ICT Usage among Allama Iqbal Open University Students

(Exploring Reliance and Relevance of ICT)

Babar Hussain Shah

Prof. Dr. Ghulam Shabbir Baloch

Abstract

This research article deals with the ICT Usage among the Students of AIOU and its relevance and reliance in studies for the students of distance education enrolled at AIOU. It is an admitted fact that Information Communication Technologies have played a significant role in facilitating education among the students of distance and non-formal education. This research has its theoretical grounds in Knowledge Gap Hypothesis Theory of Mass Communication. The researcher chose a sample of 367 students enrolled at AIOU. The sample was selected by applying Probability sampling technique. A close-ended questionnaire was developed by the researcher and was distributed among the students of AIOU who were enrolled in M. Phil and Ph. D programs of the university. The findings of the research reveal that majority of the University students (74.9%) are using ICT for educational Purposes. It was also found that both the students with rural and urban background are relying on ICT and also find ICT relevant for their studies. It was also revealed that students with urban background find ICT more relevant for their studies in comparison with the students of rural background. Results also reveal that the students with rural background rely more on ICT than the students with the urban background and it was surprising for the researcher. But overall results of the study show that students find

ICT helpful for their educational purposes and hence they rely on ICT and also find it relevant for their studies.

Keywords*: ICT, AIOU, ICT Usage, Reliance on ICT, Relevance of ICT*

Introduction/Background

It is beyond any doubt that education leads to success and prosperity of any country and nation. Without any education success, prosperity and development is not possible. In short, it is base for progress and prosperity of human development. And when it comes of developing countries education becomes more inevitable and unavoidable because it is the only tool that relieves the developing nation from the shackles of underdevelopment and poverty. But the dilemma of poor and developing countries is that it is not possible for the government to educate each and every individual through formal process of education. In such circumstances it is the distance education that provides a ray of hope for the poor people. In fact, distance education provides an alternative to the formal education. It goes saying beyond any doubt that the current era is the era of technology. Technological advancement has shaped this world into the global village. Gone are the days when students were solely dependent on teacher/tutor for information seeking. Now technology is available to facilitate the learning at more quicker and rapid pace. Technological advancement has revolutionized academic world; especially in the field of education it has greatly proven helpful. When distance education system in the developing countries is analyzed and looked upon it is generally observed that it mostly depends upon printed matter with very little focus on TV, radio and other related technology. (Lawry Trevor-Deutsch and Lyndsay Green, 2002). Information Communication Technologies have expedited the pace of learning and has also resulted in creating ease for learners whether they are the part of formal education

system or informal including distance education. In this way ICT has resulted in wider and greater participation of the students in the overall process of learning. (Laurillard, 2000; Koller 2012).

As this research article is primarily focusing on Allama Iqbal Open University, Islamabad so it is important to provide a brief profile of the university. In fact, AIOU is the pioneer university in distance education in Pakistan which is catering academic needs of almost 1.3 million students across Pakistan and abroad as well. The university was established in 1974 under Act No. XXXIX passed by the Parliament of Pakistan. This unique institution is offering programs ranging from Secondary School Certificate Program to PhD programs. The teaching strategy of the university includes: Assignments, tutorials and workshops. The students are also provided with books as well as reading material in soft forms like CDs. The University has the state of the art Institute of Educational Technology. This institute accounts for preparation of media contents for all level of studies. This institute also runs FM 91.6 to cater academic needs of the university students. There is also a WebTV in the university. The University has the state of the art radio and television studios. The institute is working with great vigor and has produced many useful programs for its students. The University has also a Multimedia and Electronic Course Development Centre (MECDC). This centre is playing its effective role by producing course contents in soft forms including CDs and DVDs. Apart from above the University also arranges workshops through video conferencing for those students who cannot access main campus in Islamabad. The university is making effective use of all ICT facilities available at the campus and even arranges viva voce of students by using modern tools of ICT like Skype and other forums of online interaction. There are handful programs of the university which are offered online. These programs consist of MBA/ MPA and B.Com Associate Degree. If we have overall

analyses of the University in connection with ICT it is generally observed that overall it is making effective use of ICT for dissemination knowledge to its students, however there is more room for application of ICT in the University.

