI19	2.63	2.5	1.448	0.329	-1.245	FA8	1.51	1	0.981	2.097	3.86
UOI20	1.55	1	1.061	1.911	2.656	INN1	2.87	3	1.316	0.429	-0.975

UOI21	2.13	2	1.209	0.978	0.129	INN2	2.93	3	1.382	0.244	-1.18
UOI22	1.53	1	0.939	1.915	3.271	INN3	3.41	3	1.338	-0.184	-1.226
UOI23	1.84	1	1.129	1.255	0.734	PGI1	2.57	2	1.109	0.541	-0.182
UOI24	1.59	1	0.935	1.509	1.603	PGI2	2.17	2	1.219	0.745	-0.458
UOI25	2.73	3	1.356	0.398	-0.984	PGI3	2.62	2.5	1.195	0.518	-0.446
UOM1	2.81	3	1.017	0.651	-0.08	PGI4	2.76	3	1.175	0.368	-0.628
UOM2	1.71	1	1.069	1.547	1.677	PGI5	2.34	2	1.292	0.606	-0.688
UOM3	2.6	3	1.272	0.435	-0.73	PGI6	2.7	3	1.314	0.428	-0.809
UOM4	3.63	4	1.351	-0.386	-1.317	PGI7	2.64	2.5	1.298	0.447	-0.796
UOM5	3.68	4	1.233	-0.373	-1.174	PGI8	2.69	3	1.259	0.334	-0.746
UOM6	2.23	2	1.274	0.796	-0.384	RC1	3.51	4	1.565	-0.607	-1.202
UOM7	2.58	2	1.175	0.514	-0.457	RC2	2.85	3	1.681	0.045	-1.727
UOM8	2.29	2	1.25	0.755	-0.393	RC3	4.34	5	1.082	-1.728	2.175
UOM9	2.67	2	1.382	0.377	-1.071	RC4	5.54	5	0.997	-2.312	4.521
UOM10	2.12	2	1.222	0.983	0.076	RC5	4.52	5	1.076	-2.343	4.388
UOM11	2.06	2	1.181	0.953	0.067	RC6	3.42	4	1.498	-0.549	-1.166
UOM12	2.46	2	1.388	0.515	-0.98	RC7	3.23	4	1.398	-0.389	-1.191
OUM13	2.78	3	1.505	0.228	-1.36	RC8	3.61	4	1.408	-0.688	-0.867
UOSN1	2.15	2	1.609	0.117	-1.043	RC9	2.11	1	1.497	0.846	-0.984
UOSN2	1.68	1	1.574	0.843	-0.455	RC10	3.08	4	1.548	-0.19	-1.51
UOSN3	2.3	2	1.71	0.045	-1.201	RC11	4.72	5	0.841	-2.383	8.02
UOSN4	1.45	1	1.321	1.008	0.237	RC12	4.13	5	1.399	-1.382	0.395
UOSN5	1.91	2	1.508	0.367	-0.777	RC13	4.15	5	1.363	-1.452	0.67
UOSN6	2.04	2	1.558	0.205	-0.991	RC14	3.9	5	1.547	-1.063	-0.0519
UOSN7	2.22	2	1.643	0.044	-1.138	RC15	3.74	5	1.602	-0.823	-0.993

UOSN8	2.27	2	1.674	0.033	-1.162	RC16	4.6	5	1.007	-2.735	6.495
UOSN9	1.76	2	1.414	0.475	-0.497	RC17	4.64	5	0.89	-2.826	7.738
UOSN10	2.04	2	1.652	0.268	-1.15	REN1	3.63	4	1.312	-0.431	-1.227
ATT1	4.2	4	0.756	-1.106	2.184	REN2	2.45	2	1.354	0.462	-1.126
ATT2	4.06	4	0.848	-0.954	0.977	REN3	3.25	4	1.375	-0.211	-1.337
ATT3	3.95	4	0.918	-0.812	0.56	REN4	3.09	3	1.442	-0.1	-1.414
ATT4	3.19	3	1.155	-0.134	-0.878	REN5	3.58	4	1.469	-0.473	-1.299
ATT5	2.98	3	1.109	0.132	-0.718	REN6	3.71	4	1.323	-0.614	-0.938
ATT6	2.94	3	1.157	0.199	-0.833	REN7	4.2	5	1.366	-1.452	0.497
ATT7	3.52	4	1.015	-0.477	-0.572	REN8	3.23	4	1.353	-0.262	-1.258
ATT8	3.83	4	0.897	-1.019	1.251	REN9	3.87	4	1.35	-0.884	-0.61
ATT9	3.59	4	1.02	-0.488	-0.441	RAL1	3.45	4	1.467	-0.453	-1.218
ATT10	2.77	3	0.962	0.372	-0.21	RAL2	3.43	4	1.503	-0.411	-1.348
ATT11	3.05	3	1.143	-0.012	-0.965	RAL3	4.08	5	1.318	-1.115	-0.186
GC1	1.21	0	1.836	1.177	-0.215	RAL4	3.89	4	1.205	-0.807	-0.521
GC2	1.11	0	1.726	1.282	0.137	RAL5	3.78	4	1.324	-0.68	-0.921
GC3	0.98	0	1.578	1.503	0.975	RAL6	4.1	5	1.182	-0.992	-0.335
LS1	1.64	1	1.07	1.704	2.066	RAL7	3.79	4	1.371	-0.779	-0.778
LS2	1.56	1	1.096	1.946	2.755	RAL8	3.16	3.5	1.499	-0.149	-1.477
LS3	2.62	2	1.53	0.38	-1.329	RAL9	3.95	4	1.198	-0.829	-0.567

Valid Sample (N) = 422; Items (N) = 130

\*UOI = Use of Internet

\*UOM = Use of Mobile

\*UOSN = Use of Social Network

\*ATT = Attitude

\*LS = Life Style

\*FA = Free Access

\*INN = Product Innovation

\*PGI = Peer group Influence

\*RC = Religious Coping

\*REN = Religious Enrichment

\*RAL = Religious Altruism

\*GC = Gender Control

**APPENDIX - B**

<b>Descriptive Statistics and Assessment of Normality –Male</b>											
Items Codes	Mean	Median	SD	Skewness	kurtosis	Items Codes	Mean	Median	SD	Skewness	Kurtosis
UOI1	2.67	2	1.268	0.46	-0.811	LS7	4.02	5	1.213	-1.021	-0.065
UOI2	2.6	2	1.286	0.428	-0.825	LS8	3.85	4	1.319	-0.808	-0.614
UOI3	3.19	3	1.281	-0.048	-1.146	LS9	2.5	2	1.359	0.526	-0.885
UOI4	3.19	3	1.413	-0.094	-1.341	LS10	2.77	3	1.356	0.315	-1.037
UOI5	2.58	2	1.285	0.308	-1.02	LS11	1.6	1	1.12	1.985	2.976
UOI6	1.67	1	1.021	1.553	1.744	LS12	2.81	3	1.329	0.37	-0.992
UOI7	3.19	3	1.293	-0.168	-1.151	LS13	2.67	3	13.29	0.387	-0.928
UOI8	2.59	2	1.358	0.469	-0.94	LS14	3.1	3	1.406	0.038	-1.311
UOI9	3.05	3	1.291	0.104	-1.08	LS15	2.83	3	1.313	0.221	-1.002
UOI10	2.1	2	1.191	0.904	-0.02	FA1	2	2	1.079	0.972	0.321
UOI11	2.14	2	1.201	0.812	-0.238	FA2	2.7	3	1.262	0.255	-0.931
UOI12	2.24	2	1.226	0.697	-0.474	FA3	2.58	3	1.189	0.367	-0.682
UOI13	2.18	2	1.261	0.803	-0.429	FA4	2.29	2	1.175	0.746	-0.155
UOI14	1.94	2	1.111	1.089	0.452	FA5	1.71	1	0.971	1.375	1.46
UOI15	3.38	4	1.339	-0.321	-1.104	FA6	2.33	2	1.289	0.67	-0.611
UOI16	2.45	2	1.256	0.594	-0.633	FA7	1.82	1	1.116	1.326	0.831
UOI17	3.2	3	1.291	-0.15	-1.078	FA8	1.86	1	1.171	1.311	0.783
UOI18	1.78	1	1.03	1.201	0.698	FA9	2.29	2	1.288	0.691	-0.58
UOI19	2.88	3	1.292	0.228	-1.044	INN1	2.96	3	1.392	0.203	-1.201
UOI20	2.67	2	1.411	0.4	-1.113	INN2	2.91	3	1.342	0.209	-1.073
UOI21	2.73	3	1.284	0.361	-0.913	INN3	3.23	3	1.367	-0.091	-1.23

