

Students' Attitude Towards the Use of Mobile Telephone Technology in Distance Education

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Abstract

This research was aimed to explore the students' attitude towards the use of mobile technology in distance education. The tool of research has been developed according to the standards of five-point Likert scale which is widespread and authentic for analyzing perception. It was also tested and validated through applying Chi Square for internal consistency. Using a survey method, data has been collected from the sample population comprised three hundred fifty five students and academics of Allama Iqbal Open University through the questionnaire. Purposive sampling was used to fetch the diversified opinion from the adult educationists and expert consultants in the field of distance education. Collection, organization, and interpretation of data has been done statistically using measures of central tendency, Chi Square test, and elaborated with help of figures and graphs. It is concluded that overall social attitude is supportive for using mobile telephone technology still it is not accepted equally at all levels by all the groups. Necessary training, awareness about the good and bad effects of using mobile technology also its adoption as educational technology in a managed way, came out as the key suggestions of the research.

Keywords: student's attitude, mobile technology, distance education

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Introduction

Change as the only constant works wonder in reshaping human life, for instance, 21st century is leaving us witnesses of revolutionary shifts to electronic communication from primeval post-a-letter system. Information and communication activities have been greatly benefitted from mobile technology in this era.

With reference to Pakistan, its population was 185,099,017 in December 2013 according to the Population Census Organization (2013), out of which, 125,012,860 are mobile phone users as reported by Pakistan Telecommunication Authority in Telecom Indicators (2013). Concurrently, Internet Service Providers Association of Pakistan is indicating the estimated internet users are more than 25 million in the country denoted by Ameen (2012). The figures clarify that at the present, consumption rate of personal technologies is growing day by day. In all fields of work and education, Pakistani people are having access to extensive variety of devices used in combination with information and communication technologies. New gadgets and channels of communication are being adopted to walk abreast of the other world.

According to Abas (2010), in the beginning of Internet introduction, there were technological issues related to maintenance and connectivity but the advancement of technology almost overcome to all of them. The variety of mobile phones has occupied the market of personal computers. At the same time, software engineers and designers are introducing improved operating systems holding hundreds of free applications waiting for a single touch to download. 3G and 4G mobile services are making us enjoy the speed connectivity and data transfer.

In Pakistan, as Aurora (2017) stated, mobile telephone technology is being used, mostly, for social media and entertainment. Its use for education or personal / professional development is not in trend which could be life-changing for the people living in a country under development. Use of mobile technology in distance education can be very helpful in teaching learning process. Resources like campus building, classrooms, infrastructure, and manpower could be saved along with security, stationary and other utility expenditure.

Such economical ability of mobile devices as a powerful communication device and changing agents of the society has motivated the researcher to opt this field of research. An ever increasing rate of cell phone subscribers in Pakistan (PTA, 2013) is again an indication that mobile phones carry more potential to transform our culture and society. Thus the study had two main objectives: to identify the most popular

among mobile technologies in Pakistan and what purpose it is being used for, to explore the social attitude in Pakistan towards the use of mobile devices.

Literature Review

Mobile Telephone Technology: Commonly we take mobile technology and phones in the same context even we use the word, 'mobile' for mobile phone frequently for cellular or smart phone. On the other hand mobile technology includes a range of devices i.e. laptops, handheld computers, tablets, palmtops, personal media players, cell phones and smart phones etc. as defined by Kukulska-Hulme & Traxler (2005). By characterization a mobile is considered a handheld device which connects wirelessly to the public switched telephone network.

A mobile telephone is the provision of telephone services to phones which may move around freely. It has no boundary of space or location along, so it can be carrying easily. Time by time, mobile phone's sizes are changed to provide attractions to customers and it's weight also reduced, so it can be hold easily and accepted without any confusion or burden informed by Atta (2013). Four features cannot be separated from mobile technology are private property, functionality, mobility and connectivity. Latest mobile devices are hitting the market with WiFi as a built-in function. In this frame of reference, mobile phone technology turns into essentials of civics right as Akintola et al. (2012) debates about mobile learning technologies as the combination of strategies. Recent brainchildren like Google glasses and mobile watches are examples of such devices (Schmitz, 2014).