Stephenson (2000) explains the following benefits of ICT usage in distance education.

1. ICT is helpful in providing access to a variety of and multiple sources of information
2. It is helpful to access a variety of information types and forms.
3. It facilitates learning environment offering variety of opportunities to the students to access information through multiple gadgets and forms of ICT.

ICT is helpful to provide authentic settings and provision of examples

Research Objectives

As this research is primarily focused on exploring symbiosis between ICT and Distance Education by keeping particular focus on AIOU as a case study. So the main objectives of this study comprise of.

1. To know about the purpose of ICT usage among AIOU's students.
2. To explore the reliance of the students on ICT.
3. To be know about the extent of relevance of ICT in distance education.
4. To know about the difference in reliance and relevance of ICT in distance education among the students having rural and urban background.

Research Questions

1. What is the purpose of using ICT among AIOU's students?
2. Whether and to what extent students rely on ICT for their studies?
3. What is the extent of ICT relevance in distance education for the students of AIOU?

Literature Review

There is a variety of research work available which focuses on exploring relationship between ICT and distance education. Before going to have a detailed review on ICT it is of vital importance to have a basic knowledge about these two terms.

According to Boer, (2005) ICT consist of all those technologies which are aimed at manipulation and communication of information.

Information Communication Technology can also be elaborated as “ICT includes diverse set of technological tools and resources that are used to communicate, and to create, disseminate, store, and manage information” (Blurton C, 1999).

From above two definitions it can be inferred that ICTs are the technological tools which are effectively used for the creation, dissemination, transfer and management of the information in an effective way.

As far as distance education is concerned different scholars defines it as :

Hilary Perraton (1988) believes that in distance education a significant proportion of the teaching is done by someone removed in space and/or time from the student/learner.

Simonson (2006) elaborates distance education as “an institutional based, formal education in which learning group is separated and in that education uses interactive telecommunication systems for the sake of connecting learners, resources and instructors well.”

From above definition it is concluded that in distance education

1. During the whole activity of learning there is a physical separation student and teacher.
2. There is involvement of institution which creates a linkage between the students and teachers.

3. It seeks the involvement of media print or electronic which serves as a bridge between the student and teacher.

Reliance on ICT in distance education

Smeets (2005) states that one of the benefits of ICT is active learning because it is extremely helpful for when and where to do learning. He is of the view that one aspect of ICT-enhanced learning is that it is greatly helpful in increased learner engagement in the whole process of learning. It is helpful in the learners in the way that they can learn and perform learning activities crossing the barriers of what and where they want to learn.

Bahk (2008) has worked to explore the relationships between various socio-psychological variables and the level of involvement in the Internet. The findings of his research work indicate that those students who were having their own computer and internet were relying more on ICT than the students who are not having their own computers. He also concluded that when there is more dependence on computer/internet there will be more anxiety in students when they will be engaged in face to face interaction.

Caplan (2007) argues that heavy internet users who rely on more on internet/computers and related ICT are faced with the more social anxiety than the ordinary ones.

Different researchers across the world have admitted the role of ICT in education (Pigato, 2001; Fisser, 2001) and reliance of students on ICT in distance education too (Rumble, 2001).

Different studies (Kirkwood, 2000; Usun, 2004) have discovered that the students heavily rely on ICTs concerning their admissions, about their classes (Peralta, and Costata, 2007), communication with teachers and fellow students (Kennewell, 2001), preparing assignments & working on presentations (Seymour, and Fourie, 2004), solving quizzes and exercises (Usun, 2004), and searching for course related updates and results (Bissell, and Williams, 2008).

Students also rely on ICT to a greater extent in knowing about their results. (Bissell, and Williams, 2008).

Relevance of ICT in distance education

If we want to understand the relevance of ICT in distance education it is first important to understand the extent to which ICT is relevant and appropriate to enhance learning in distance education.

ICT is more relevant to the educational use and for enhancing students' learning (Yusuf, 2005; Unwin, 2009; Cornu, 1995) and relates to all aspect of education (Cuban, 2001).

Hence it is overall agreed upon that ICT makes educational process more relevant and more meaningful.

