

# Adoption and Utilization of Information Communication Technologies among Families in Lagos, Nigeria

Blessing Foluso Adeoye, Ph.D  
University of Lagos, Faculty of Education  
Department of Science and Technology Education,  
Lagos, Nigeria

Florence Folami-Adeoye, Ph.D  
School of Nursing  
Millikin University  
Decatur, USA

Doris M. Houston, PhD  
Illinois State University  
Center for Adoption Studies, USA

**Abstract**— Information and Communication Technology devices such as computers, Internet and cell phones are rapidly penetrating into many homes in Nigeria. Social critics have argued whether these devices result in either positive or negative change in the lives of families. The researchers examined the literature about family use of ICT and also looked at how these technologies affect families' social networks, work, and interventions with families. The researchers also surveyed 570 adult students to examine the adoption, utilization, and social impact of ICT among them and found that perceptions vary with the use of ICT in various families. Finally, the authors suggested directions for future research on communication technology within the context of families.

**Keywords**—Information communication technologies, family, Internet, Nigeria, adoption.

## I. INTRODUCTION

The recent and rapid development of Information and Communication Technologies (ICT) has not only had a dramatic effect on the individual, but also on the family. The discourse of family and its social organisation are also changing undeniably, and the synergy between a family and the technology that is incorporated into family's life is vitally important to understanding this change. The importance of technological innovation in shaping work and family life has a long history, and social science investigations in this area are well established. For instance, many researchers are concerned whether an increasing reliance on technology strengthens or weakens social ties (Fischer, 1992; Ogburn & Nimkoff, 1955). Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, and Scherlis, (1998), affirmed that Internet use was linked to a reduction in family communication, while other studies further suggested that individuals who communicate through multiple mediums such as email have stronger relationships than those who communicate only face to face (Haythornthwaite, 2005; Igarashi, Takai, & Yoshida, 2005). But Ventura (1995) argues that a central implication of widespread ICT use is that it shapes our time experiences by fragmenting them through continual interruption, leading to a more frenetic pace of daily life. It is obvious that researchers' opinion and findings vary

with the impact of ICT on family as much of previous studies documented either positive or negative impact of ICT on the family. This queries our understanding of the adoption and utilisation of ICTs with serious implications for its role in the family. Information and communication technology (ICT) consist of artifacts and practices for recording, organizing, storing, manipulating, and communicating information. Today, many people are focusing only on new technology tools such as those developed with computer and telecommunication equipment, but ICTs include a wider array of artifacts, such as telephones, faxes, photocopiers, movies, books and journal articles. They also include practices such as software testing methods and approaches to cataloging and indexing documents in a library (Kling, Crawford, Rosenbaum, Sawyer & Weisband, 2000).

The ICTs refer to in this paper are those developed with computer and telecommunication equipment such as the Internet and telephone and their use among families in Lagos. These are the ICT that are more utilized in a family setting. The Internet is without doubt the fastest growing communication technology today. It took only four years for the Internet to achieve the same mark as the television revolution, which took 13 years to reach 50 million viewers (Molosi, 2001). With such rapid speed, Internet revolution has brought drastic changes to family living. It has revolutionized the way people relate with each other, the way they communicate, and the way they do business. Indeed, the permeation of the Internet technology into the homes has created the opportunities for some families to either fall apart or come together (Molosi, 2001). Nowadays, ICTs has become the new frontier in social relationships. People are meeting friends, colleagues, lovers, and enemies on the Internet. Young people are creating and developing a communication culture that incorporates many special features through the use of tools such as PDAs, other wireless technology and web services. In addition, the advantages and reach of ICTs as a mode of transporting information have made it an efficient, inexpensive and flexible means of communication. As a result, the demand

and use of ICTs is rising communication over the world. It is therefore important to explore how utilization of ICTs affects family in their current association with friends, boss, and lovers and be able to control the extent of its effects on them.