UOI22	2.07	2	1.273	0.994	-0.129	PGI1	2.67	3	1.124	0.48	-0.359
UOI23	2.26	2	1.288	0.692	-0.699	PGI2	2.4	2	1.196	0.44	-0.712
UOI24	1.81	1	1.101	1.23	0.63	PGI3	2.74	3	1.113	0.303	-0.487
UOM1	2.7	3	1.018	0.757	0.168	PGI4	2.74	3	1.202	0.299	-0.695
UOM2	3.98	4	1.09	-0.71	-0.833	PGI5	2.54	2	1.398	0.471	-1.034
UOM3	2.26	2	1.209	0.739	-0.248	PGI6	2.84	3	1.31	0.289	-0.972
UOM4	1.98	2	1.116	0.993	0.198	PGI7	2.78	3	1.294	0.33	-0.908
UOM5	2.98	3	1.309	0.14	-1.091	PGI8	2.79	3	1.248	0.343	-0.774
UOM6	3.33	3	1.308	-0.068	-1.276	RC1	3.62	4	1.506	-0.693	-1.004
UOM7	3.07	3	1.187	0.251	-0.877	RC2	3.23	4	1.586	-0.285	-1.507
UOM8	2.64	3	1.06	0.532	0.049	RC3	4.39	5	1.084	-1.794	2.253
UOM9	2.71	3	1.242	0.312	-0.849	RC4	4.5	5	1.043	-2.27	4.284
UOM10	3.06	3	1.297	0.02	-1.12	RC5	3.77	4	1.242	-0.837	-0.391
UOM11	2.14	2	1.189	0.919	0.025	RC6	4.48	5	1.119	-2.065	3.016
UOM12	2.64	3	1.358	0.128	-1.022	RC7	3.68	4	1.5	-0.709	-0.987
UOM13	2.88	3	1.324	0.138	-1.031	RC8	3.72	4	1.313	-0.786	-0.541
UOM14	3.24	3	1.33	-0.048	-1.229	RC9	3.9	4	1.285	-0.994	-0.153
UOSN1	3.08	3	1.355	-0.549	-0.052	RC10	2.57	2	1.461	0.257	-1.447
UOSN2	2.13	1.5	1.509	0.591	-0.914	RC11	3.39	4	1.468	-0.489	-1.175
UOSN3	3.29	4	1.467	-0.718	-0.244	RC12	3.94	5	1.518	-1.078	-0.445
UOSN4	2.09	2	1.313	0.489	-0.471	RC13	4.03	5	1.477	-1.194	-0.178
UOSN5	2.34	2	1.276	0.246	-0.325	RC14	4.15	5	1.376	-1.373	0.402
UOSN6	2.51	2	1.255	0.055	-0.145	RC15	4.03	5	1.397	-1.213	0.039
UOSN7	2.97	3	1.394	-0.385	-0.395	RC16	4.54	5	1.015	-2.359	4.7
UOSN8	2.88	3	1.394	-0.385	-0.395	RC17	4.64	5	0.868	-2.698	6.934



UOSN9	2.39	2	1.35	0.229	-0.537	REN1	4.05	4	1.15	-0.967	-0.258
UOSN10	2.66	3	1.557	0.059	-1.096	REN2	3.17	3	1.375	-0.207	-1.268
ATT1	4.18	4	0.854	-1.48	3.228	REN3	3.62	4	1.312	-0.484	-1.104
ATT2	4.03	4	0.932	-1.375	2.244	REN4	3.99	5	1.298	-0.907	-0.602
ATT3	4	4	0.922	-1.199	1.737	REN5	3.89	4	1.233	-0.819	-0.508
ATT4	3.23	3	1.246	-0.249	-1.013	REN6	3.47	4	1.319	-0.39	-1.082
ATT5	3.02	3	1.189	-0.048	-0.954	REN7	4.56	5	0.931	-2.226	4.118
ATT6	3.12	3	1.101	-0.148	-0.712	REN8	3.83	4	1.29	-0.804	-0.565
ATT7	3.77	4	0.956	-0.981	0.972	REN9	4.36	5	1.131	-1.671	1.57
ATT8	3.41	4	1.06	-0.433	-0.436	RAL1	3.76	4	1.303	-0.57	-1.053
ATT9	3.86	4	0.875	-1.063	1.5	RAL2	2.91	3	1.447	0.095	-1.053
ATT10	3.46	4	1.134	-0.419	-0.643	RAL3	3.43	4	1.51	-0.374	-1.366
ATT11	2.75	3	1.058	0.262	-0.435	RAL4	4.15	5	1.242	-1.234	0.239
LS1	1.64	1	1.1	1.783	2.378	RAL5	4.01	5	1.249	-0.91	-0.54
LS2	2.71	2.5	1.395	0.376	-1.088	RAL6	4.02	5	1.274	-1.012	-0.301
LS3	1.9	1	1.451	1.333	0.167	RAL7	4.14	5	1.162	-1.107	-0.032
LS4	2.69	3	1.395	0.326	-1.13	RAL8	4	5	1.244	-0.992	-0.164
LS5	2.17	2	1.391	0.904	-0.495	RAL9	3.82	4	1.288	-0.762	-0.678
LS6	1.95	1	1.344	1.201	0.124	RAL10	4.17	5	1.114	-1.122	0.041

Valid Sample (N) = 362; Items (N) = 130

\*UOI = Use of Internet

\*UOM = Use of Mobile

\*UOSN = Use of Social Network

\*ATT = Attitude

\*LS = Life Style

\*FA = Free Access

\*INN = Product Innovation

\*PGI = Peer group Influence

\*RC = Religious Coping

\*REN = Religious Enrichment

\*RAL = Religious Altruism

**APPENDIX - C**

<b>Standardized Regression Weights Initial Measurement Model (Female)</b>					
Observed Variables	Latent Variables	Factor Loadings	Observed Variables	Latent Variables	Factor Loadings
UOI25	UOI	0,487	LS11	LS	0,373
UOI24	UOI	0,332	LS10	LS	0,342
UOI23	UOI	0,441	LS9	LS	0,662
UOI22	UOI	0,244	LS8	LS	0,382
UOI21	UOI	0,347	LS7	LS	0,178
<b>UOI20</b>	<b>UOI</b>	<b>0,057</b>	LS6	LS	0,068
UOI19	UOI	0,118	LS5	LS	0,334
UOI18	UOI	0,258	LS4	LS	0,509
UOI17	UOI	0,547	LS3	LS	0,295
UOI16	UOI	0,503	LS2	LS	0,268
UOI15	UOI	0,634	LS1	LS	0,384
UOI14	UOI	0,597	FA8	FA	0,515
UOI13	UOI	0,455	FA7	FA	0,519
UOI12	UOI	0,523	FA6	FA	0,618
UOI11	UOI	0,514	FA5	FA	0,554
UOI10	UOI	0,597	FA4	FA	0,660
UOI9	UOI	0,381	FA3	FA	0,596

UOI8	UOI	0,462	FA2	FA	0,522
UOI7	UOI	0,598	FA1	FA	0,393
UOI6	UOI	0,605	INN3	INN	0,724
UOI5	UOI	0,481	INN2	INN	0,899
UOI4	UOI	0,590	INN1	INN	0,733
UOI3	UOI	0,508	PGI8	PGI	0,503
UOI2	UOI	0,592	PGI7	PGI	0,616
UOI1	UOI	0,637	PGI6	PGI	0,542
UOM13	UOM	0,513	PGI5	PGI	0,641
UOM12	UOM	0,216	PGI4	PGI	0,707
UOM11	UOM	0,246	PGI3	PGI	0,682
UOM10	UOM	0,537	PGI2	PGI	0,484
UOM9	UOM	0,686	PGI1	PGI	0,669
UOM8	UOM	0,621	RC17	RC	0,513
UOM7	UOM	0,505	RC16	RC	0,617
UOM6	UOM	0,633	RC15	RC	0,797
UOM5	UOM	0,424	RC14	RC	0,793
UOM4	UOM	0,322	RC13	RC	0,763
UOM3	UOM	0,632	RC12	RC	0,740
UOM2	UOM	0,562	RC11	RC	0,546
UOM1	UOM	0,233	RC10	RC	0,650
UOSN10	UOSN	0,830	RC9	RC	0,117
UOSN9	UOSN	0,846	RC8	RC	0,606

UOSN8	UOSN	0,908	RC7	RC	0,678
UOSN7	UOSN	0,901	RC6	RC	0,714
UOSN6	UOSN	0,888	RC5	RC	0,632
UOSN5	UOSN	0,891	RC4	RC	0,468
UOSN4	UOSN	0,703	RC3	RC	0,575
UOSN3	UOSN	0,852	RC2	RC	0,417
UOSN2	UOSN	0,675	RC1	RC	0,427
UOSN1	UOSN	0,819	REN9	REN	0,632
ATT11	ATT	0,177	REN8	REN	0,718
ATT10	ATT	0,193	REN7	REN	0,195
ATT9	ATT	0,051	REN6	REN	0,797
ATT8	ATT	0,500	REN5	REN	0,732
ATT7	ATT	0,384	REN4	REN	0,753
ATT6	ATT	0,417	REN3	REN	0,631
ATT5	ATT	0,466	REN2	REN	0,595
ATT4	ATT	0,310	REN1	REN	0,701
ATT3	ATT	0,643	RAL9	RAL	0,619
ATT2	ATT	0,703	RAL8	RAL	0,231
ATT1	ATT	0,604	RAL7	RAL	0,649
GC3	GC	0,924	RAL6	RAL	0,738
GC2	GC	0,993	RAL5	RAL	0,800
GC1	GC	0,941	RAL4	RAL	0,755
LS14	LS	0,758	RAL3	RAL	0,532

LS13	LS	0,703	RAL2	RAL	0,315
LS12	LS	0,510	RAL1	RAL	0,273
*UOI = Use of Internet			*FA = Free Access		
*UOM = Use of Mobile			*INN = Product Innovation		
*UOSN = Use of Social Network			*PGI = Peer group Influence		
*ATT = Attitude			*RC = Religious Coping		
*GC = Gender Control			*REN = Religious Enrichment		
*LS = Life Style			*RAL = Religious Altruism		