Kirkwood, (2000) and Usun, (2004) are of the view that ICTs are more relevant for the students when they undergo the process of admission whether in formal or non-formal institutions.

Peralta, and Costata, (2007) found relevancy of ICTs and classes, interaction with teachers and fellow students (Kennewell, 2001),

ICT is also relevant with assignments writing & preparation of presentations (Seymour, and Fourie, 2004).

ICT is also appropriate and relevant for quizzes and exercises (Usun, 2004).

The students with urban background have more access and availability of ICT gadgets & devices (Qureshi et al., 2014). So it is concluded that when the students are having more access to ICT they will find more relevant to their studies and over all academic work.

Theoretical Framework

Theory of Knowledge-Gap Hypothesis

It is beyond any doubt that knowledge like other sources is not equally distributed. It has a great importance and worth in our lives because it lets the people to do the things that cannot be done its absence. There is a well known old saying, “Knowledge is a power” which simply means that it exalts the ability the ability to the people to do those things which cannot be done by the people with less or no knowledge. It well understood that the segments of the society who are struggling with poverty and financial issues are unable to access information and knowledge as they are only confined to strive for the eradication of poverty in their daily lives. This financial division exists across the world and has given birth to the phenomenon of haves and have-nots. Similarly information is also a wealth and people are divided according to it by using the terms of haves and have-nots.

Childer and Post, (1975, p.56) in their book The Information-poor in America suggested a list of questions as typical information needs of the disadvantaged adult in the United States. From questions asked he concluded that typical poor families are unaware about the information channels to switch in order to solve their problems. They do not see problems as their information needs. He believed that information is an important component of the democratic societies as a good democratic society is heavily dependent on well informed citizens. He also stressed upon the fact that information is also important as it creates awareness among the people. The term Knowledge Gap was first used in 1970 in an article titled as “Mass Media Flow and Differential Growth in Knowledge” and this article was written by Tichenor , Donohue , and Olien. They defined the term Knowledge Gap “as the infusion of mass media information into a social system increases higher socioeconomic status segments tend to acquire this information

faster than lower socioeconomic status population segments so that gap in knowledge between the two tends to increase rather than decrease." In the simplest words it can be concluded that economic status is of vital importance in enhancing knowledge bank so those who are rich in the society have more financial resources and thus have the ability to buy the technology to afford and use it. A harmful effect of these new technologies is that they have resulted in creating a sense of deprivation among the poor segments of the society who cannot afford to buy these technologies.

Tichenor, Donohue, and Olien hypothesized that over time, acquisition of knowledge for a highly publicized topic will proceed faster among well educated people than among less educated ones.

1. "At a given point in time, there would be a higher correlation between acquisition of knowledge and education for the issues highly publicised in media in comparison with the less publicised."
2. "At a given point in time, there would be a higher correlation between acquisition of knowledge and education for the issues highly publicised in media in comparison with the less publicised."

Above hypotheses were supported as well with the supporting data.

New Technology and Knowledge Hypothesis

In the present we hear of the term Information Explosion. The probable reason for this is that Communication Technology is changing this world at a rapid and quicker pace. The new technologies are very quickly replacing the older technologies and older technologies are becoming obsolete in a shorter span of time. Now changes are occurring at a very quicker pace. For example, Now CDs and DVDs have taken over floppies and even USB is also being used as

the alternate of DVDs and CDs and even data is being saved in Clouds available online to internet users. All these new technologies can be well used to benefit the people. But again the question of affordability of these technologies arises because all classes of society cannot afford them. As Parker and Dunn (1972) have noted,

"The greatest single potential of an information utility might be the opportunity to reduce the unit of cost of education to the point where the society could afford to provide open and equal access to learning opportunities for all members throughout their lives." (p.1392)

In fact all above new technology are expensive and can be only used by them who can afford them. So the result is that information gap is increasing to a greater extent between poor and rich.

Parker and Dunn (1972) have observed that these new technologies are not collectively available to all classes of the society. So it is resulting in creating gap between two segments of the society and this gap is still continuing.

Hypotheses:

Hypothesis 1: Urban students have greater reliance on ICT than rural students.

Hypotheses 2: Urban students find ICT more relevant for their studies as compared with the rural students.