As advanced and new technologies are becoming central to contemporary societies, hardly can one see a home without one or two types of ICTs artifacts. Advances in ICTs have enabled convenience in individuals' personal communications. This "convenience" has played a major role in globally changing people's preferences and ways of interaction with their acquaintances. It has also opened up our social circles to a great extent and thus changed our priorities and concept of how certain relationship should be maintained. Among the important uses of ICTs is the ability to transmit information quickly and efficiently. But beyond the transmission of information, these same tools, when networked, enhance individual, firm, and national productivity, broaden the market access of entrepreneurs and businesses, and improve government service delivery. Significantly, these devices can improve overall individual's well being and transform the interaction between and among families in the society.

#### A. *Problem Statement*

While there is a substantial literature on the possible determinants of globalization, much smaller work has been devoted to understanding the determinants of ICT diffusion, and impact on family particularly in developing countries. Hence the need for a comprehensive study on the issues rose with focus on Lagos, Nigeria. Foster (1997), indicated that because ICTs is "foremost among new information technologies that promise to significantly impact the day to day circumstances of all social relations" ( p. 23), it can be viewed as a practical problem with unprecedented benefits and risks for individuals and families (Rehm, 1999). When coupling the growth of ICT usage with an expanding global marketplace, its effects on family, it becomes imperative to gain a better understanding of the adoption and use of ICTs among families in Nigeria. This study addressed the following research questions:

#### B. *Research Questions*

1. What is the status of ICT usage in the family?
2. How does the ICT affect the family positively?
3. How does the ICT affect the family negatively?

#### C. *Purpose of the Study*

The purpose of this study is to explore the use of ICT among families in Lagos. It dealt with demographic factors, attitudes toward the use of ICTs, family support, and the influence that ICTs usage has had on the families, paying particular attention to adoption and utilization of ICT among families.

#### D. *Review of the Literature*

Many researchers have conducted studies and found some challenges with the use of the ICTs. For instance, Zhu and He,

(2002) surveyed 1,000 adult residents to examine the adoption, use, and social impact of the Internet in Hong Kong and found that Internet adoption was affected by a full range of factors such as one's personal characteristics, socioeconomic status, socio-cultural settings, and perceived compatibility of the Internet. The study also found that both adoption and use of the Internet have observable impact on leisure activities and concerns for privacy and other Internet-related negative consequences. According to Zhu and He, these effects are not overarching but rather confined to specific attitudes and behavior. A nationwide survey of 2,252 adults shows technology heavily influencing family life, letting parents and children stay in touch more regularly and view material online together (Miller, 2008).

With all the benefits of the utilisation of the Internet for both individual and family, there are conflicting studies concerning the utilisation. For instance, three major conflicting findings were reported by Wellman, Haase, Witte, and Hampton, (2001) that Internet use decreases social ties, Internet use increases social ties, and Internet use neither decreases nor increases social ties. According to Zhao (2006), such contradictory findings have come not only from studies with different research designs and measurements, but also from studies based on similar designs and measures (Kraut, Patterson, Lundmark, Kiesler, Mukhopadhyay, & Scherlis, 1998). It appears that the evidence of the social impact of the Internet is inconclusive although there is a widespread belief that computers and the Internet affect people socially. It is therefore imperative to explore and understand the impact of utilization of ICTs on family.

Within the context of this study, "adoption" refers to the stage in which a technology is selected for use by an individual, a family or an organization. "Innovation" is similarly used with the nuance of a new or "innovative" technology being adopted. "Diffusion" refers to the process by which an innovation is communicated through certain channels over time among the members of a social system. Given that decisions are not authoritative or collective, each member of the social system faces his/her own innovation-decision that follows a 5-step process as described by Roger (1995).

- Knowledge (person becomes aware of an innovation and has some idea of how it functions). At this digital age, it is important that each family member is aware of ICTs tools around them. This should include designing new approaches to knowledge acquisition, critical thinking and creative problem solving (around the house or in the family. It seems that ICTs technology is not a problem with youngsters especially the students; it is important to make sure they use ICTs in a non-dubious way.