Mobile Telephone Technology and Pakistan: As reported by Pakistan Telecommunication Authority in its Telecom Indicators (2013), Pakistan is having 125,012,860 mobile phone users out of its total population, 185,099,017 (Population Census Organization, 2013). The internet users are more than 25 million in the country denoted by Ameen (2012) with reference to reports of Internet service providers. The figures shed light on the consumption rate of personal technologies which is growing every day. Telecom Indicators (2011) also report that Pakistan is in top-ranking nations for SMS Traffic with 152 billion text messaging and Rs. 40 billion texting revenue in just one year (2009-2010).

Pakistan -Traffic in Y2010 (Approximate)

Total SMS in Year-2010	175.393 Billion
Total No. Of Subscribers (Subs) end-2010	102,777,387
SMS per Subscriber per Month (SMS/Month/Subs)	142
SMS per Subscriber per day (SMS/Day/Subs)	Approx 5

Adopted from Pakistan Telecommunication authority (2011)

In keeping with a latest research on the use of smart mobile phones conducted by Grappetite (2014), a group of the mobile application developers in Pakistan, we find the following information about the Pakistani users of smart phone:

- 60% of them use more than one cell phone
- 35% of them use a low cost phone while outdoors to be safe from snatchers
- 68% of users prefer Android
- 77% of smart phone users are just 21 to 30 years old
- Recently 3G was introduced in Pakistan and the smart phone market is rapidly expanding

Mobile Telephone and Cultural Issues: Mobile phone is not just a gadget in hand of Pakistanis. It also refers to the personality of the user, his occupation and professional needs in our homeland. Although it's a small and simple device mostly used only to communicate, yet with reference to our culture it's also a display of wealth and style. It describes its user's choice and also monetary range of affordability blogged by Haq (2012). This technology refers the purpose of education and information toward a beneficiary but this idea is not working in our closed society. Private devices are like an exposure to colorful flashing lights for the masses without any adequate moral and law-abiding training. Quietness of parents, teachers and other institutions over some basic education like gender and sex also left children with many un-answered questions. Glamorous role of media is also here to lead us astray. In addition, deprival of personal space and freedom stimulates people to go for unethical business.

Mobile Telephone and Women: Mobile phone user especially female ones report many problems regarding abusing of mobile phone. Embarrassingly, our cyber smart youth is using mobile phone technology for spam calls, harassment and financial damages even for worst crimes like kidnapping and terrorism. Although Government and mobile phone companies of Pakistan are trying to control mobile phone crimes for last

few years like National Response Center for Cyber Crime (NR3C), still it's not under control. Eventually Government of Pakistan blocks the mobile phone services for political or security issues reported by Attaa (2014). Pakistan took start with mobile phone technology in 1990s and came in reach of majority after 2004 explained by Mehdi (2012). Pakistanis intend to keep the latest mobile with latest applications. Living in a society with innumerable limitations and restrictions, text messaging and camera are the most popular features nationwide. Making long calls, listening music, watching movies, sharing silly jokes and money transfers are also in. D'cruze (2009) proved the effectiveness of communication technology with reference to female teachers who once could not afford joining formal training now can have and share alternate educational resources. It provides more opportunities to Pakistani women for education or professional development overcoming the cultural and economic barriers. People should aware of the importance of trained female teachers and their impact on Pakistani society. The more use of Information communication technologies in education will impact the quality and culture of education in Pakistan. Mehdi (2012) agrees that women of Pakistan are dominated by men so they feel more freedom and exalted with independence owning a mobile phone.

Mobile Telephone as Social Evil: Mobile phone becomes a necessity and could be seen everywhere in every pocket and purse in Pakistan. Affordable prices are making this more and more feasible as also detailed in a report by Attaa (2016). Preventable use of mobile / wireless devices is harmful to human beings physically, socially and psychologically according to the results of pure scientific as well as social sciences researches everywhere in the world, endorsed by West (2014). Limitless liberty of personal and wireless utilities of mobile phone causes mental and emotional disorder, Prospected by Niaz (2008). High ratio of young mobile phones users with health, socio-economical and emotional problems is also found by Naz, Khan, Daraz, & Hussain (2011).

