
Babar Hussain Shah^{*}

Javid Iqbal, PhD^{**}

Ehsan Mahmood, PhD^{***}

Critical Analysis of Students' Mobile Phone Usage: A Comparison of Public and Private Secondary Schools in Pakistan

ABSTRACT

The study was descriptive type in nature i.e. to compare the attitude and perception of public and private secondary school level students. To carry out the study a survey questionnaire was designed and three public and three private secondary level school students were randomly selected. The major objective of the study was to compare the attitude and perception of the public and private secondary school students about using the mobile phone in general and for educational purpose. To achieve the objective of the study a twenty item questionnaire was developed and validated. The data was personally collected by the researchers from the three hundred students one hundred from three public secondary school students as well as same quantity from the three private secondary school students. The major conclusions of the study were the public school students status of using internet, text messaging, MMS, camera, video recording, games, is better

* Lecture, Department of Mass Communication AIOU Islamabad, Pakistan

** Vice Principal, Islamabad Model School for Boys G-9/1 Islamabad, Pakistan

*** Principal, Islamabad Model College for Boys I-10/1 Islamabad, Pakistan

than private school students but on the other hand the perception about the using of mobile phone for educational purposes of private school students was better than public school students.

■ Introduction

In this age of technology Billions of population uses mobile phone in their daily life. Mobile phone is becoming popular in Pakistan and the rate of growth of access to mobile phone has been fast. This rapid growth is also recorded in many other countries of the world (Hendrikz, 2006). It may be very useful in many different ways i.e. interacting with people through voice, exchanging written messages, storing information and interconnecting. The modern mobile phones provide variety of services such as MMS, email, Internet access, short-range wireless communications (Bluetooth), business applications, gaming and photography. Therefore mobile phones can boost social, political and economic growth. It also enhances communication with others, allows the sharing of knowledge, goods and to express reflections and emotions (Abulkhiraat, 2007).

Mobile phone is one of the major forms of ICT in use and integration of ICT generally into education. According to Attewell and Savill-Smith (2005) mobile learning is learning through wireless technological devices that can be pocketed and utilized wherever the learner's device can receive unbroken transmission signals. The advancement of mobile phone technologies i.e. smart phone, Tablet PCs and Personal Digital Assistants (PDA) have invited the attention of the educational experts and researchers (McConatha, Praul & Lynch, 2008; Motiwalla, 2007). Mobile phone can be facilitated the learning and teaching process, researchers

tried to involve the cell phone in the educational process. Hence, the usage of mobile phone, PDA, Laptop, internet and smart phone in learning process is called mobile learning (m-learning). According to Hine, Rentoul, & Specht (2004) added that m-learning facilitates to extend the reach of the teaching and learning process, such as the knowledge creation, the collection and exchange of information and the collaborative learning. Usage of mobile phone in education can lower its cost, improves quality and ensures the sharing of knowledge and experience of teachers with students. It has been proved that by proper use of this device can enhance teachers' professional skills and practice (Sankle, 2007). The importance of mobile phone in education has been identified by many researchers. It has also been found that use of ICT especially mobile phone can promote students' intellectual qualities, communication, problem solving skills, understanding of learning material and perception of concepts to be taught (Aladegon & Idowo, 2006).

In case of Pakistan school students are banned from using mobile phones during the school time within schools in Pakistan; the majority of students, however, maintain possession of a personal cell phone within the high school setting. School administrators and teachers perceive that the students' use of cell phone and possession as a negative interruption towards learning rather than an educational learning resource. School policy regarding cell phones, within the majority of public schools is quite prohibitive and requires students to leave their mobile phones at home. This study was conducted keeping in mind the importance of mobile phone usage in teaching learning process; and to review the students' perception and attitude towards mobile phone usage.

■ Literature Review

Many studies have portrayed that mobile learning is an effective tool for teaching and learning. The review of research studies on mobile phone usage pointed out a range of potential development for learning classroom activities. It has also been observed that it is flexible and cheap way of conveying information. To teach the students foreign language Attewell (2005) designed a mobile learning project. The researcher concluded that 82% of students enhanced their spelling skills and reading comprehension through m-learning; whereas 62% of the students stated continual use of mobile phone can enhance their language learning skills. Kennedy and Cropper (2010) observed that mobile learning has positive effects on acquisition of second language. Basoglu and Akdemir (2010) examined the effectiveness of the mobile devices and upon English vocabulary learning. The findings portrayed that students gave positive response toward better academic performance and had positive attitudes toward learning English vocabulary through mobile learning.