- Persuasion (person forms a favorable or unfavorable attitude toward the innovation). It is becoming obvious that the young people do not need much persuasion to use ICTs. Most of them spend almost as much time on the Internet visiting websites and social networking services as they spend watching televisions at home. Nagel (2007) reported that while safety and security issues involved with social networking require "thoughtful policies" from school boards; but, at the same time, "parents and communities also expect schools to

take advantage of potentially powerful educational tools, including new technology. Some parents need to be persuaded to use some of these ICTs tools so they will understand what their children are doing.

- Decision (person engages in activities that lead to a choice to adopt or reject the innovation). Recognizing the potential of ICTs, schools are increasing their use of ICTs by involving in the use of the Internet, e-learning, mobile learning and other ICTs tools. Educators believe that technology can assist in learning, because it provides rich experiences to the learners. They need to ensure that the tools are been used correctly at home to support the family living.

- Implementation (person puts an innovation into use) and confirmation (person evaluates the results of an innovation-decision already made). Students across Nigeria are involving in the utilization of ICTs in many areas. Majority of the students are found with cell phones, IPOD, and other ICT gadgets. Many are found at various Internet Cafés on daily basis.

Based on the above processes, adoption and use of ICTs among families can be further explained. Lim (2006) reported that parents who are “infocomm” illiterate are unable to provide effective supervision of their children’s ICT use. Instead, such parents may become reliant on their children for help in using ICTs, further aggravating their infocomm illiteracy. If the “infocomm” literacy gap between children and their parents is too wide, technology is likely to impede family communication. Lim, also indicated that this leads to a situation of role reversal in the household which is not always healthy, particularly in circumstances where parents need to assert their authorities. Lim conducted another study that resulted in a contradictory result; her research on middle class families in China showed that ICTs are seen as essential tools for building guanxi (social networks) that can aid the family’s efforts in upward mobility. Although Chinese parents are extremely concerned about the ill effects of new technology; they also viewed technology as instruments of upward mobility, symbols of success, and conduits for guanxi or relationship building. Therefore, according to Lim, families are intensively using ICTs to enhance family interaction and seek societal endorsement.

While many people are using ICT positively, some are using them negatively (Nagel, 2007). It is therefore obvious that there are two sides of the effects of ICTs usage on relationship building. We can pick out those two-sided factors that serve both as advantages and disadvantages, then understand the dangers of the various uses of ICT when developing relationships. By learning about the positive and negative effects of ICT on relationships as a whole, one can make wise decisions on which ICT applications could be used in different kinds of relations and what factors the family should consider.

A popular ICT tool use for relation building and building online communities of people who share interests and/or activities, or who are interested in exploring the interests and activities of others are social networking services. Most social networking services are web based and they provide varieties of ways for users to interact through e-mailing and chatting.

Social networking has provided new ways to communicate and share information. Social networking websites are being used regularly by millions of people around the world (Wikipedia, 2009). It is a tool that brings family together and provides an avenue for children to spend their time wisely. Nagel (2007) reported that the percentage of children specifically discussing schoolwork online outpaces the percentages that spend time downloading music. Navel (2007) revealed in his study that 50% of students who are online spent time discussing schoolwork, and 59% spent time talking about education-related topics, including college or college planning; learning outside of school; news; careers or jobs; politics, ideas, religion, or morals; and schoolwork.

Further, these students are spending almost as much time on the Internet visiting websites and social networking services as they spent doing other things. Navel (2007) also concluded that while safety and security issues involved with social networking require “thoughtful policies” from schools boards; but, at the same time, “parents and communities also expect schools to take advantage of potentially powerful educational tools, including emerging digital technologies. The ICT revolution started in Nigeria after return to democratic rule in 1999 (Ajayi, 2003). Several government agencies and other stakeholders in the private sector have initiated ICT driven projects and programmes to impact all levels of people. According to Rhee & Kim, (2004), the adoption of new technology suggests that those who adopt new communication technologies are more upscale, better educated, and younger than non-adopters.