Methodology

Research Methodology provides a guideline to how to conduct a research and it also provides a rationale behind the decision to use a specific design in the research study. "It is of vital importance for every researcher to understand the assumptions behind these techniques and procedures that will be applicable to certain problems and others will not."(Kumar & Ranjit, 2005).

The study under review used a quantitative research design in which the researcher constructed a closed-ended questionnaire after a comprehensive review of the literature. The constructed questionnaire included all the related constructs. This research focused only on the students of Allama Iqbal Open University, Islamabad so it is a case study of AIOU. Bryman (2008:52) elaborates a case study as one which "… entails the detailed and intensive analysis of a single case is tantamount with a particular location e.g. an organization"

Population

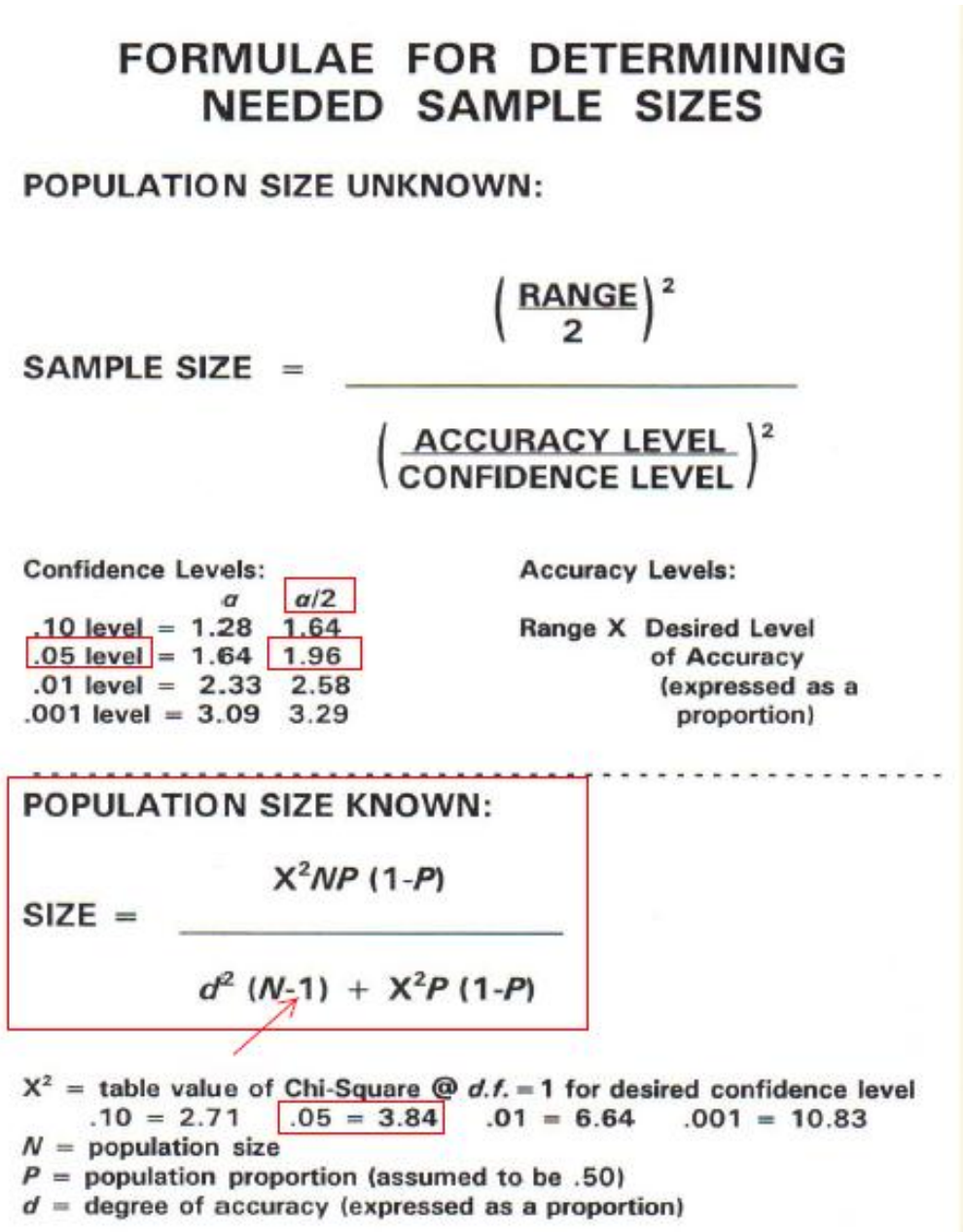
Wimmer, R. D., & Dominick, J. R. (1994)define, "Population as a group or class of subjects, variables, concept, or phenomenon."The population in this study comprises of the students who are enrolled in M. Phil and Ph. D Programs of AIOU during the Autumn 2014, Spring 2015, Autumn 2015 and Spring 2016 semesters.