Many other researchers supported that learning through mobile has pivotal role in teaching learning process. Like Huang, Jeng, and Huang (2009) discovered that a mobile phone can be used as a resource for generating collaboratively interactive and learning opportunities for geographically scattered students and groups. Al-Fahad (2009) conducted a study to better understand and measure students' attitudes and effectiveness of mobile learning. The result of his study revealed that the majority of students supported the idea that the wireless networks increase the

flexibility of access to resources of learning independently in any place. Therefore, students can save their time, effort and even money.

Chase and Meghan (2007) surveyed students at Slippery Rock University to determine their engagement with an attitude towards technology on campus. Their study indicates that the subjects of their study revealed more and more satisfaction with the use of technological devices in the educational process. Vavoula et al. (2009) used mobile phones for inquiry-based learning to allow learners to gather information during school visits to museums.

Baya'a and Daher (2009) conducted a research to examine the perception of the students regarding their mathematics learning using mobile phones. The study revealed that the subjects of the study positively appreciated the great capabilities of cell phone in the process of learning/ teaching mathematics.

Pachler and Bradley (2008) conducted a study on the use of high-end mobile phones for off-site and on-campus mobile learning. The aim of their study was to investigate how mobile devices are being integrated by learners in formal and informal contexts. In their study two dominant themes emerged from the cases: affective issues and phone usage in a learner's formal and informal practice. Moreover, the data suggest that the learner might benefit from the use of facilities of the cell phone, for example, sending messages in certain contexts, which could provide the a way of bridging the gap between formal and informal learning.

Mobile communication offers a lot of advantages but it has also negative aspects. In response to a question about mobile-phone addiction, one out of three students said that they felt addicted to their phones. This sense of addiction may be related to dependency and heavy usage (Katz, 2005)

Thornton and Houser (2005), Thatcher and Mooney (2008), Fozdar and Lalita (2007) and Baya'a and Daher (2009) conducted their researches on the attitude towards the use of cell phone from different perspectives. The researchers agree on the notion that students are in favor of using cell phone in the process of learning.

The research of Sankale, 2007 provide a model for sharing ideas, experiences and knowledge of teachers and students. It has been found that given the right conditions mobile technologies can significantly enhance teacher professional learning and practice.

■ Statement of the Problem

The study was designed to compare the perception and attitude of public and private secondary level school students to use the mobile phone in general and for learning process.

■ Significance of the Study

The present study was helpful to the educational policy makers for framing the education policies. It also provides the guideline to the school administrator regarding students' use of mobile phone for learning process. This study is also beneficial to the school teachers for planning class activities through mobile phone. It also creates the awareness among the students about the use of mobile phone for learning purposes.

■ Objectives

The objectives of the study were to:

1. Review the use of mobile phone by students.
2. Compare the accessibility of students have own or access to mobile phone.
3. Compare the attitudes and perceptions of public and private school students towards the use of mobile phone.
5. Investigate whether or not students are aware of the potentials of mobile technology for learning.

■ Methodology

The study was descriptive i.e. survey type. The following procedural steps were adopted to conduct the study.

■ Population and Sampling

The study was carried out during the academic session 2014-15 in the three Islamabad Model secondary schools for boys, Islamabad and three Behria colleges Rawalpindi (secondary level classes). The target population of this study constituted a sample of 300 secondary level students (150 students from each category). Fifty students were randomly selected from each school.

■ Research Instrument

To elicit the opinion of respective students, a 24 items questionnaire was constructed and expert opinion was taken to validate the instrument. After this the questionnaire was pilot tested on fifteen students. Finally a 20-item questionnaire was developed after deleting 4 items showing

low reliability and again incorporating the experts' suggestions.

■ Analysis of Data

The data was collected through questionnaire and tabulated in the forms of tables. To compare the trends of the students' responses, the statistical treatment like percentage, mean score and independent sample t-test were applied.

Table-1: Comparison of public and private students' possession of mobile phone (N=300)

Category	Public	Private
Possession of own mobile phone	57%	54%
Students' usage of parents' Mobile phone	38%	43%

Table 1 portrays that 57% of public school students and 54% of private school students possessed their own mobile phones; whereas, 38% of public school students and 43% of private school students used their parents' mobile phones.

The first part of the questionnaire required participants to evaluate their frequency of mobile phone usage on Likert scale containing three categories of frequency; 1=Never, 2=rarely, 3=often.