Mobile phones are causing discontentment, economic miseries and killing the human creativity, they further notify. Excessive use of mobile phone makes sick and addicted, often leads to immorality even crime.az, Khan, Daraz, & Hussain, 2011) It brought anti-cultural and anti-norms never seen before in Pakistani culture. Need to touch on the newly introduced, 'Nomophobia or no-mobile-phone phobia' a set of anxieties faced by mobile phone users in case of low battery, no battery, no credit or no mobile phone with them researched by D'Agata (2008) also see Dixit, et al. (2010). Keeping mobile phone closer may cause cancer, tumor,

sleep disorder, joints pain, infant deaths and much more ... holding the mobile phone near human ear for 10 minutes is just like warming our brain in a microwave oven for the same time as declared by Fariha (2014), Head of IT department in Government College University (Lahore) in her recent interview.

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Use of Mobile Telephone Technology in Distance Education: Education has been greatly benefitted from mobile technology. It also implies on revolutionary improvements in distance education system, but it has been encountering transactional distance as an issue. Mobile phone has plenty of advantages when we address the vast range of potential distance learners in countries under development found by Adeyemo, Adedoja, & Adalore (2013). This potential must be more uncovered to be utilized to educate more and more people. In the field of adult literacy and education principally it has been found useful with better results in social and economic ways of living.

The transactional distance results from the lack of appropriate communication between learner and teacher. It requires various strategies, techniques, and procedures to increase the amount of

interaction to reduce the gap of communication (Soekartawi, Haryono, & Librero, 2002).

Transactional distance theory, in view of Fuegen (2012), is the physical separation between the learner and instructor that leads to the psychological and communication gap experienced by both the students and teachers in distance education. Mobile technologies with their ability to allow for interactivity, two way communication and dialogue, are the most helpful tool in bridging this gap. Berge (2013) added that gadgets of social media have reduced the barriers of communication in distance education. Concurrently, with the emergence of technology communication barriers also became complex and multifaceted.

Abas (2010) called SMS as an inexpensive and the most widely-used application among mobile phone users. She developed the following list of world's renowned institutions using SMS technology as follows:

- Berlin University: used mobile wireless phones to send and receive SMS through WAP
- University of Twente in The Netherlands: "M-Port" project which made current web-based curriculum available to WAP-enabled mobile phone
- Kingston University in United Kingdom: SMS experiment was used to determine its effectiveness for student learning (results showed that students liked SMS more than any other text message application)
- Sheffield Hallam University: used SMS to support and manage learning activities (results found that students recognized SMS as immediate, convenient, and personal)

It's about the universities established in developed countries, the use of SMS for communication is also not a new trend in universities of developing countries. Kajumbula (2006) introduces SMS as one of the students' favorite means of communication with faculty and other students in Philippines, which is known as 'the texting capital of the world'.

Lim, Fadzil, & Mansor (2011) strengthen the above statement in the light of last ten years' literature that universities worldwide have been successfully using text messages to support distance learners. They give examples of:

- Allama Iqbal Open University of Pakistan from the Asia-Pacific region
- University of Pretoria, South Africa, and Makerere University, Uganda from Africa
- The Sheffield Hallam University branch in India
- The *Srinakharinwirot* University of Thailand

- The Chinese University of Hong Kong
These universities implemented mobile learning via SMS successfully and support to their learners in the following areas:
- Administrative support – reminding learners of contact session dates and registration deadlines, particularly those who have been missing face-to-face sessions
- Academic purposes – sending SMS that contain important course content, which is chunked in small sizes
- E-Counselling services
- Learner development support – helping learners to self-manage their studies better
- Learner assessment – sending interactive quizzes for learner self-assessment

Abas (2010) concluded their researches that students' access to mobile phone technology is very high and therefore the mobile phone presents a very attractive option to easing communication between the students and the Department. The use of SMS for communication keeps number of advantages: Distance students feel connected as an active part to their university when kept informed of news and events of the University;

- It reduces students' isolation
- Department can save a lot of money spent on announcements over radios and newspapers.
- Tutors and staff too can provide both academic and administrative counseling to students and give feedback to students' queries at no cost. This shows that SMS communication is an effective way of supporting distance education learners.