#### *E. Research Method*

In order to analyse adoption and use of Information Communication Technologies among families in Nigeria, this study adopted the descriptive survey research design. This design was chosen because the study involved collection of data from participants to answer some specific research questions posed in this study. A self-designed instrument (questionnaire) consisting of 25 items was designed and submitted for review to a panel of experts in educational technology. The constructs were compiled from the literature (Dlodlo & Sithole, 2001) and authors experience as a lecturer and researcher. After the panel’s inputs were incorporated, the questionnaire was administered to 570 lecturers from various departments in the University of Lagos.

#### *F. Data Collection*

Data collection through a survey design was found appropriate for this study because it allows a larger sample to be pulled from the population. The questionnaire consisted of two parts (demographic and the use of ICT). The demographic gathered the respondents backgrounds such as gender, marital status, and employment status. The second part of the questionnaire was designed to collect data on the use of ICT.

About 800 students from various departments in the faculty of education enrolled for Introduction of Technology were the subjects of this study. These students came from different part of Lagos city and suburbs. Questionnaires were distributed to all married students in the class. At the time the questionnaire

were distributed, only 570 out of 800 married students were present in the class.

The degree of agreement and disagreement on the item as the respondents perceived the use of ICT in the family were rated using a Likert scale (agree, disagree, or don't know). The data analysis focused on identifying the respondent's perception of the use of ICT.

To get a clear picture of the degree of agreement and disagreement on the item, the number of respondents whose response is agree and strongly agree for an item were added together to form a single agree category. Also the number of respondents whose response is disagree and strongly disagree for an item were added to form a single disagree category.

#### G. Data Analysis

Five hundred and seventy participants participated in the study. Out of the 570 participants, 264 are male and 300 were female. They were drawn from different institutions of higher learning and different departments. Table 1 below presents a summary of how they responded to each item of the questionnaire.

##### Demographic Information

Out of 570 participants, 52.6% are female and 47.4% are male. About half of them are employed in various fields while others are employed. They are married adults as it was necessary to collect useful data from married participants. Percentage calculated for each item shows the status of ICT usage in the family a diverse perception of the adoption and utilization of ICT. Table 1 revealed the status of ICT usage and the perceptions of respondents with the use of ICT in their families. Majority of the respondents (90%) indicated they have access to ICT. The ten most important perceptions based on high percentages are listed below in the order of importance:

Promotes personal empowerment	84.7%
Increase ability to understand people	83.2%
Promotes creativity and imagination	85.3%
Provides capacity for problem solving	82.6%
ICT helps our family to disseminate information quickly	79.4%
Contributes to the family unity and strength	82.1%
Most members of my family use the Internet	78.9%
I have someone who is doing yahoo yahoo in my family	76.9%
The use of ICT tools can cause problems for the family	76.3%

It is important to note that the entire continent of Africa is underrepresented in the area of ICT access and usage. For example, while the continent encompasses 14% of the worldwide population, the region only accounts for 5.6% of

ICT users (ITU, 2006). Despite the lack of access to fixed lines, (e.g. 3 per 100 people), family's access to technology in this study is high. However, as technology continues to improve and move towards advanced applications for wireless cellular units, the access barriers associated with fixed line technology is dissipating and this is because Nigeria currently has seen some of the highest growth rates for mobile cellular use, with growth rates averaging 50% per year over from 2001-2006 (IT, 2006). As more ICT applications such as the Internet, e-mail, and video become accessible by cellular phone, the previous barriers associated with fixed lines will be a thing of the past.

##### How does the ICT affect the family positively?

ICT has great potential for affecting families positively by opening up new avenues for parent education, social support, and parent-child communication. In this study several positive impacts were indicated by the participants as listed below.