**APPENDIX - D**

<b>Standardized Regression Weights Initial Measurement Model (Male)</b>					
Observed Variables	Latent Variables	Factor Loadings	Observed Variables	Latent Variables	Factor Loadings
LS15	LS	,470	UOI5	UOI	,365
LS14	LS	,652	UOI4	UOI	,350
LS13	LS	,495	UOI3	UOI	,398
LS12	LS	,503	UOI2	UOI	,416
LS11	LS	,304	UOI1	UOI	,462
LS10	LS	,653	UOM14	UOM	,638
LS9	LS	,514	UOM13	UOM	,274
LS8	LS	,117	UOM12	UOM	,280
LS7	LS	,379	UOM11	UOM	,326
LS6	LS	,317	UOM10	UOM	,597
LS5	LS	,613	UOM9	UOM	,573
LS4	LS	,456	UOM8	UOM	,462
LS3	LS	,196	UOM7	UOM	,438
LS2	LS	,442	UOM6	UOM	,334
LS1	LS	,468	UOM5	UOM	,635
ATT11	ATT	,008	UOM4	UOM	,541
ATT10	ATT	,019	UOM3	UOM	,232
ATT9	ATT	,543	UOM2	UOM	,243
ATT8	ATT	,489	UOM1	UOM	,306

ATT7	ATT	,589	UOSN10	UOMN	,722
ATT6	ATT	,428	UOSN9	UOSN	,755
ATT5	ATT	,331	UOSN8	UOSN	,830
ATT4	ATT	,192	UOSN7	UOSN	,835
ATT3	ATT	,606	UOSN6	UOSN	,795
ATT2	ATT	,695	UOSN5	UOSN	,762
ATT1	ATT	,644	UOSN4	UOSN	,466
FA9	FA	,532	UOSN3	UOSN	,721
FA8	FA	,593	UOSN2	UOSN	,462
FA7	FA	,561	UOSN1	UOSN	,716
FA6	FA	,660	RC2	RC	,452
FA5	FA	,461	RC1	RC	,514
FA4	FA	,617	RC3	RC	,730
FA3	FA	,648	RC4	RC	,674
FA2	FA	,592	RC5	RC	,665
FA1	FA	,396	RC6	RC	,761
PGI8	PGI	,647	RC7	RC	,714
PGI7	PGI	,718	RC8	RC	,754
PGI6	PGI	,609	RC9	RC	,683
PGI5	PGI	,670	RC10	RC	,161
PGI4	PGI	,701	RC11	RC	,704
PGI3	PGI	,661	RC12	RC	,720
PGI2	PGI	,580	RC13	RC	,756

PGI1	PGI	,571	RC14	RC	,729
INN3	INN	,776	RC15	RC	,749
INN2	INN	,816	RC16	RC	,673
INN1	INN	,798	RC17	RC	,470
UOI24	UOI	,335	RAL10	RAL	,653
UOI23	UOI	,468	RAL9	RAL	,435
UOI22	UOI	,356	RAL8	RAL	,765
UOI21	UOI	,497	RAL7	RAL	,768
UOI20	UOI	,277	RAL6	RAL	,772
UOI19	UOI	,238	RAL5	RAL	,754
UOI18	UOI	,347	RAL4	RAL	,649
UOI17	UOI	,509	RAL3	RAL	,337
UOI16	UOI	,564	RAL2	RAL	,358
UOI15	UOI	,565	RAL1	RAL	,472
UOI14	UOI	,621	REN9	REN	,718
UOI13	UOI	,526	REN8	REN	,767
UOI12	UOI	,526	REN7	REN	,600
UOI11	UOI	,576	REN6	REN	,756
UOI10	UOI	,555	REN5	REN	,732
UOI9	UOI	,421	REN4	REN	,784
UOI8	UOI	,493	REN3	REN	,767
UOI7	UOI	,483	REN2	REN	,644
UOI6	UOI	,436	REN1	REN	,740



\*UOI = Use of Internet

\*UOM = Use of Mobile

\*UOSN = Use of Social Network

\*ATT = Attitude

\*LS = Life Style

\*FA = Free Access

\*INN = Product Innovation

\*PGI = Peer group Influence

\*RC = Religious Coping

\*REN = Religious Enrichment

\*RAL = Religious Altruism

**APPENDIX - E**

<b>Standardized Regression Weights for Final Measurement Model (Female)</b>					
Observed Variables	Latent Variables	Factor Loadings	Observed Variables	Latent Variables	Factor Loadings
UOI15	UOI	0,603	INN2	INN	0,898
UOM10	UOM	0,582	INN1	INN	0,736
UOM9	UOM	0,785	PGI5	PGI	0,527
UOM8	UOM	0,647	PGI4	PGI	0,789
UOM6	UOM	0,648	PGI3	PGI	0,752
UOM3	UOM	0,675	RC13	RC	0,622
UOSN9	UOSN	0,839	RC10	RC	0,720
UOSN8	UOSN	0,911	RC7	RC	0,691
UOSN7	UOSN	0,894	REN6	REN	0,787
UOSN6	UOSN	0,866	REN5	REN	0,728
UOSN5	UOSN	0,876	REN4	REN	0,750
UOSN4	UOSN	0,702	REN3	REN	0,673
UOSN3	UOSN	0,857	REN2	REN	0,575
UOSN2	UOSN	0,697	RAL7	RAL	0,649
UOSN1	UOSN	0,826	RAL6	RAL	0,748
ATT3	ATT	0,577	RAL5	RAL	0,813
ATT2	ATT	0,894	RAL4	RAL	0,740
ATT1	ATT	0,632	RAL3	RAL	0,597
GI3	GI	0,924	PGI1	PGI	0,740

<b>GC2</b>	<b>GC</b>	<b>0,993</b>	RC5	RC	0,530
GC1	GC	0,940	RC6	RC	0,778
LS14	LS	0,843	RC15	RC	0,846
LS13	LS	0,731	RC14	RC	0,832
LS9	LS	0,617	<b>UOI7</b>	<b>UOI</b>	<b>0,507</b>
FA8	FA	0,715	UOI2	UOI	0,715
FA7	FA	0,678	UOI1	UOI	0,827
FA6	FA	0,747	UOSN10	UOSN	0,836
INN3	INN	0,723	REN1	REN	0,726
*UOI = Use of Internet			*INN = Product Innovation		
*UOM = Use of Mobile			*PGI= Peer group Influence		
*UOSN = Use of Social Network			*RC = Religious Coping		
*ATT = Attitude			*REN = Religious Enrichment		
*LS = Life Style			*RA 1 = Religious Altruism		
*FRA= Free Access			GC = Gender Control		

**APPENDIX - F**

<b>Standardized Regression Weights for Final Measurement Model (Male)</b>					
Observed and Variables	Latent Variables	Factor Loadings	Observed Variables	Latent Variables	Factor Loadings
LS12	LS	,515	UOSN6	UOSN	,784
LS10	LS	,683	UOSN5	UOSN	,739
LS5	LS	,531	UOSN3	UOSN	,678
ATT3	ATT	,652	UOSN1	UOSN	,661
ATT2	ATT	,827	RC5	RC	,718
FA8	FA	,629	RC6	RC	,704
FA7	FA	,663	RC8	RC	,774
FA6	FA	,811	RC9	RC	,743
PGI4	PGI	,673	RAL10	RAL	,664
PGI3	PGI	,775	RAL8	RAL	,781
PGI2	PGI	,661	RAL7	RAL	,785
PGI1	PGI	,710	RAL6	RAL	,770
INN3	INN	,782	RAL5	RAL	,728
INN2	INN	,810	RAL4	RAL	,633
INN1	INN	,798	REN9	REN	,704
UOI14	UOI	,697	REN8	REN	,756
UOI13	UOI	,795	REN6	REN	,753
UOI12	UOI	,560	REN5	REN	,748
UOI11	UOI	,859	REN4	REN	,785
UOM14	UOM	,750	REN3	REN	,777

UOM10	UOM	,504	REN1	REN	,736
UOM9	UOM	,527	ATT1	ATT	,705
UOSN9	UOSN	,762	LS14	LS	,649
UOSN8	UOSN	,858	RC3	RC	,696
UOSN7	UOSN	,853			
*UOI = Use of Internet			*FA = Free Access		
*UOM = Use of Mobile			*INN = Product Innovation		
*UOSN = Use of Social Network			*PGI= Peer group Influence		
*ATT = Attitude			*RC = Religious Coping		
*LS = Life Style			*REN = Religious Enrichment		
			*RAL = Religious Altruism		

**APPENDIX –G**

Correlations Between Latent Variables (Female)							
			Estimate				Estimate
UOI	<-->	UOSN	,209	GC	<-->	LS	,005
UOI	<-->	GC	,021	GC	<-->	FA	,027
UOI	<-->	LS	,131	GC	<-->	INN	,115
UOI	<-->	FA	,217	GC	<-->	PGI	,015
UOI	<-->	INN	,275	GC	<-->	RC	,029
UOI	<-->	PGI	,303	GC	<-->	REN	,001
UOI	<-->	RC	,129	GC	<-->	RAL	,013
UOI	<-->	REN	,240	LS	<-->	FA	,070
UOM	<-->	UOSN	,303	LS	<-->	INN	,287
UOM	<-->	ATT	,153	LS	<-->	PGI	,304
UOM	<-->	LS	,190	LS	<-->	RC	,033
UOM	<-->	FA	,226	LS	<-->	REN	,280
UOM	<-->	INN	,213	LS	<-->	RAL	,055
UOM	<-->	PGI	,268	FA	<-->	INN	,248
UOM	<-->	RC	,020	FA	<-->	PGI	,199
UOM	<-->	RAL	,027	FA	<-->	RC	,066