Prospective of Mobile Telephone Technology in Distance Education in Pakistan: For a long way since its birth, mobile phone has been using only for communication. Then today it can do almost everything for us including learning, shopping, banking, navigating, watching news and playing games etc. with help of its applications. Pakistani IT industry is now focusing on mobile application development. These applications are getting acknowledged at international level said by Saeed (2014). Many areas have to be upgraded and established new technology because unfortunately, this technology has come in Pakistan very late. Even now, still many departments are using old paper file system and they have no proper way to save data in computerized technology. (Saeed, 2014) According to recent state reports, there are 139.6 million mobile phone users are here in Pakistan at the end of May 2014 (Attaa, 2013).

Mobile technologies do appear to have a great future in developing countries. Indeed, mobile phones are one of the less expensive, most accessible and popular media among distance learning students of all ages. Use of mobile technology in distance education can be very helpful in teaching learning process (Kukulska-Hulme, 2007). Resources like campus building, classrooms, infrastructure, and manpower could be saved along with security, stationary and other utility expenditure. Flexible and low cost mobile technologies can be used to maintain and enhance contact with students and teachers, and, by arranging training effective use can be enhanced in distance learning (Yousuf, 2007).

Methodology

The current research required gathering relevant data from the specified group of people having involvement in distance education and familiar to use of mobile phone as educational technology. So survey method has been chosen as research design with accordance to nature and mixed-method approach of the study.

Population for this study consisted of all the students enrolled in M.Phil Education and their academics in five different departments. Sampling was purposive comprised all three hundred thirty three (333) students enrolled in M.Phil Education, semester Spring 2012, 2013 & 2014 plus their twenty two (22) academics (N=355).

Table 1

Overall Picture of Sample

Departments	Academics	Spring	Spring	Spring
		2012	2013	2014
		Students		
Education Planning & Management	4	22	25	39
Early Years, Secondary and Teacher Education	6	49	30	35
Non-formal, Distance and Continuing Education	4	13	25	39
Science Education	5	22	20	20
Special Education	3	15	13	15
Total = 355	22	107/107	103	123

Characteristics of population sample are as follows:

- All respondents were directly involved in distance education and had experienced of this system with reference to Allama Iqbal Open University.
- All respondents were professional mostly educationist, holding at least master degree in Science or Arts. Most of them were teachers, lecturers, subject specialists and school principals.

Development of Research Tool

To collect data for this research, five-point Likert scale has been found the best due to its reliability as a standardized scale for analyzing perception and personality. It follows the principle of measuring attitudes about a topic by asking their responses to a series of statement in terms of the extent to which they agree on them. Thus questionnaire having 36 Likert-type items on five point Likert scale has been used for collecting data for this study because Likert scale measures levels of agreement or disagreement. Respondents were offered a choice of five pre-coded responses with the neutral point being neither agree nor disagree to measure their attitude towards a particular statement.

The research tool, after development, has been presented to one language expert and 5 distance educators experienced (respectively in computer sciences, statistics, educational psychology and educational research) for getting the expert opinion. After a detail discussion with each of them the questionnaire has been edited in the light of their suggestions. Internal consistency has been checked to assure the reliability of test components of research tool under the supervision of project advisor. Then final version of research tool was used for getting data from five students of M.Phil badge, Spring 2013 for the purpose of pilot testing.

Data Administration & Collection

The validate research tool was administrated personally. The researcher, in person, obtained particulars i.e. names, phone numbers and email addresses from relevant departments in faculty of education. All departments have been continuously contacted to get the schedules of each discipline's workshop which is compulsory component of M.Phil program. This way, the participants have been approached during their face-to-face workshops managed at Allama Iqbal Open University, main campus Islamabad. Students who were not present for some reason were

contacted through internet and telephone. Similarly I have approached all academics of education department personally and requested them for sparing some time for their valuable contribution to this research.