Promotes Personal Empowerment,	84.7%
Increase ability to understand people,	83.2%
Promotes creativity and imagination,	85.3%
Provides capacity for problem solving,	82.6%
Enables participation in grassroots associations,	75.3%
Promotes justice and fairness,	65.8%
Brings a sense of community caring relationship,	70%
Helps in the motional development to adults,	67.9%
Improves the standard of moral thinking behavior,	69.9%
Contributes to the family unity and strength,	82.1%
ICT helps our family to disseminate information quickly,	79.4%
ICT helps our family obtain knowledge and ideas easily,	73.2%
ICT helps our family to disseminate information quickly,	79.4%
ICT helps our family obtain knowledge and ideas easily,	73.1%

In the age of commuter relationships, ICT through cell phone technology, social networking, and skype can provide an avenue for family members to stay socially and emotionally connected in ways that were never possible before. For example, mothers and fathers who are out of town can continue to monitor children's behavior, whereabouts, and school progress. Similarly, couples can continue to maintain close connections through frequent communication with the use of technology.

##### How does the ICT affect the family negatively?

The respondents reported negative impact of use of ICT in their family in several areas. First, 76.9% indicated they have someone who is doing yahoo yahoo in their family. "Yahoo yahoo" is a common term use in Nigeria for those who use the

Internet for fraudulent activities such as such as “cyber-stealing” online theft, fake lottery, prize-promotion, advance-fee, online dating, “cyber-prostitution. Online fraudulent activities are increasing around the world. For instance, in the United States a prepared statement of the Federal Trade Commission (FTC) on Internet fraud shows that “Out of the 170 cases brought by the Commission against Internet fraud and deception, over half have targeted old-fashioned scams that have been retooled for the new medium (Stevenson, 2001). For example, the Commission brought 28 actions against online credit repair schemes, 25 cases against deceptive business opportunities and work-at-home scheme, and 11 cases against pyramid schemes. Although most Internet frauds stems from traditional scams, the number of schemes uniquely and ingeniously exploiting new technology is multiplying. Seventy percent of the participants indicated that the use of ICT adds to problems already in the society, 76.3% indicated that the use of ICT tools can cause problems for the family and 70% indicated that the use of ICT tools could expose a family to demoralizing movies.

#### H. Conclusion and Recommendations

Today, ICT tools for communication have been integrated into most of our lives. Due to its accessibility and the convenience it offers, it has brought us much closer together and generally improved the relationships of ICT users with their social groups. It has also proved to be useful in establishing new social relationships. Although this paper presented a theoretical view of adoption and use of ICT among families in Nigeria. It also revealed some challenges and benefits of the use of ICT in the family. The following are some of what the family can do to make sure that ICT is successfully adopted in the family.

Parental supervision - Parents can impose some forms of control over the nature and duration of their children’s ICT use especially if they are on the Internet at home. This control is significantly influenced by the family’s prioritisation of the child’s education, and societal valorisation of academic achievement.

Parental support - When parents show greater involvement and interest in their children’s utilization of ICT, the children are more likely to use technology for positive rather than negative purposes. For example, Ebata ( 2005), has developed an on-line parenting resource guide called “Parenting 24/7”. This is an information dissemination and educational web site for parents that offers a variety of information from professional experts and parents on topics such as childrearing challenges; parents sharing success stories; strategies for building strong family communication; coping with stress; and managing couples relationships. ICTs can even help to erode communication barriers, such as when family members find it difficult to broach awkward topics face-to-face, but initiate reconciliation through ICT mediated communication.

Social networking sites such as facebook and twitter can also provide “real time” peer support for families struggling with issues such as domestic abuse, addiction, and emotional trauma (Baum, 2004; Dennis, & Ebata, 2005). For example, Baum, (2004) found in an exploratory study of internet parent

support, that social networking support groups helped to improve caregiver-child relationships when the child had special health care needs. Scharer (2005) asserts that families who are socially isolated can benefit from social networking sites as a means of communicating with others and reducing family related stress.