UOSN	<-->	ATT	,224	FA	<-->	REN	,036
UOSN	<-->	GC	,119	FA	<-->	RAL	,039
UOSN	<-->	LS	,130	INN	<-->	PGI	,459
UOSN	<-->	FA	,191	INN	<-->	RC	,041
UOSN	<-->	INN	,208	INN	<-->	REN	,084
UOSN	<-->	PGI	,156	INN	<-->	RAL	,254
UOSN	<-->	RC	,038	PGI	<-->	RC	,050
UOSN	<-->	REN	,040	PGI	<-->	REN	,094
UOSN	<-->	RAL	,016	PGI	<-->	RAL	,201
ATT	<-->	GC	,061	RC	<-->	REN	,637
ATT	<-->	LS	,312	RC	<-->	RAL	,392
ATT	<-->	FA	,183	UOI	<-->	RAL	,192
ATT	<-->	INN	,208	UOM	<-->	REN	,010
ATT	<-->	PGI	,036	UOI	<-->	UOM	,646
ATT	<-->	RC	,125	REN	<-->	RAL	,645
ATT	<-->	REN	,099	UOM	<-->	GI	,040
ATT	<-->	RAL	,147	UOI	<-->	ATT	,195
*UOI = Use of Internet				*FA = Free Access			
*UOM = Use of Mobile				*INN = Product Innovation			
*UOSN = Use of Social Network				*PGI = Peer group Influence			
*ATT = Attitude				*RELC = Religious Coping			
*LS = Life Style				*REN = Religious Enrichment			
*GC = Gender Control				*RAL = Religious Altruism			

**APPENDIX – H**

Correlations Between Latent Variables Final Measurement Model (Male)							
			Estimate				Estimate
LS	<-->	ATT	,118	PGI	<-->	UOM	,381
LS	<-->	FA	,361	UOM	<-->	UOSN	,585
LS	<-->	PGI	,437	LS	<-->	RC	,142
LS	<-->	INN	,685	LS	<-->	RAL	,210
LS	<-->	REN	,236	ATT	<-->	RAL	,130
ATT	<-->	FA	,173	INN	<-->	RAL	,070
ATT	<-->	PGI	,094	PGI	<-->	RAL	,213
ATT	<-->	INN	,074	UOI	<-->	RAL	,314
ATT	<-->	UOI	,110	FA	<-->	RAL	,012
ATT	<-->	UOM	,264	UOI	<-->	RC	,535
ATT	<-->	UOSN	,063	RC	<-->	RAL	,515
ATT	<-->	RC	,015	RAL	<-->	REN	,659
ATT	<-->	REN	,076	FA	<-->	RC	,014
FA	<-->	PGI	,314	FA	<-->	REN	,012
FA	<-->	INN	,379	PGI	<-->	UOSN	,289
INN	<-->	UOI	,038	PGI	<-->	UOI	,100
INN	<-->	UOM	,387	UOI	<-->	UOSN	,095
UOI	<-->	UOM	,253	LS	<-->	UOSN	,262
UOI	<-->	REN	,467	FA	<-->	UOSN	,357
UOSN	<-->	RC	,129	INN	<-->	RC	,001



UOSN	<-->	REN	,086	PGI	<-->	RC	,188
RC	<-->	REN	,771	PGI	<-->	REN	,203
PGI	<-->	INN	,495	INN	<-->	REN	,018
INN	<-->	UOSN	,369	LS	<-->	UOI	,107
UOM	<-->	RC	,081	LS	<-->	UOM	,313
FA	<-->	UOM	,376	FA	<-->	UOI	,303
UOM	<-->	REN	,083				
UOM	<-->	RAL	,179				
UOSN	<-->	RAL	,098				

\*UOI = Use of Internet

\*UOM = Use of Mobile

\*UOSN = Use of Social Network

\*ATT = Attitude

\*LS = Life Style

\*FA = Free Access

\*INN = Product Innovation

\*PGI = Peer group Influence

\*RC = Religious Coping

\*REN = Religious Enrichment

\*RAL = Religious Altruism

## APPENDIX – I

### QUESTIONNAIRE FOR FEMALES RESPONDENTS (ENGLISH VERSION)

PhD Dissertation: Questionnaire for **Females/Women**

**Dear Respondent,**

I am a PhD student at the Faculty of Economics University of Porto, working on my doctoral thesis research. The interest of my research is “To Analyze Behavior of Young Consumers towards the Use of Digital Technology in Tajikistan”. The study involves response to a structured questionnaire from various respondents. There is no right or wrong response. Your response will be helpful for us to understand use of the digital technology among young people, and make this research more comprehensive. I am grateful that you would spend a few minutes to complete the following questions. All the provided information is **totally anonymous** and used for academic purpose only. Thank you!

**(Siyovush Bobokhonov – Faculty of Economics University of Porto)**

#### The use of Mobile Phone and Internet

**Q1.** When did you start the use of Mobile Phone and Internet? (Please tick the below age which belong to you)

<b>Mobile phone use</b>	<input type="checkbox"/> since 10 years old	<input type="checkbox"/> 11 - 15 years old	<input type="checkbox"/> 16-20 years old	<input type="checkbox"/> 21-25 years old	<input type="checkbox"/> 26-30 years old
<b>Internet use</b>	<input type="checkbox"/> since 10 years old	<input type="checkbox"/> 11 - 15 years old	<input type="checkbox"/> 16-20 years old	<input type="checkbox"/> 21-25 years old	<input type="checkbox"/> 26-30 years old

**Q2.** When did you start the use of **Odnoklassniki** and/or **Facebook**?

<b>Odnoklassniki</b>	<input type="checkbox"/> 16-18 years old	<input type="checkbox"/> 19 - 21 years old	<input type="checkbox"/> 22-24 years old	<input type="checkbox"/> 25-27 years old	<input type="checkbox"/> 28-30 years old
<b>Facebook</b>	<input type="checkbox"/> 16-18 years old	<input type="checkbox"/> 19 - 21 years old	<input type="checkbox"/> 22-24 years old	<input type="checkbox"/> 25-27 years old	<input type="checkbox"/> 28-30 years old

**Q3.** How did you obtain your first Mobile Phone?

- I bought it myself       My parents/grandparents bought       My company bought  
 My husband/wife bought       My sisters/brothers bought       My friends/others bought

**Q4.** How often do you use Mobile Phone and Internet? (Frequency of use)

**Mobile phone use**

- A few times a month       More than 3 hour per day       Less than 1 hour per day  
 A few times a week       1- 3 hour per day       Every hour

**Internet use**

- A few times a month       More than 3 hour per day       Less than 1 hour per day  
 A few times a week       1- 3 hour per day       Every hour

**Q5.** Does anyone control you when you are using Mobile Phone or Internet?

**Mobile phone use**

- No one       My boyfriend/girlfriend       My company/university  
 My parents       My brother/sister       Other \_\_\_\_\_  
 My husband/wife

**Internet use**

- No one                       My boyfriend/girlfriend                       My company/university  
 My parents                       My brother/sister                       Other \_\_\_\_\_  
 My husband/wife

**Q6.** Please indicate how often you do each of the following activities on your **Mobile Phone**.

1= Never, 2= Rarely, 3=Often, 4= Frequently, 5=Always

No	Items	Never $\longleftrightarrow$ Always				
		1	2	3	4	5
1	Browse the web on a mobile phone					
2	Check the news on a mobile phone					
3	Use apps (for any purpose) on a mobile phone					
4	Search for information with a mobile phone					
5	Using mobile phone during class or work time					

**Q7.** Please indicate the below activities which you practice on the **Internet**.

1= Never, 2= Rarely, 3=Often, 4= Frequently, 5=Always

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	Seeking international news.					
2	Seeking local news					
3	Seeking information linked job					
4	Improving knowledge and refine skills					

**Q8.** Please indicate in the scale 1 to 5. How often do you do each of the situations?

1 – Never, 2 – Rarely, 3 – Neutral, 4 – Sometimes, 5 – Always

No	Statements	Never ←————→ Always				
		1	2	3	4	5
1	I pray because if I do not, Allah will disapprove of me					
2	I read the Holy Qura'n because I would feel guilty if I did not					
3	Except in prayers, how often do you read or listen to the Holy Qura'n?					
4	When I face a problem in life, I read the Holy Qura'n to find consolation					
5	I pray because I find it satisfying					
6	I read the Holy Qura'n because I feel that Allah is talking to me when I do that					
7	I read the Holy Qura'n because I find it satisfying					

**Q9.** How often do you do each of the following activities on social networking sites such as Facebook or Odnoklassniki?

1 = Never, 2 = Rarely, 3 = Often, 4 = Frequently, 5 = Always.

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	Check your Facebook and Odnoklassniki page or other social networks					
2	Check your Facebook page from your smartphone					
3	Check your Odnoklassniki page from your smartphone					
4	Check Facebook and Odnoklassniki at work or school					
5	Post status updates					
6	Post photos					
7	Browse profiles and photos.					
8	Read postings.					
9	Comment on postings, status updates, photos, etc.					
10	Click “Like” to a posting, photo, etc.					