Data Analysis

After collecting and arranging the data, measures of central tendency have been used. Chi square applied to analyze the difference between expected and observed answers statistically. For open-ended part, opinion and suggestions have been recorded and examined. They have been reported carefully after putting them under their category as well.

Results

The findings of the research drawn on the basis of data analysis are presented as follows:

1. Smartphone users are more than regular phone users in numbers. 60% users prefer to use smart phones having android or iphone technology while 40% users like to use simple / regular mobile phones for many reasons.

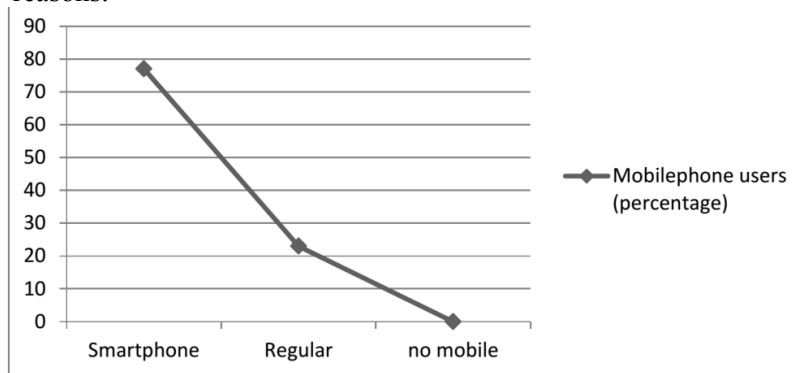


Figure 1: Percentage of mobile phone users

2. Users possess more than one mobile phone or even more. 40% users found contented on one phone set, 45% with need of two and 15% with more than two mobile phones.

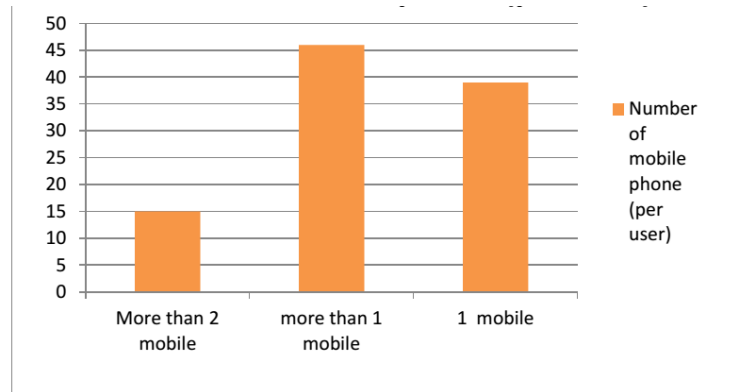


Figure 2: Number of mobile phones per user

- Majority of the subjects spend at least one to two hours in a day using their mobile phones. Only 10% among them give this technology less than one hour. 50% mobile phone holders use it 1-2 hours in 24 hours. More than 20% spend up to four hours and 20% even five and more.

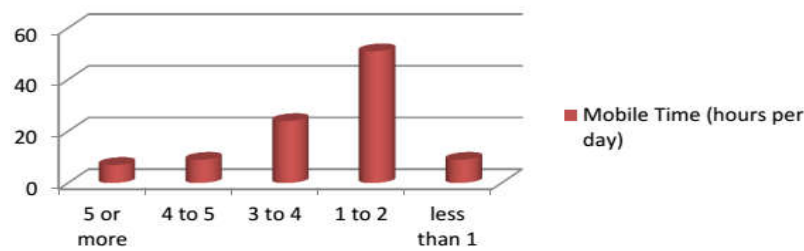


Figure 3: Mobile phone time (hours per day)

- Majority of the users spend more than 500 Pak rupees on mobile packages per month. Including all pre-paid or post-paid payments, 44% users spend less than 500 rupees on mobile cards etc. 56% subscribers spend up to 1000 rupees per month.