#### REFERENCES

- [1] G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955.
- [2] Ajayi, G.O. (2003) e-Government in Nigeria's e-Strategy;
- [3] The fifth annual African computing & telecommunications Summit, Abuja, Nigeria.
- [4] Baum, L.S. (2004). Internet parent support groups for primary caregivers of a child with special health care needs. *Pediatric Nursing*. (5) 381-8, 401.
- [5] Dennis, S., & Ebata, A.T. (2005). Family life education on the technological frontier. In S.F. Duncan & H. W. Goddard (Eds.), *Outreach in Family Life: Principles and practices for effective family life outreach education* (pp. 180-219). Thousand Oaks, CA: Sage. G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” *Phil. Trans. Roy. Soc. London*, vol. A247, pp. 529–551, April 1955. (references)
- [6] Dlodlo, N. & Sithole, N. (2001) The Internet as a tool for a revolution in education in Africa: A dream or reality. *World Conference on Educational Multimedia, Hypermedia and Telecommunications*, 2001 (1), 425-430.
- [7] English-Lueck, (1998). Technology and social change: The effects on family and community. Available Online at <http://www.sjsu.edu/depts/anthropology/svcp/pdfs/svcpcosa.pdf>. Retrieved on April 10, 2010.
- [8] Fischer, C. S. (1992). *America calling: A social history of the telephone to 1940*. Berkeley: University of California Press.
- [9] Foster, D. (1997). Community and identity in the electronic village. In D. Porter (Ed.),
- [10] *Internet culture*, pp. 23-37. New York: Routledge.
- [11] Igarashi, T., Takai, J., & Yoshida, T. (2005). Gender differences in social network development via mobile phone text messages: A longitudinal study. *Journal of Social and Personal Relationships*, 22(5), 691-713.
- [12] Kling, R., Crawford, H., Rosenbaum, H., Sawyer, S., & Weisband, S., (2000). Learning from social informatics: Information and communication technologies in human contexts. Available Online at <http://www.slis.indiana.edu/SI>. Retrieved May 15, 2010.
- [13] Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017-1031.
- [14] Lim, S. S. (2006). *Media domestication by middle class families in Asia*. Bangkok: ASEAN Universities Network. Available Online at <http://www.fas.nus.edu.sg/rg/html/cnm/sslindex.html>. Retrieved July 07, 2009.
- [15] Lim, S. S. and Tan, Y. L. (2004). Parental control of new media usage – The challenges of infocomm illiteracy, *Australian Journal of Communication*, 31(1): 57-74.
- [16] Miller, (2008). Technology shapes family lives. Available Online at <http://www.jsonline.com>, Retrieved March 10, 2010.
- [17] Molosi, K. (2001). Making the Internet work for Africa. *Computers in Africa*, Oct./Nov., 37-38.
- [18] Nagel, D. (2007). Research: Students actually use the Internet for education. Available
- [19] Online on <http://thejournal.com/articles/2007/08/14/research-students-actually-use-the-internet-for-education.aspx>. Retrieved June 10, 2009.
- [20] Ogburn, W. F., & Nimkoff, M. F. (1955). *Technology and the changing family*. Boston: Houghton Mifflin Company.