**Q13.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1= Never, 2= Rarely, 3=Sometimes, 4= Often, 5=All the time

Items	Never ←————→ All the time				
	1	2	3	4	5
I like to try different things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like a great deal of variety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like new and different styles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q14.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Usually, 5 – Always

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	My friends and neighbors often ask my advice about some of products/brands they plan to buy					
2	My friends come to me more often than I go to them for information about products/brands					
3	I feel that I am generally regarded by my friends and neighbors as a good source of advice about products/brands					
4	I can think of at least two people whom I have told about some products/brands in the last six months					



**Q15.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Usually, 5 – Always

No	Items	Never ←→ Always				
		1	2	3	4	5
1	Buying things gives me a lot of pleasure					
2	I wouldn't be any happier if I owned nicer things					
3	I would be happier if I could afford to buy more things					

**Please only answer the questions, if you are married:**

**Q16.** Please indicate in the scale 1 to 5. What is your own situation about the following statements?

1 – Very strong, 2 – Strong, 3 – Weak, 4 – Very weak, 5 – Absent (free to use)

No	Items	Very strong ←→ Absent free to use				
		1	2	3	4	5
1	To what extent is the control over <u>mobile phone</u> use by your <u>husband</u> ?					
2	To what extent was the control over <u>Internet site</u> use by your <u>husband</u> ?					
3	To what extent was the control over <u>Social networks</u> (Odnoklassniki, Facebook or other) use by your <u>husband</u> ?					

**Q17.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Sometimes, 5- Always

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	Prefer to deal with people whose religious commitment high					
2	Care about neighbors and their wellbeing					
3	Advise others to do good and avoid sin					
4	Give away Charity as religious duty					
5	Tolerate others for God’s sake					

**Q18.** Please indicate in the scale 1 to 5. How often do you do each of the situations?

1 – Never, 2 – Rarely, 3 – Neutral, 4 – Sometimes, 5 – Always

No	Statements	Never ←————→ Always				
		1	2	3	4	5
1	Watch, listen or attendant in the religious meeting.					
2	Read/ listen to Koran					
3	Read/Listen to Prophets’ biography					
4	Recite some Koranic verses when beginning work					
5	Try to learn by heart some Koranic verses					
6	Read Prophet’s Sayings					

**Q19. In the future** if you could do whatever you want/wish (no budget restrictions, total freedom, no control) what you will do?

1 – Much less, 2 – Less, 3 – Same, 4– More, 5- A lot

No	Items	Much less ←————→ A lot				
		1	2	3	4	5
1	Watch online movies					
2	Buy product online (cloths/fashion, electronics)					
3	Playing games					

**Q20. Demographic Profile of Respondent:**

(Please tick one appropriate answer in each of the following questions).

1. Sex: \_\_\_\_\_

2. Age: \_\_\_\_\_

3. Marital Status:       Married       Unmarried       Divorced

4. Occupation:       Student       Practitioner       Other \_\_\_\_\_

5. Monthly Family Income:     Less than 300 TJS       501 to 700 TJS       More than 1000 TJS  
    301 to 500 TJS       701 to 1000 TJS

6. Education level:       11 schooling years       Undergraduate incomplete  
    Graduate of colleges       Undergraduate complete  
    Post-graduate

7. Where did you live before coming to this city?     Rural area       Small city  
    Center of region       Dushanbe city

## APPENDIX – J

### QUESTIONNAIRE FOR MALES RESPONDENTS (ENGLISH VERSION)

PhD Dissertation: Questionnaire for **Males/Men**

**Dear Respondent,**

I am a PhD student at the Faculty of Economics University of Porto, working on my doctoral thesis research. The interest of my research is “To Analyze Behavior of Young Consumers towards the Use of Digital Technology in Tajikistan”. The study involves response to a structured questionnaire from various respondents. There is no right or wrong response. Your response will be helpful for us to understand use of the digital technology among young people, and make this research more comprehensive. I am grateful that you would spend a few minutes to complete the following questions. All the provided information is **totally anonymous** and used for academic purpose only. Thank you!

**(Siyovush Bobokhonov – Faculty of Economics University of Porto)**

#### The use of Mobile Phone and Internet

**Q1.** When did you start the use of Mobile Phone and Internet? (Please tick the below age which belong to you)

<b>Mobile phone use</b>	<input type="checkbox"/> since 10 years old	<input type="checkbox"/> 11 - 15 years old	<input type="checkbox"/> 16-20 years old	<input type="checkbox"/> 21-25 years old	<input type="checkbox"/> 26-30 years old
<b>Internet use</b>	<input type="checkbox"/> since 10 years old	<input type="checkbox"/> 11 - 15 years old	<input type="checkbox"/> 16-20 years old	<input type="checkbox"/> 21-25 years old	<input type="checkbox"/> 26-30 years old

**Q2. When did you start the use of Odnoklassniki and/or Facebook?**

<b>Odnoklassniki</b>	<input type="checkbox"/> 16-18 years old	<input type="checkbox"/> 19 - 21 years old	<input type="checkbox"/> 22-24 years old	<input type="checkbox"/> 25-27 years old	<input type="checkbox"/> 28-30 years old
<b>Facebook</b>	<input type="checkbox"/> 16-18 years old	<input type="checkbox"/> 19 - 21 years old	<input type="checkbox"/> 22-24 years old	<input type="checkbox"/> 25-27 years old	<input type="checkbox"/> 28-30 years old

**Q3. How did you obtain your first Mobile Phone?**

- I bought it myself     
 My parents/grandparents bought     
 My company bought  
 My husband/wife bought     
 My sisters/brothers bought     
 My friends/others bought

**Q4. How often do you use Mobile Phone and Internet? (Frequency of use)**

**Mobile phone use**

- A few times a month     
 More than 3 hour per day     
 Less than 1 hour per day  
 A few times a week     
 1- 3 hour per day     
 Every hour

**Internet use**

- A few times a month     
 More than 3 hour per day     
 Less than 1 hour per day  
 A few times a week     
 1- 3 hour per day     
 Every hour

**Q5.** Does anyone control you when you are using Mobile Phone or Internet?

**Mobile phone use**

- No one                       My boyfriend/girlfriend                       My company/university  
 My parents                       My brother/sister                       Other \_\_\_\_\_  
 My husband/wife

**Internet use**

- No one                       My boyfriend/girlfriend                       My company/university  
 My parents                       My brother/sister                       Other \_\_\_\_\_  
 My husband/wife

**Q6.** Please indicate how often you do each of the following activities on your **Mobile Phone**.

1= Never, 2= Rarely, 3=Often, 4= Frequently, 5=Always

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	Use apps (for any purpose) on a mobile phone					
2	Search for information with a mobile phone					
3	Connect to the social networks on a mobile phone					

**Q7.** Please indicate the below activities which you practice on the **Internet**.

1= Never, 2= Rarely, 3=Often, 4= Frequently, 5=Always

No	Items	Never ←→ Always				
		1	2	3	4	5
1	Online listening Quran					
2	Online reading books					
3	Online reading Quran					
4	Individually lean about religion					

**Q8.** Please indicate in the scale 1 to 5. How often do you do each of the situations?

1 – Never, 2 – Rarely, 3 – Neutral, 4 – Sometimes, 5 – Always

No	Statements	Never ←→ Always				
		1	2	3	4	5
1	How often do you pray?					
2	How often do you go to Mosque?					
3	I read the Holy Qura'n because I would feel guilty if I did not					
4	Except in prayers, how often do you engage in d'iker or tasbih?					
5	When I face a problem in life, I will try to find solution from the Internet					



**Q9.** How often do you do each of the following activities on social networking sites such as Facebook or Odnoklassniki?

1 = Never, 2 = Rarely, 3 = Often, 4 = Frequently, 5 = Always.

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	Check your Facebook and Odnoklassniki page or other social networks					
2	Check your Odnoklassniki page from your smartphone					
3	Post status updates					
4	Post photos					
5	Browse profiles and photos.					
6	Read postings.					
7	Comment on postings, status updates, photos, etc.					

**Q10.** Please state your opinion (√) on importance of the mobile phone in your life.

1 = Not important, 2 = Low importance, 3 = Neutral, 4 = Important, 5 = Very important,

<b>Not important</b>		←————→		<b>Very important</b>	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Q11.** Please state your opinion (√) on importance of the Internet in your life.

1 = Not important, 2 = Low importance, 3 = Neutral, 4 = Important, 5 = Very important,

<b>Not important</b>		<b>←→</b>		<b>Very important</b>	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q12.** Please indicate whether you agree or disagree with each statement. Please tick one answer for each statement.