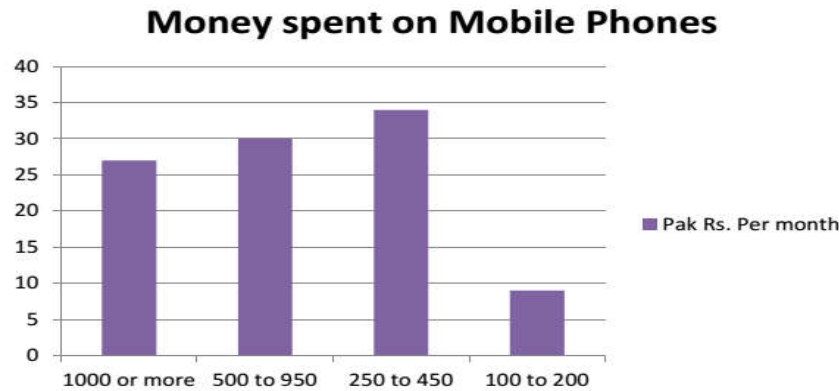


Figure 4: Money spent on mobile phones

5. Mobile phone has become an indispensable part of living according to the majority's opinion. Without mobile phone they feel disconnect from their family and friends.
6. Social attitude is favorable to mobile phones in general still it's considered a threat to our cultural norms and values. People find social media and entertainment interesting but get bored soon when reading or studying via phone.
7. Respondents believe that mobile telephone technology requires no special training; its user friendly. It's affordable and fun to use as well. A few think otherwise that necessary training is indispensable and nothing comes with disadvantages.
8. Most of the respondents think that mobile phone texting has negative effects on advancement of our national language Urdu. On the contrary, a few of them take it as no big issue.
9. Excessive use of mobile phone is considered a waste of students' time and energy. Still they admit they got very much used to of it. They feel uncomfortable without their phone and depressed having no balance left in their device.
10. Users do believe that Mobile Phone is harmful to human health and family life still they keep it close to them all the time even while asleep.

Conclusion and Discussion

Majority of the students and teachers have mobile telephone and access to internet. They face a few power and connectivity issues which

are, according to them, manageable. Most of the times, they enjoy news and exchange of views using social media and other applications. They find reading and studying boring in case of content is in written form. They feel record keeping of electronic data is harder than the printed one. They know it can bring positive change to their lives but they seldom use it for learning something or educational purposes. They, also, are aware of its harmful effects on their personal, emotional and social health but they are getting addicted to using of it day by day. They know mobile Phone Radiation has its bad effects on human brain and body which is becoming a global concern. Youth and adults needed to be fully aware of evil and harmfulness, mobile phone and internet addiction seize.

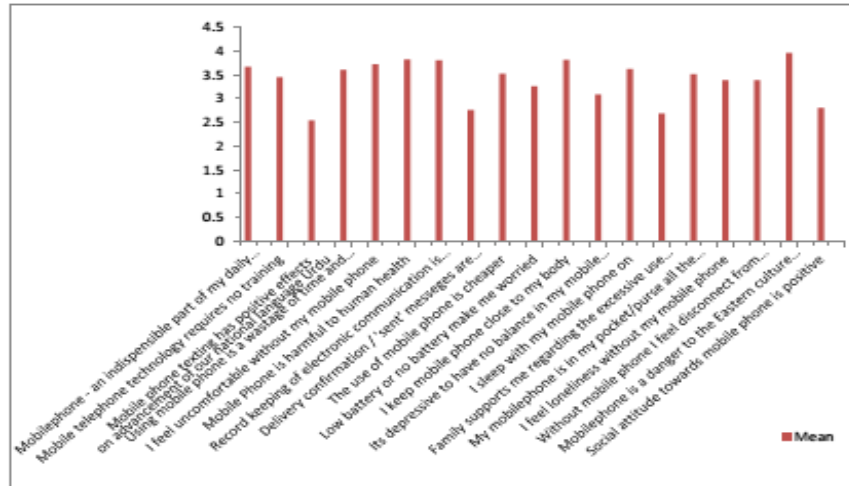


Figure 5: Summary of students' responses on perception scale

It could be concluded that it's the right time to use the mobile phone technology for distance education. In general, social attitude is favorable and students are ready to embrace the blended education. They agree it is important, with reference to Pakistan, to utilize available resources effectively and efficiently. They agree their devices have great potential for helping them with their education and development but they find it difficult to manage the resources particularly time. Teachers and students need help and training in this regard. Institutions are expected to be equipped with latest facilities required to offer well-managed study programs to their distant students. Students, as adult learners, are required to take responsibility for their own learning. It is looked forward that in

future, education may have its rightful place and more space in mobile phone devices than music and movies.