- [21] Rhee, Y., & Kim, W., (2004). The adoption and use of the Internet in South Korea Available Online at <http://jcmc.indiana.edu/vol9/issue4/rhee.html>. Retrieved Sept 05, 2009.
- [22] Rehm, M. L. (1999). The Internet as a practical problem: Empowerment in the electronic global village. Kappa Omicron Nu FORUM, 11(1), 13-30.
- [23] Rogers, E. (1995). Diffusion of Innovations, Available Online at <http://www.stanford.edu/class/symbiosys205/Diffusion%20of%20Innovations.htm>. Retrieved Sept 4, 2009.
- [24] Scharer K, (2005). Internet social support for parents: the state of science. Journal of Child Adolescent Psychiatric Nursing. 2005. 18(1):26-35.
- [25] The United Nations University, (1994). Information technology in selected countries. Available Online at <http://www.unu.edu/unupress/unupbooks/uu19ie/uu19ie0e.htm>. Retrieved April 15, 2010.
- [26] Ventura, M. (1995). The age of interruption. Family Therapy Networker, 19, 19-31.
- [27] Wikipedia (2009). Social network service. Available Online at [http://en.wikipedia.org/wiki/Social\\_network\\_service](http://en.wikipedia.org/wiki/Social_network_service). Retrieved June, 18 2009.
- [28] [Zhu, Jonathan J. H. & He, Zhou (2002): Diffusion, use and impact of the Internet in Hong Kong: A chain process model. In J. Computer-

Mediated Communication, 7(2). Available Online at <http://jcmc.indiana.edu/vol7/issue2/hongkong.html>. Retrieved March 10, 2010. G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," Phil. Trans. Roy. Soc. London, vol. A247, pp. 529-551, April 1955.

#### AUTHORS PROFILE

Dr Adeoye is currently a lecturer in the Dept of Science and Technology, Faculty of Education, University of Lagos. He teaches and conducts research in Educational Technology. He obtained a Bachelor of Architecture, May 1990, Southern University, Baton Rouge, LA; Master of Science (Technology Education), June 1995, Eastern Illinois University, Charleston and Doctor of Philosophy (Technology for Learning). University of Illinois, USA. His areas of interests are: e-learning, usability of e-learning systems, pedagogical use of Information and Communication Technologies and relationships between technology and culture. He is currently an Associate Editor-in-Chief, Computer Science Journals (CSC Journals) Malaysia, Member, Editorial Advisory Board for Turkish Online Journal of Distance Education (TOJDE), Reviewer, International Journal of Education and Development using ICT, and a Reviewer, Higher Education Research and Policy Network. He also has several publications on e-learning, ICT, and other issues in educational technology.

## Appendix

Table 1 Frequency Distribution of Responses

<i>Variables (abbreviated Questions)</i>	<i>Agree Category %</i>	<i>Disagree Category %</i>	<i>Don't Know %</i>
Equitable access to knowledge	90	8.4	1.1
Promotes Personal Empowerment	84.7	14.7	6
Increase ability to understand people	83.2	11.6	5.2
Promotes creativity and imagination	85.3	11.0	3.7
Provides capacity for problem solving	82.6	11.0	6.3
Enables participation in grassroots associations	75.3	17.3	7.4
Promotes justice and fairness	65.8	28.9	5.3
Adds to problems already in society	70.0	27.4	2.0
Brings a sense of community caring relationship	70.0	24.6	5.4
Helps in the motional development to adults	67.9	23.7	8.4
Improves the standard of moral thinking behavior	69.9	21.5	8.6
Contributes to the family unity and strength	82.1	10.5	7.4
Helps in the development to f values	20.5	74.7	4.8
I have someone who is doing yahoo yahoo in my family	76.9	15.7	7.4
Most members of my family use the Internet	78.9	15.8	5.3
The use of ICT tools can cause problems for the family	76.3	18.5	5.2
<i>ICT helps our family to disseminate information quickly</i>	79.4	15.2	5.4
<i>ICT helps our family obtain knowledge and ideas easily</i>	73.2	23.2	3.6
<i>ICT helps our family to disseminate information quickly</i>	79.4	15.2	5.4
<i>ICT helps our family obtain knowledge and ideas easily</i>	73.1	24.2	3.7
<i>The use of ICT tools can expose a family to demoralizing movies</i>	70.0	21.0	9.0
<i>The use of the Internet is encouraged in our family</i>	56.3	38.5	5.2