1 = Strongly agree, 2 = Agree, 3 = Neither agree or disagree, 4 = Disagree, 5 = Strongly disagree

No	Statements	Strongly agree ←→ Strongly disagree				
		1	2	3	4	5
1	I feel it is important to be able to find any information whenever I want online					
2	I feel it is important to be able to access the Internet any time I want.					
3	I think it is important to keep up with the latest trends in technology					

**Q13.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1= Never, 2= Rarely, 3=Sometimes, 4= Often, 5=All the time

Items	Never ←————→ All the time				
	1	2	3	4	5
I like to try different things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like a great deal of variety	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I like new and different styles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q14.** Please indicate in the scale 1 to 7. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Usually, 5 – Always

No	Items	Never ←————→ Always				
		1	2	3	4	5
1	My friends and neighbors often ask my advice about some of products/brands they plan to buy					
2	I sometimes influence the types of products/brands my friends buy					
3	My friends come to me more often than I go to them for information about products/brands					
4	I feel that I am generally regarded by my friends and neighbors as a good source of advice about products/brands					

**Q15.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Usually, 5 – Always

No	Items	Never ←→ Always				
		1	2	3	4	5
1	I like to own things that impress people.					
2	Buying things gives me a lot of pleasure					
3	I have all the things I really need to enjoy life					
4	I would be happier if I could afford to buy more things					

**Q16.** Please indicate in the scale 1 to 5. What is your own position/feeling about the following statements?

1 – Never, 2 – Rarely, 3 –Neutral, 4 – Sometimes, 5- Always

No	Items	Never ←→ Always				
		1	2	3	4	5
1	Prefer to deal with people whose religious commitment high					
2	Care about neighbors and their wellbeing					
3	Advise others to do good and avoid sin					
4	Give away Charity as religious duty					
5	Tolerate others for God's sake					
6	Help people in their difficulties for God's sake					

**Q17.** Please indicate in the scale 1 to 5. How often do you do each of the situations?

1 – Never, 2 – Rarely, 3 – Neutral, 4 – Sometimes, 5 – Always

No	Statements	Never ←————→ Always				
		1	2	3	4	5
1	Read/Listen to Prophets'' biography					
2	Recite some Koranic verses when beginning work					
3	Try to learn by heart some Koranic verses					
4	Read Prophet''s Sayings					
5	Weekly time watch/read/listen religion					
6	Ask for advice or read religious books in order to clarify matters in my life					
7	Enjoy listening to Koran					

**Q18. In the future** if you could do whatever you want/wish (no budget restrictions, total freedom, no control) what you will do? 1 – Much less, 2 – Less, 3 – Same, 4– More, 5- A lot

No	Items	Much less ←————→ A lot				
		1	2	3	4	5
1	Watch online movies					
2	Buy product online (cloths/fashion, electronics)					
3	Playing games					

**Q19. Demographic Profile of Respondent:**

(Please tick one appropriate answer in each of the following questions).

1. Sex: \_\_\_\_\_

2. Age: \_\_\_\_\_

3. Marital Status:      Married    Unmarried    Divorced

4. Occupation:        Student    Practitioner    Other\_\_\_\_\_

5. Monthly Family Income    Less than 300 TJS    501 to 700 TJS    More than 1000 TJS  
   301 to 500 TJS        701 to 1000 TJS

6. Education level:        11 schooling years    Undergraduate incomplete

Graduate of colleges    Undergraduate complete    Post-graduate

7 Where did you live before coming to this city?  Rural area            Small city

Center of region        Dushanbe city

## APPENDIX – K

### QUESTIONNAIRE FOR FEMALES RESPONDENTS (TAJIK VERSION)

#### Рисолаи илмӣ (доктор PhD): Саволнома барои духтарон / занон

Мусохиби мухтарам,

Ман докторанти (PhD) факултаи иқтисодии Донишгоҳи шаҳри Порто – и Португалия буда, рисолаи доктории худро иҷро намуда истодаам. Мавзӯи доктории ман «**Таҳлили рафтори истеъмолкунандагони чавон аз технологияҳои рақамидар Тоҷикистон**» мебошад. Чавоби Шумо хеле муҳим аст, зеро он барои таҳлил ва фаҳмидани истифодаи технологияи рақамимеъни чавонон ба мо қўмак мерасонад. Ман барои иштироки Шумо дар ин тадқиқот миннатдорам. Тамоми маълумотҳои пешниҳодгардида **пурра махфӣ**нигоҳ дошта мешаванд ва танҳо барои таҳлили илмиистифода мегарданд.

(Сиёвуш Бобохонов– Факултаи иқтисодии Донишгоҳи Порто)

#### Истифодаи телефони мобили ва интернет!

С1. Шумо истифодаи **Телефони Мобили** ва **Интернет**ро қай оғоз намудед? (Синну солатонро интихоб намоед)

<b>Истифодаи телефони мобили</b>	<input type="checkbox"/> аз 10 солаги	<input type="checkbox"/> аз 11-15 солаги	<input type="checkbox"/> аз 16 -20 солаги	<input type="checkbox"/> аз 21-25 солаги	<input type="checkbox"/> аз 26 -30 солаи
<b>Истифодаи Интернет</b>	<input type="checkbox"/> аз 10 солаги	<input type="checkbox"/> аз 11-15 солаги	<input type="checkbox"/> аз 16 -20 солаги	<input type="checkbox"/> аз 21-25солаги	<input type="checkbox"/> аз 26 -30 солаги

**С2. Шумо истифодаи Одноклассники ва ё Фейсбукро аз кай оғоз намудаед?**

<b>Одноклассники</b>	<input type="checkbox"/> аз 16-18 солаги	<input type="checkbox"/> аз 19-21солаги	<input type="checkbox"/> аз 22-24солаги	<input type="checkbox"/> аз 25-27солаги	<input type="checkbox"/> аз 28-30 солаги
<b>Фейсбук</b>	<input type="checkbox"/> аз 16-18 солаги	<input type="checkbox"/> аз 19-21солаги	<input type="checkbox"/> аз 22-24солаги	<input type="checkbox"/> аз 25-27солаги	<input type="checkbox"/> аз 28-30 солаги

**С3. Аввалин маротиба Шумо читавр сохиби Телефони Мобили гаштед?**

- Худам харидам                       Волидайнам/бибию бобоям харид                       Ширкати ман харид  
 Зан/шавХарам харид.                       Хохарам/бародарам харид                       Дустам/шахси дигар харид

**С4. Чикадар зуд-зуд аз Телефони Мобилива Интернет истифода менамояед?**

**Истифодаи телефони мобили**

- Каме дар як мох                       Зиёда аз 3 соат дар як рӯз                       Аз як соат камтар дар як рӯз  
 Каме дар як Хафта                       аз 1 то 3 соат дар як рӯз                       Хар соат

**Истифодаи Интернет**

- Каме дар як мох                       Зиёда аз 3 соат дар як рӯз                       Аз як соат камтар дар як рӯз  
 Каме дар як хафта                       аз 1 то 3 соат дар як рӯз                       Хар соат



**С5. Шуморо Хангоми истифода намудани **Телефони Мобилива Интернет** кӣ назорат мекунад?**

**Истифодаи телефони мобили**

- Хечкас                       Дӯстдоштаам                       Ширкат/Донишгохи ман  
 Волидайнам                       Бародарам/хоҳарам                       Ва гайра \_\_\_\_\_  
 Зан/Шавхарам

**Истифодаи интернет**

- Хеч кас                       Дӯстдоштаам                       Ширкат/Донишгохи ман  
 Волидайнам                       Бародарам/хоҳарам                       Ва гайра \_\_\_\_\_  
 Зан/Шавхарам

**С6. Шумо дар **Телефони Мобилиатон** чи корхоро иҷро менамояд?**

№	Мавзӯ	Хечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Чустӯҷӯи шабакаҳои интернетӣ (Google, Yahoo в.ғ) аз телефони					
2	Тафтиши хабарҳо (Воситаи ахбори омма) аз телефони мобили					
3	Истифодаи барномаҳои гуногун аз телефони мобили					
4	Чустӯҷӯи маълумот бо телефони мобили					
5	Истифодаи телефони мобилиҳангоми дарс ё дар вақти кори					

**С.7 Шумо дар Интернет чи корхоро ичро менамояд?**

№	Мавзӯ	Хечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Чустӯҷӯи хабарҳои байналмилали					
2	Чустӯҷӯи хабарҳои маҳалли					
3	Чустӯҷӯи хабарҳо вобаста ба қор					
4	Барои баланд бардоштани дониш ва маҳорат					

**С8. Чикадар вақти худро барои анҷом додани амалҳои зерин сарф менамояд?**

№	Мавзӯ	Хечвақт	Дер-дер	Миёна	Баъзан	Доимо
1	Намоз мехонед?					
2	Намоз мехонам, то ки Худованд аз ман рози бошад.					
3	Қуръон мехонам, агар нахонам худро гунаҳкор мехисобам.					
4	Ба гайр аз намозхонӣ, Шумо Қуръонро мехонед ё гӯш мекунад?					
5	Вақте, ки ба мушкили рӯ ба рӯ мегардам, барои оромии дилам Қуръон мехонам.					
6	Хангоми хондани Қуръон хис мекунам, ки Худованд бо ман дар гуфтугӯ аст.					
7	Қуръонро мехонам, чунки ба ман Халоват мебахшад.					

С9. Оё Шумо амалҳои зеринро дар шабакаиҳои иҷтимоӣ ба мисли **Однокласники** ва ё **Фейсбук** анҷом медиҳед?