Recommendations

Keeping in view the findings of the study, some recommendations have been made. Parents, teachers, institutions, media, mobile service providers and the government; all must spread awareness about the adverse effects of excess use mobile technology. There should be strict rules, regulations and policies to keep the use of mobile phone technology limited to educational purposes and only to-need-to-know basis web surfing. Educational institutes should put more efforts to design Mobile Phone Applications and Learning Management Systems what could be more or at least similar attractive to the students. Study material should be presented in interesting (audio/video) ways along with assignments and assessments. Every single person of us should comprehend our moral limitations and social responsibilities enjoying the liberty of personal as well as community belongings.

References

- Abas, Z. W., Lim, Kim, S. & Mohamad, N. (2010). Engaging ODL Learners through Mobile Learning at Open University Malaysia. 6th Pan-Commonwealth Forum on Open Learning. Kochi, India.
- Adeyemo, S. A., Adedoja, G. O., & Adelore, O. (2013, July–September). Mobile Technology: Implications of its Application on Learning. *Open Praxis*, 5(3), 249.
- Akintola, K. B. & Boyinbode, O. (2012). Framework for Mobile Learning Technology, *The International Journal of Learning*, 18(11), 101-110
- Ameen, Y. (2012, September 28). Pakistan has highest growth rate of internet users in region. *Weekly Pulse Magazine*. Retrieved November 15, 2013, from <http://weeklypulse.org/details.aspx?contentID=2801&storylist=16>
- Attaa, A. (2016, March 3). *Pakistan is Most Affordable Country for Telecom and Internet Services in the World: Report*. Retrieved March 11, 2016, from Propakistani: <https://propakistani.pk/2016/11/03/pakistan-affordable-country-telecom-internet-services-world-reprot/>
- Attaa, A. (2014, June 23). Pakistan Suspends Mobile Phone Services for Political Gains. Retrieved August 2, 2014, from propakistani: <http://propakistani.pk/2014/06/23/pakistansuspends-mobile-phone-services-for-political-gains/>
- Attaa, A. (2013, July 11). Pakistan crosses 125m mobile users mark. Retrieved from *The Express Tribune with the International New York Times*: <http://tribune.com.pk/story/575528/pakistan-crosses-125m-mobile-users-mark/>
- Aurora. (2017, Sep 7). *The Digital Landscape of Pakistan*. Retrieved Sep 26, 2017, from <https://aurora.dawn.com/news/1142323>
- Berge, Z. L. (2013, January). Barriers to Communication in Distance Education. *Turkish Online Journal of DIstance Education*, 14(1), p. 376.
- D'Agata, C. (2008). Nomophobia: Fear of being without your cell phone. *CBS News*.
- D'cruze, M. P. (2009, April). The use of information and communication technology (ICT) to improve access to in-service teacher education programmes for educational development in Pakistan. *Turkish Online Journal of Distance Education*, 10(2). Retrieved from http://tojde.anadolu.edu.tr/tojde34/notes_for_editor/notes_for_editor_3.htm