Sample

In the words of Wimmer, R. D., & Dominick, J. R. (1994) Sample is a subset of the population that is representative of the entire population. Keeping in mind the limitations and constraints of time and cost involved the sample was restricted to only M. Phil and Ph. D students of the university enrolled in the specific semesters.

Sampling Technique

The sampling technique that was used in this research is probability sampling technique as the sampling frame is already known to the research. The complete list of all respondents is available to the researcher. The sample size was determined with the help of the following formula.



FORMULAE FOR DETERMINING NEEDED SAMPLE SIZES

POPULATION SIZE UNKNOWN:

$$\text{SAMPLE SIZE} = \frac{\left(\frac{\text{RANGE}}{2}\right)^2}{\left(\frac{\text{ACCURACY LEVEL}}{\text{CONFIDENCE LEVEL}}\right)^2}$$

Confidence Levels:

	α	$\alpha/2$
.10 level =	1.28	1.64
.05 level =	1.64	1.96
.01 level =	2.33	2.58
.001 level =	3.09	3.29

Accuracy Levels:

Range X Desired Level of Accuracy (expressed as a proportion)

POPULATION SIZE KNOWN:

$$\text{SIZE} = \frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$

X^2 = table value of Chi-Square @ *d.f.* = 1 for desired confidence level
.10 = 2.71 .05 = 3.84 .01 = 6.64 .001 = 10.83
N = population size
P = population proportion (assumed to be .50)
d = degree of accuracy (expressed as a proportion)

This sample size was matched with the sample provided by Krejcie and Morgan (1970) which was accurately similar to our calculated sample size. Further, Cluster sampling technique was used to collect data from respondents. Brief description of the sample is provided below.

Table 1: Determination of Sample Size

Faculty	Population	Percentage Contribution	No. of Samples
SS&H	2333	34.08 %	122.7042
Science	2305	33.6%	122.5266
Education	1004	14.66 %	47.05733
Arabic and Islamic studies	1203	17.5 %	57.71182
	6845	100 %	367

Delimitations of the Study

As it is known that Allama Iqbal Open University is the Mega University of Asia with the record enrolment of almost 1.3 million students so it was not possible for the researcher to conduct survey of whole population. Keeping in mind constraints of budget and time researcher remained constrained to the students enrolled at M. Phil and Ph. D level in the University.

Data Analysis

Table 2: Purpose of Using ICT

Purpose of Using Computer	Frequency	Percentage
Education	250	74.9
Information	211	63.2
Entertainment	99	29.6
Any other	19	5.7

The table above indicates ICT usage among the University's students. It is evident from the table that majority of the students are using ICT for educational purpose (74.9%). After that students are making use of ICT for information related purpose. As far as usage of ICT usage for entertainment is concerned it can be seen above that (29.6%) are using ICT for entertainment related purposes. Least number of students was found using ICT for other purposes (5.7%).

Reliability Tests

For the purpose of testing the reliability of questionnaire's items the test of reliability Cronbach's alpha was run.

Here is formula for Cronbach's alpha

= rk / [1 + (k -1)r] where the number of items considered are denoted by k is and represents is the mean of the inter-item correlations. The following rules of thumb were provided by George and Mallery (2003) "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and _ < .5 – Unacceptable" (p. 231).

Table 3: Reliability of Items

Variables	**Cronbach's Alpha**	**Items**
Relevance	.845	6
Reliance	.696	5

From Cronbach's Alpha results it can be concluded that items included both in Reliance and Relevance are reliable.