№	Мавзӯ	Ҳечгоҳ	Дер-дер	Баъзан	Тез-тез	Доимо
1	Тафтиши саҳифаҳои (страница) Однокласники, Фейсбук, ВКонтакте ва ғайра					
2	Тафтиши саҳифаи (страница) Фейсбук дар телефони худ					
3	Тафтиши саҳифаи (страница) Однокласники дар телефони худ					
4	Тафтиши саҳифаи Однокласники ва Фейсбук дар ҷои кор ва ё донишгоҳ					
5	Иваз намудани статус					
6	Иваз намудани аксҳо					
7	Тамошои анкетаҳо ва аксҳо (гости)					
8	Хондани статусҳо					
9	Шарҳ (коментария) додани статусҳо, аксҳо ва ғайра					
10	Пахш намудани «Нравится-Like» дар коментарияҳо аксҳо, видеоҳо ва ғ					

**С10.** Фикри Шумо оиди муҳим будани **Телефони Мобилидар** Хаёти имрӯза.

Муҳим нест	Каме муҳим	Миёна	Муҳим аст	Хеле муҳим аст
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**С11.** Фикри Шумо оиди муҳим будани **Интернет** дар Хаёти имрӯза.

Муҳим нест	Каме муҳим	Миёна	Муҳим аст	Хеле муҳим аст
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**C12.** Фикрҳои худро оиди рози ва ё рози набуданатон нисбати чумлаҳои паён нишон диҳед.

№	Чумлаҳо	Пурра розиам	Розиам	Бегарафам	Розинестам	Тамоман норозиам
1	Бароям муҳим аст, вақте ки ҳамаи маълумотҳоро дар ҳама вақт аз Интернет ёфта тавонам.					
2	Бароям муҳим аст, ҳар вақте ки хоҳам ба Интернет пайваст шуда тавонам.					
3	Фикр мекунам, қафо намондан аз навовариҳои технологияҳои нав, муҳим аст					

**C13.** Мавқеатонро дар ҳаёт нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Истифода намудани чизҳои ҳархеларо дӯст медорам.					
2	Ман гуногунии зиёдро дӯст медорам.					
3	Ман услубҳои (стиль) нав ва гуногунро дӯст медорам.					

**C14.** Мавқеатонро нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Одатан	Доимо
1	Дӯстон ва Ҳамсояҳо барои харидани маҳсулот ё моли нав аз ман маслиҳат мепурсанд.					
2	Барои гирифтани маълумот дар бораи маҳсулот ё моли нав дӯстонам бисёртар ба ман муроҷиат менамоянд, нисбати ман ба онҳо.					
3	Ба дӯстон ва Ҳамсояҳям барои харидани маҳсулот ё моли нав маслиҳатчи хуб мебошам.					
4	Дар хотир дорам, ки дар шаш моҳи охир ба ду кас дар бораи маҳсулот ё бренд гуфтугӯ намуда будам.					

**C15.** Мавқеатонро нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Одатан	Доимо
1	Харидани молу ашёҳо ба ман ҳаловат мебахшад.					
2	Аз доштани чизҳои қиматбаҳо хушхол мешавед?					
3	Агар имконияти бештар харид карданро дошта боши, хушхол мешави?					

**Агар оиладор бошед ба савол ҷавоб диҳед. Агар не пас ба саволи дигар гузаред**

**C16.** Мавқеи шахсии Шумо оиди ҷумлаҳои зерин чӣ гуна аст?

№	Мавзӯ	Ҳеле қатъи	Қатъи	Кам	Ҳеле кам	Озод
1	Назорати телефони мобилиази ҷониби <u>шавҳари</u> Шумо дар кадом дараҷа аст?					
2	Назорати шабакаи Интернет аз ҷониби <u>шавҳари</u> Шумо дар кадом дараҷа аст?					
3	Назорат оид ба истифодаи шабакаҳои иҷтимоӣ ( <b>Однокласники, Фейсбук</b> ва ғ.) аз ҷониби <u>шавҳари</u> Шумо дар кадом дараҷа аст?					

**C17.** Фикри Шумо оиди ҷумлаҳои поён.

№	Мавзӯ	Ҳечгоҳ	Кам -Кам	Миёна	Баъзан	Доимо
1	Шахсон ки имонӣ диниашон баланд аст, эҳтиромашон мекунад?					
2	Ба Ҳамсояҳо барои беҳбудии зиндагии онҳо ғамхори мекунад?					
3	Дигаронро барои корҳои хуб ва худдоринамудан аз гуноҳ маслиҳат медиҳед?					
4	Хайр намудан ҳамчун уҳдадорӣ динӣ.					
5	Дигаронро барои ризогии Худованд тоқат мекунад?					

**С18.** Чикадар зуд-зуд ин корхоро ичро менамояд?

№	Мавзӯ	Хечгоҳ	Кам -Кам	Миёна	Баъзан	Доимо
1	Дар бораи Хайёти Пайгамбарон мехонед ва ё гӯш мекунад?					
2	Тамошо, гӯш кардан ва ё иштирок намудан дар вохӯриҳои динӣ					
3	Қуръон мехонед ва ё гӯш мекунад?					
4	Хангоми огози қор аз оятҳои Қуръон мехонед?					
5	Аз тахти дил омӯхтани оятҳои Қуръони Карим					
6	Хондани Хадисҳои Пайгамбар (с)					

**С19.** Дар оянда чикор кардан мехоҳед? (Агар озод бошед, назорат набояд ё мушкилии маблағ набояд)

№	Мавзӯ	Хело кам	Камтар	Миёна	Зиёд	Зиёдтар
1	Тамошои филмҳо аз Интернет (Онлайн)					
2	Хариди молу маҳсулот бо Интернет (ба таври электронӣ)					
3	Бозинамудан дар Интернет.					

**C20. Банди демографӣ.** (МарҲамат намуда ҷавоби ба худ мутобиқро ба саволҳои зерин интиҳоб намоед).

1. Чинс: \_\_\_\_\_
2. Синну сол: \_\_\_\_\_
3. Вазъи оилави  Оиладор  Мучаррад  Чудошуда
4. Вазифа:  Донишҷў  Корманд  Гайра \_\_\_\_\_
5. Даромади мохонаи  Камтар аз 300 сом.  аз 501 то 700 сом.  Зиёда аз 1000 сом  
оила Шумо:  аз 301 то 500 сом.  аз 701 то 1000 сом.
6. Сатҳи таҳсилот:  Таҳсилоти миёна  Олии нопура  Аспирант  
 Таҳсилоти касби  Оли  
(коллекҷо)
7. Пеш аз ба ин шаҳр омадан Шумо дар қучо зиндагонименамудед?  
 Деҳа  Шаҳрак  
 Маркази ноҳия  Шаҳри Душанбе

## APPENDIX – L

### QUESTIONNAIRE FOR MALES RESPONDENTS (TAJIK VERSION)

#### Рисолаи илмӣ (доктор PhD): Саволнома барои писарон/ мардҳо

Мусоҳиби мухтарам,

Ман докторанти (PhD) факултаи иқтисодии Донишгоҳи шаҳри Порто – и Португалия буда, рисолаи доктории худро иҷро намуда истодаам. Мавзӯи доктории ман «**Тахлили рафтори истеъмолкунандагони чавон аз технологияҳои рақами дар Тоҷикистон**» мебошад. Чавоби Шумо хеле муҳим аст, зеро он барои таҳлил ва фаҳмидани истифодаи технологияи рақами миёни ҷавонон ба мо кӯмак мерасонад. Ман барои иштироки Шумо дар ин тадқиқот миннатдорам. Тамоми маълумотҳои пешниҳодгардида **пурра махфӣ** нигоҳ дошта мешаванд ва танҳо барои таҳлили илми истифода мегарданд.

(Сиёвуш Бобохонов– Факултаи иқтисодии Донишгоҳи Порто)

#### Истифодаи телефони мобили ва интернет!

**С1.** Шумо истифодаи **Телефони Мобили** ва **Интернетро** кай оғоз намудед? (Синну солатонро интихоб намоед)

<b>Истифодаи телефони мобилӣ</b>	<input type="checkbox"/> аз 10 солаги	<input type="checkbox"/> аз 11-15 солаги	<input type="checkbox"/> аз 16 -20 солаги	<input type="checkbox"/> аз 21-25 солаги	<input type="checkbox"/> аз 26 -30 солаги
<b>Истифодаи Интернет</b>	<input type="checkbox"/> аз 10 солаги	<input type="checkbox"/> аз 11-15 солаги	<input type="checkbox"/> аз 16 -20 солаги	<input type="checkbox"/> аз 21-25солаги	<input type="checkbox"/> аз 26 -30 солаги

**С2.** Шумо истифодаи **Однокласники** ва ё **Фейсбукро** аз кай оғоз намудед?

<b>Однокласники</b>	<input type="checkbox"/> аз 16-18 солаги	<input type="checkbox"/> аз 19-21солаги	<input type="checkbox"/> аз 22-24солаги	<input type="checkbox"/> аз 25-27солаги	<input type="checkbox"/> аз 28-30 солаги
<b>Фейсбук</b>	<input type="checkbox"/> аз 16-18 солаги	<input type="checkbox"/> аз 19-21солаги	<input type="checkbox"/> аз 22-24солаги	<input type="checkbox"/> аз 25-27солаги	<input type="checkbox"/> аз 28-30 солаги



**С3. Аввалин маротиба Шумо чӣ тавр соҳиби **Телефони Мобили** гаштед?**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Худам харидам       | <input type="checkbox"/> Волидайнам/бибию бобоям харид | <input type="checkbox"/> Ширкати ман харид        |
| <input type="checkbox"/> Зан/шавхарам харид. | <input type="checkbox"/> Хохарам/бародарам харид       | <input type="checkbox"/> Дустам/шахси дигар харид |