- Dixit, S., Shukla, H., Bhagwat, A., Bindal, A., Goyal, A., Zaidi, A., & Shrivastava, A. (2010). A Study to Evaluate Mobile Phone Dependence Among Students of a Medical College and Associated Hospital of Central India. *Indian Journal of Community Medicine*, 35(2), 339- 341. doi:10.4103/0970-0218.66878
- Fariha. (2014, August 1). Harmfulness of mobile phone sets and mobile phone signals. (Abbasi, Interviewer) ARY TV. Retrieved from http://www.dailymotion.com/video/x22lsjg_harmful-ness-of-mobile-phone-sets-andmobile-phone-signal-discussed-in-khara-sach-with-dr-fariha-hea_news
- Fuegen, S. (2012). The Impact of Mobile Technologies on Distance Education. *TechTrends* , 56 (6), 49–53.
- Grappetite. (2014, July 15). Smart Phone Usage in Pakistan [Infographics]. Retrieved July 30, 2014, from Pakistan Advertisers Society: <http://www.pas.org.pk/smart-phone-usage-inpakistan-infographics/>
- Haq, R. (2012, January 12). Pakistan Leads in SMS Traffic. Retrieved from Haq's Musings: <http://www.riazhaq.com/2012/01/pakistan-leads-in-sms-traffic.html>
- Kukulska-Hulme, A. (2007). Mobile usability in educational context: What have we learnt? *International Review of Research in Open and Distance Learning*, 8(2), 1-16.
- Kukulska-Hulme, A., & Traxler, J. (2005). *Mobile learning: A handbook for educators and trainers*. London: Routledge.
- Lim, T., Fadzil, M., & Mansor, N. (2011). Mobile Learning via SMS at Open University Malaysia: Equitable, Effective, and Sustainable. *The International Review of Research in Open and Distance Learning* , 12 (2), 122-137.
- Mehdi, S. (2012, October 11). Mobile Phones & a Cultural Shift in Pakistan. Retrieved June 16, 2013, from <http://safdarmehdi.wordpress.com/2012/10/11/mobile-phones-a-culturalshift-in-pakistan/> Mobile Phones in Educational Institutes. (2013, December 16). Retrieved from Vivid shop: <http://www.vividshop.pk/blog/2013/12/16/mobile-phones-in-educational-institutes/>
- Naz, A., Khan, W., Daraz, U., & Hussain, M. (2011, October). The Malevolence of Technology: An Investigation into the Various Socio-Economic Impacts of Excessive Cell Phone Use Among University

- Students (A Case Study of University of Malakand, KPK Pakistan). *International Journal of Academic Research in Business and Social Sciences*, 1(3), 63-73. Retrieved from www.uom.edu.pk/faculty/.../cv/Mohammad%20Hussain's%20CV.pdf
- Niaz, U. (2008, July-December). Addiction with Internet and Mobile: An overview. *Journal of Pakistan Psychiatric Society*, 5(2), 72-80. Retrieved from http://www.jpss.com.pk/display_articles.asp?d=195&p=art
- Population Census Organization. (2013, December 7). Retrieved from Population Census Organization, Government of Pakistan: <http://www.census.gov.pk/>
- Telecom Indicators*. (2011, December). Retrieved September 3, 2015, from Pakistan Telecommunication Authority: <https://www.pta.gov.pk/en/telecom-indicators>
- Telecom Indicators*. (2013, April). Retrieved September 4, 2015, from Pakistan Telecommunication Authority: <https://www.pta.gov.pk/en/telecom-indicators>
- Saeed, H. (2014, May 31). The Bright future of Mobile Application Development in Pakistan. Retrieved June 13, 2014, from House of pakistan.com: <http://www.houseofpakistan.com/mobile-application-development-pakistan/>
- Schmitz, A. (2014, September 8). Mobile Payment with Google Glass and Pebble's Smartwatch. Retrieved September 11, 2014, from SAP News Center: <http://www.newsap.com/mobile-payment-google-glass-pebbles-smartwatch>
- Soekartawi, Haryono, A., & Librero, F. (2002). Greater Learning Opportunities Through Distance Education: Experiences in Indonesia and the Philippines. *Journal of Southeast Asian Education*, 3(2), 283-320.
- West, L. (2014). How to Protect Yourself from Cell Phone Radiation. Retrieved August 2, 2014, from About.com: <http://environment.about.com/od/mobilephones/a/How-To-ProtectYourself-From-Cell-Phone-Radiation.htm>
- Yousuf, M. I. (2007). Effectiveness of Mobile Learning in Distance Education. *Turkish Online Journal of Distance Education*, 8 (4).

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