Descriptive Statistics

Table 4: Reliance and Relevance on ICT

Variables	Area of Residence	Min	Max	N	Mean	Std. Deviation	Std. Error Mean
Reliance	Rural Areas	1	5	99	3.4828	.74888	.07527
	Urban Areas	1	5	118	3.4085	.77763	.07159
Relevance	Rural Areas	1	5	95	3.4842	.78516	.08056
	Urban Areas	1	5	130	3.5179	.80701	.07078

The descriptive statistics of the data collected from the sample of the study is as follows:

Table documented above the description of data i.e. average and its deviation from the average. Results of above table showed the descriptive statistics for reliance and relevance.

The results of the above mentioned table (4) elaborate the descriptive statistics of reliance i.e. average and its deviation from average. The maximum and minimum value of rural respondents' reliance extremities in the responses which were 1 and 5respectively that showed how values were dispersed out. The results expressed an average level of (3.4828) which was more than the average level of (3). Hence it is concluded that that respondents rely on ICT in their studies. The value of standard deviation (0.74) expressed the deviation of responses from its mean. Whereas the maximum and minimum value of Urban respondents'' reliance shows extremities in the responses which were 1 and 5 respectively showed how diversely they were spread out. The results showed an average value of 3.40 which was more than average level (0.3). Hence it is concluded that urban students rely on ICT in their studies. The value of standard deviation (0.77) showed the deviation of responses from its mean.

The results of the table (4) also show the descriptive statistics of relevance i.e. average and its deviation from average. The maximum and minimum value of rural respondents' relevance extremities in the responses which were 1 and 5 respectively that showed how values were dispersed out. The results showed an average level of (3.4842) which was more than the average level of (3). Hence it is concluded that that respondents find ICT relevant in their studies. The value of standard deviation (0.78) expressed the deviation of responses from its mean. Whereas the maximum and minimum value of urban respondents' relevance shows extremities in the responses which were 1 and 5 respectively showed how diversely they were spread out. The results showed an average value of 3.51which was more than average level (0.3). Hence it is concluded that urban students find ICT relevant regarding their studies. The value of standard deviation (0.80) showed the deviation of responses from its mean.

Answers to Research Questions:

1. What is the purpose of using ICT among AIOU's students?

Answer. The results from table 2 indicate ICT usage among the University's students. It is evident from the table that majority of the students are using ICT for educational purpose (74.9%). After that students are making use of ICT for information related purpose. As far as usage of ICT usage for entertainment is concerned it can be seen above that (29.6%) are using ICT for entertainment related purposes. Least number of students was found using ICT for other purposes (5.7%).

2. Whether and to what extent students rely on ICT for their studies?

The results of the table (4) elaborate the descriptive statistics of reliance i.e. average and its deviation from average. The maximum and minimum value of rural respondents' reliance extremities in the responses which were 1 and 5 respectively that showed how values were

dispersed out. The results expressed an average level of (3.4828) which was more than the average level of (3). Hence it is concluded that that respondents rely on ICT in their studies. The value of standard deviation (0.74) expressed the deviation of responses from its mean. Whereas the maximum and minimum value of Urban respondents'' reliance shows extremities in the responses which were 1 and 5 respectively showed how diversely they were spread out. The results showed an average value of 3.40 which was more than average level (0.3). Hence it is concluded that urban students rely on ICT in their studies. The value of standard deviation (0.77) showed the deviation of responses from its mean.

3. What is the extent of ICT relevance in distance education for the students of AIOU?

Answer. The results of the above mentioned table (4) show the descriptive statistics of relevance i.e. average and its deviation from average. The maximum and minimum value of rural respondents' relevance extremities in the responses which were 1 and 5 respectively that showed how values were dispersed out. The results showed an average level of (3.4842) which was more than the average level of (3). Hence it is concluded that that respondents find ICT relevant in their studies. The value of standard deviation (0.78) expressed the deviation of responses from its mean. Whereas the maximum and minimum value of urban respondents' relevance shows extremities in the responses which were 1 and 5 respectively showed how diversely they were spread out. The results showed an average value of 3.51which was more than average level (0.3). Hence it is concluded that urban students find ICT relevant regarding their studies. The value of standard deviation (0.80) showed the deviation of responses from its mean.