**С4. Чи қадар зуд-зуд аз **Телефони Мобилӣ** ва **Интернет** истифода менамояед?**

**Истифодаи телефони мобилӣ**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Каме дар як моҳ   | <input type="checkbox"/> Зиёда аз 3 соат дар як рӯз | <input type="checkbox"/> Аз як соат камтар дар як рӯз |
| <input type="checkbox"/> Каме дар як ҳафта | <input type="checkbox"/> аз 1 то 3 соат дар як рӯз  | <input type="checkbox"/> Хар соат                     |

**Истифодаи Интернет**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Каме дар як моҳ   | <input type="checkbox"/> Зиёда аз 3 соат дар як рӯз | <input type="checkbox"/> Аз як соат камтар дар як рӯз |
| <input type="checkbox"/> Каме дар як ҳафта | <input type="checkbox"/> аз 1 то 3 соат дар як рӯз  | <input type="checkbox"/> Хар соат                     |

**С5. Шуморо ҳангоми истифода намудани **Телефони Мобилӣ** ва **Интернет** кӣ назорат мекунад?**

**Истифодаи телефони мобилӣ**

- |                                       |  |   |
|---------------------------------------|--|---|
| <input type="checkbox"/> Хеч кас      | <input type="checkbox"/> Дӯстдоштаам       | <input type="checkbox"/> Ширкат/Донишгоҳи ман |
| <input type="checkbox"/> Волидайнам   | <input type="checkbox"/> Бародарам/хохарам | <input type="checkbox"/> Ва ғайра _____       |
| <input type="checkbox"/> Зан/Шавхарам |  |   |

**Истифодаи интернет** Хеч кас Дӯстдоштаам Ширкат/Донишгохи ман Волидаинам Бародарам/хохарам Ва ғайра \_\_\_\_\_ Зан/Шавхарам**С6. Шумо дар Телефони Мобилиатон чӣ корхоро иҷро менамояд?**

№	Мавзӯ	Хечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Истифодаи барномаҳои гуногун аз телефони мобили					
2	Чустӯҷӯи маълумот бо телефони мобили					
3	Пайваст шудан ба Однокласники, Фейсбук ва ғ. бо телефони мобили					

**С.7 Шумо дар Интернет чӣ корхоро иҷро менамояд?**

№	Мавзӯ	Хечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Гӯш намудани Қуръон ба таври мустақим (онлайн)					
2	Китоб хондан ба таври мустақим (онлайн)					
3	Қуръон хондан ба таври мустақим (онлайн)					
4	Мустақилона (самостоятельно) омӯхтани дин аз Интернет					

**С8. Чи қадар вақти худро барои анҷом додани амалҳои зерин сарф менамояд?**

№	Мавзӯ	Ҳечвақт	Дер-дер	Миёна	Баъзан	Доимо
1	Намоз мехонед?					
2	Ба масҷид меравед?					
3	Қуръон мехонам, агар нахонам худро гунаҳгор меҳисобам.					
4	Ба ғайр аз намозхона, Шумо зикр менамояд ё тасбеҳ мегардонед?					
5	Вақте, ки ба мушқили рӯ ба рӯ мегардам, кушиш мекунам роҳи ҳаллашро аз Интернет ёбам.					

**С9. Оё Шумо амалҳои зеринро дар шабакаҳои иҷтимоӣ ба мисли **Однокласники** ва ё **Фейсбук** анҷом медиҳед?**

№	Мавзӯ	Ҳечгоҳ	Дер-дер	Баъзан	Тез-тез	Доимо
1	Тафтиши саҳифаҳои (страница) Однокласники, Фейсбук, ВКонтакте ва ғайра					
2	Тафтиши саҳифаи (страница) Однокласники дар телефони худ					
3	Иваз намудани статус					
4	Иваз намудани аксҳо					
5	Тамошои анкетаҳо ва аксҳо (гости)					
6	Хондани статусҳо					
7	Шарҳ (коментария) додани статусҳо, аксҳо ва ғайра					

**С10.** Фикри Шумо оиди муҳим будани **Телефони Мобили** дар ҳаёти имрӯза.

Мухим нест	Каме муҳим	Миёна	Мухим аст	Хеле муҳим аст
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**С11.** Фикри Шумо оиди муҳим будани **Интернет** дар ҳаёти имрӯза.

Мухим нест	Каме муҳим	Миёна	Мухим аст	Хеле муҳим аст
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**С12.** Фикрҳои худро оиди рози ва ё рози набуданатон нисбати ҷумлаҳои паён нишон диҳед.

№	Ҷумлаҳо	Пурра розиам	Розиам	Бетарафам	Рози нестам	Тамоман норозиам
1	Бароям муҳим аст, вақте ки ҳамаи маълумотхоро дар ҳама вақт аз Интернет ёфта тавонам.					
2	Бароям муҳим аст, ҳар вақте ки хоҳам ба Интернет пайваст шуда тавонам.					
3	Фикр мекунам, қафо намондан аз навовариҳои технологияи нав, муҳим аст.					

**С13.** Мавқеатонро дар ҳаёт нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Тез-тез	Доимо
1	Истифода намудани чизҳои ҳархеларо дӯст медорам.					
2	Ман гуногунии зиёдро дӯст медорам.					
3	Ман услубҳои (стиль) нав ва гуногунро дӯст медорам.					

**С14.** Мавқеатонро нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Одатан	Доимо
1	Дӯстон ва ҳамсоёхо барои харидани маҳсулот ё моли нав аз ман маслиҳат мепурсанд.					
2	Ба дӯстонам хангоми харидани маҳсулот ё моли нав таъсир мерасонам.					
3	Барои гирифтани маълумот дар бораи маҳсулот ё моли нав дӯстонам бисёртар ба ман муроҷиат менамоянд, нисбати ман ба онҳо.					
4	Дар хотир дорам, ки дар шаш моҳи охир ба ду кас дар бораи маҳсулот ё бренд гуфтугӯ намуда будам.					

**C15.** Мавқеатонро нисбати фикрҳои поён муайян намоед.

№	Мавзӯ	Ҳечгоҳ	Кам-кам	Баъзан	Одатан	Доимо
1	Ман доштани чизҳое, ки одамонро ба хайрат меорад, хуш дорам.					
2	Харидани молу ашёҳо ба ман ҳаловат мебахшад.					
3	Ман ҳамаи чизро барои ҳаловат бурдан дар зиндаги дорам.					
4	Агар имконияти бештар харид қарданро дошта боши, хушҳол мешави?					

**C16.** Фикри Шумо оиди ҷумлаҳои поён.

№	Мавзӯ	Ҳечгоҳ	Кам -Кам	Миёна	Баъзан	Доимо
1	Шахсоне ки имонӣ диниашон баланд аст, эҳтиромашон мекунад?					
2	Ғамхори намудан ба ҳамсоҷаҳо барои беҳбудии зиндагии онҳо.					
3	Дигаронро маслиҳат додан барои қорҳои хуб ва худдори намудан аз гуноҳ.					
4	Хайр намудан ҳамчун уҳдадории дини.					
5	Дигаронро барои ризогии Худованд тоқат мекунад?					
6	Дигарон хангоми мушкилиашон барои ризогии Худованд, қўмак мекунад?					

**C17.** Чи қадар зуд-зуд ин корхоро ичро менамояд?

№	Мавзӯ	Хечгоҳ	Кам -Кам	Миёна	Баъзан	Доимо
1	Дар бораи хайёти Пайғамбарон мехонед ва ё гӯш мекунед?					
2	Хангоми оғози қор аз оятҳои Қуръон мехонед?					
3	Аз тахти дил омӯхтани оятҳои Қуръони Карим					
4	Хондани ҳадисҳои Пайғамбар (с)					
5	Рӯзҳои истироҳат дар бораи дин мехонед, тамошо ва ё гуш мекунед?					
6	Маслиҳат пурсидан ва ё хондани китобҳои дини барои фаҳмидани маънои зиндагӣ.					
7	Халоват бурдан аз гӯш қардани Қуръон					

**C18.** Дар оянда чӣ қор қардан мехоҳед? (Агар озод бошед, назорат набошад ё мушкилии маблағ набошад)

№	Мавзӯ	Хело кам	Қамтар	Миёна	Зиёд	Зиёдтар
1	Тамошои филмҳо аз Интернет (Онлайн)					
2	Хариди молу маҳсулот бо Интернет (ба таври электронӣ)					
3	Бози намудан дар Интернет.					

**C19. Банди демографӣ.** (Марҳамат намуда ҷавоби ба худ мутобиқро ба саволҳои зерин интихоб намоед).

1. Чинс: \_\_\_\_\_
- 2 Синну сол: \_\_\_\_\_
- 3 Вазъи оилавӣ:  Оиладор  Мучаррад  Ҷудошуд
- 4 Вазифа:  Донишҷӯ  Корманд  Ғайра \_\_\_\_\_
- 5 Даромади моҳонаи оила Шумо:  Камтар аз 300 сом.  аз 501 то 700 сом.  Зиёда аз 1000 сом.  
 аз 301 то 500 сом.  аз 701 то 1000 сом.
- 6 Сатҳи таҳсилот:  Таҳсилоти миёна  Олии нопура  Аспирант  
 Таҳсилоти касби (коллекҳо)  Оли
- 7 Пеш аз ба ин шаҳр омадан Шумо дар кучо зиндагонӣ менамудед?  
 Деҳа  Шаҳрак  
 Маркази ноҳия  Шаҳри Душанбе