From the results of table 4 it is obvious that students both rural and urban background find ICT relevant for their studies.

Test of Hypotheses

Keeping the nature of data in mind the following two tests were employed in order to test the hypotheses.

1. Independent Sample T- Test
2. The researchers run Levene's test for Equality of Variances on the groups of data to validate the ANOVA's assumption of homogeneity of variances which states that the groups can have different means but their variance should be same. The following table provides the statistics about homogeneity of variances:

Table 5: Levene's Test for Equality of Variance for Reliance

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	**Sig.**	**t**	**Df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**
Reliance	Equal variances assumed	.016	.899	.713	215	.476	.07435	.10422
	Equal variances not assumed			.716	210.926	.475	.07435	.10387

The results shown in Levene's Test reveal that the variances in two groups (rural areas and urban areas) were the same. 2-tailed Significance value is more than 0.05 (0.476) significance level shows that the variances of the two groups are same i.e. there is significant difference in the

students from group 1 (rural areas) and group 2 (students from urban areas) regarding reliance on ICT. So, there is significant difference regarding reliance on ICT with respect to two groups (students from rural areas and students from urban areas).

Independent Sample T-Test

Table 6: Independent Sample T- Test for Reliance on ICT

	Areaof Residence	**Mean**	**Std. Deviation**	**Std. Error Mean**
Reliance	Rural Areas	3.4828	.74888	.07527
	Urban Areas	3.4085	.77763	.07159

The table above shows the descriptive statistics of Independent Sample T-Test of two groups i.e. student from rural areas and students from urban areas. The mean of these two groups are different. Reliance on ICT is slightly different for the students of rural areas and urban areas.Furthermore; standard deviations ofthe groups are also different. Same is the case is with standard error of mean where there is slight difference for the groups. Hence, the researcher has accepted H2 made during the study.

H1: Urban students have greater reliance on ICT than rural students. **Not Supported**

Levene's Test for Equality of Variances:

Table 7: Levene's Test for Equality of Variances for Relevance

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Relevance	Equal variances assumed	1.050	.307	-.313	223	.754	-.03374	.10769
	Equal variances not assumed			-.315	205.789	.753	-.03374	.10723

The results shown in Levene's Test reveal that the variances in two groups (rural areas and urban areas) were the same. 2-tailed Significance value is more than 0.05 (0.754) significance level shows that the variances of the two groups are same i.e. there is significant difference in the students from group 1 (rural areas) and group 2 (students from urban areas) regarding relevance on ICT. So, there is significant difference regarding relevance on ICT with respect to two groups (students from rural areas and students from urban areas).

Independent Sample T-Test

Table 8: Independent Sample T-Test for Relevance

	Area of Residence	Mean	Std. Deviation	Std. Error Mean
Relevance	Rural Areas	3.4842	.78516	.08056
	Urban Areas	3.5179	.80701	.07078

The table above shows the descriptive statistics of Independent Sample T-Test of two groups i.e. student from rural areas and students from urban areas. The mean of these two groups are different. Relevance of ICT is slightly different for the students of rural areas and urban areas.Furthermore; standard deviations ofthe groups are also different. Same is the case is with standard error of mean where there is slight difference for the groups. Hence, the researcher has accepted H3 made during the study.

H2: Urban students find ICT more relevant for their studies as compared with the rural students. **Supported**

About the Author(s)

* Babar Hussain Shah is a Lecturer at the Department of Mass Communication, Allama Iqbal Open University Islamabad

* Dr. Ghulam Shabbir Baloch is the Professor at the Department of Media Studies, The Islamia University of Bahawalpur, Bahawalpur.

References

Bahk, C. M. (2008). Reliance, Immersion, and Enjoyment: An Exploratory Socio-Psychological Analysis on Internet Involvement. Communications of the IIMA, 8(1), 59.

Bissell, C. C., & Williams, J. P. (2008). Coping with a changing world: the UK Open University approach to teaching ICT.

Blurton,C.,"New Directions of ICT-Use in Education" (1999).Available online http://www.unesco.org/education/educprog/lwf/dl/edict.pdf;accessed 7 August 2002.

Boer, P. (2005). Towards education for all: The critical role of open and distance learning in national development Paper presented at the First open and distance learning conference in Namibia, Namibia. http://www.col.org/resources/speeches/2005presentations/Pages/2005-08-30.aspxs

Bryman, A. (2008). Social Research Methods, (3rd ed) New York: Oxford University Press Inc.

Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. CyberPsychcology & Behavior, 10(2), 234-242.

Childes, T., and Post, J.A. (1975). The Information Poor in America, Metuchen, N.J/; Scarecrow Press

Cornu, B. (1995). New Technologies: integration into education In: Watson, D. and Tinsley, D.(Eds) Integrating Information Technology into Education.

Cuban, L. (2001). Oversold and underused: Computers in schools 1980-2000. *Cambridge, MA: Harvard University*.

Fisser, P. H. G. (2001). *Using information and communication technology: a process of change in higher education*. Universiteit Twente.

Green, L., & Trevor-Deutsch, L. (2002). Women and ICTs for open and distance learning: Some experiences and strategies from the Commonwealth.

Kennewell, S. (2001). Using affordances and constraints to evaluate the use of information and communications technology in teaching and learning. *Journal of Information Techology for Teacher Education*, *10*(1-2), 101-116.

Kirkwood, A. (2000). Learning at home with information and communication technologies. *Distance Education*, *21*(2), 248-259.

Koller D. (2012). "What we're Learning from Online Education." Available at: http://www.youtube.com/watch?v=U6FvJ6jMGHU

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement*, *30*(3), 607-610.

Kumar and Ranjit (2005). Research Methodology-A Step-by-Step Guide for Beginners, (2nd.ed), Singapore, Pearson Education)

Laurillard, D. (2000). 8 New Technologies, Students and the Curriculum. *Higher education re-formed*, 133.

Parker, E. B., & Dunn, D. A. (1972). Information technology: Its social potential. Science, 176(4042), 1392-1399.

Peralta, H., & Costata, F. A. (2007). Teachers's competence and confidence regarding the use of ICT. *Sísifo-Educational Sciences Journal*, 75-84.

Perraton, H. (1988). A theory for distance education. In D. Sewart, D. Keegan, & B. Holmberg (Eds.), Distance education: International perspectives (pp. 34–45). New York: Routledge.

Pigato, M. (2001). *Information and communication technology, poverty, and development in sub-Saharan Africa and South Asia*. Washington, DC: World Bank.

Qureshi, Q. A., Qureshi, N. A., Khan, M. Z., Nawaz, A., & Shah, B. (2014). Issues and Prospects of e-health in Pakistan. *Mediterranean Journal of Medical Sciences*, *1*(1).

Rumble, G. (2001). Re-inventing distance education, 1971? 2001. *International Journal of Lifelong Education*, *20*(1-2), 31-43.

Seymour, L., & Fourie, R. (2004). ICT literacy in higher education: Influences and inequality. In *Proceedings of 2004 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on IT Research in Developing Countries*.

Simonson, M. (2006). DESIGN-BASED RESEARCH Applications for Distance Education.

Small-Sample Techniques. The NEA Research Bulletin, Vol. 38 (December, 1960), p. 99.

Smeets, E. (2005). Does ICT contribute to powerful learning environments in primary education?. *Computers & Education*, *44*(3), 343-355.

Stephenson, J., Ed. (2001). *Learner-managed learning- an emerging pedagogy for online learning*. Teaching andLearning Online: Pedagogies for New Technologies. London, Kogan Page.

Tichenor, P. J., Donohue, G. A., & Olien, C. N. (1970). Mass media flow and differential growth in knowledge. Public opinion quarterly, 34(2), 159-170

Unwin, P. T. H. (Ed.). (2009). *ICT4D: Information and communication technology for development*. Cambridge University Press.

Usun, S. (2004). Factors Affecting the Application of Information and Communication Technologies (ICT) in Distance Education. *Online Submission*, *5*(1).

Wimmer, R. D., & Dominick, J. R. (1994). An introduction to mass media research. California: Wadsworth.

Yusuf, M. O. (2005). Information and Communication Technology and Education: Analysing the Nigerian National Policy for Information Technology. *International Education Journal*, *6*(3), 316-321.