Table-2: Comparison of Public and Private School students' usage of Internet and Text messaging (N=300)

Usages	Category	Often	Rarely	Never	Mean	SD	Df	t	P
Internet	Public	47%	37%	16%	2.30	0.74	298	-6.48	0.00*
	Private	20%	33%	47%	1.73	0.77			

Text	Public	43%	27%	30%	2.13	0.85	298	-2.31	0.02*
Messaging	Private	24%	43%	33%	1.91	0.75			

Table 2 portrays 47% of public schools' students often used internet, 37% used rarely and only 16% never used their mobile for internet. Whereas, 20% of private schools often used internet, 33% used rarely and 47% never used their mobile for internet. Table 1 further presents the comparison of public and private students' usage of internet on their mobile phone by conducting independent sample t-test. Result depicts that there is significant difference ($p < 0.05$) between the mean score of public and private school students' usage of internet on their mobile phone. It shows that public school students ($M=2.30$) use internet on their mobile phone more than private school students ($M=1.73$).

Table 2 also portrays Table 1 portrays 43% of public schools' students often used their mobile phone for text messaging, 27% used rarely and 30% never used.. Whereas, 24% of private schools often used their mobile phone for text messaging, 43% used rarely and 33% never. Table 2 further presents the comparison of public and private students' usage of text messaging through their mobile phone by conducting independent sample t-test. Result depicts that there is significant difference ($p < 0.05$) between the mean score of public and private school students' usage of mobile phone for text messaging. It shows that public school students ($M=2.13$) use their mobile phone for text messaging more than private school students ($M=1.91$)

Table-3: Comparison of students' usage Voice calls and Multimedia Messaging (N=300)

Usages	Category	Often	Rarely	Never	Mean	SD	Df	t	P
Voice	Public	27%	49%	24%	2.02	0.72	298	0.00	1.00
Calls	Private	28%	46%	26%	2.02	0.74			

MMS	Public	66%	26%	08%	2.58	0.64	298	0.00	0.00*
	Private	44%	32%	24%	2.20	0.81			

Table 3 portrays that 27% of public schools' students often used their mobile phone for voice calls, 49% used rarely and 24% never used. Whereas, 28% of private schools often used their mobile phone for voice calls, 46% used rarely and 26% never used. Table 2 further presents the comparison of public and private students' usage of mobile phone for voice calls by conducting independent sample t-test. Result depicts that there is no significant difference ($p>0.05$) between the mean score of public and private school students' usage of their mobile phone for voice calls. Table 3 also portrays that 66% of public schools' students often used their mobile phone for multimedia messaging (MMS), 26% used rarely and only 8% never used. Whereas, 44% of private schools often used their mobile phone for multimedia messaging (MMS), 32% used rarely and 24% never. Table 3 further presents the comparison of public and private students' usage of multimedia messaging through their mobile phone by conducting independent sample t-test. Result depicts that there is significant difference ($p<0.05$) between the mean score of public and private school students' usage of mobile phone for multimedia messaging. It shows that public school students ($M=2.58$) use their mobile phone for multimedia messaging more than private school students ($M=2.20$).

Table-4: Comparison of Students' usage of Camera and Video Recording (N=300)

Usages	Category	Often	Rarely	Never	Mean	SD	Df	t	P
Camera	Public	24%	49%	27%	1.96	0.71	298	-2.93	0.004*

	Private	15%	43%	42%	1.72	0.71			
Video	Public	36%	49%	15%	2.21	0.68			
Recording	Private	27%	37%	36%	1.91	0.79	298	-3.51	0.001*

Table 4 portrays 24% of public schools' students often used their mobile phone for camera, 49% used rarely and 27% never used. Whereas, 15% of private schools often used their mobile phone for camera, 43% used rarely and 42% never used. Table 3 further presents the comparison of public and private students' usage of mobile phone for camera by conducting independent sample t-test. Result depicts that there is significant difference ($p < 0.05$) between the mean score of public and private school students' usage of their mobile phone for camera. Table 4 also portrays that 36% of public schools' students often used their mobile phone for video recording, 49% used rarely and only 15% never used. Whereas, 27% of private schools often used their mobile phone for video recording, 37% used rarely and 36% never. Table 4 further presents the comparison of public and private students' usage of video recording through their mobile phone by conducting independent sample t-test. Result depicts that there is significant difference ($p < 0.05$) between the mean score of public and private school students' usage of mobile phone for video recording. It shows that public school students ($M=2.21$) use their mobile phone for video recording more than private school students ($M=1.91$).

Table-5: Comparison of Students' usage of Calculator and Games (N=300)

Usages	Category	Often	Rarely	Never	Mean	SD	Df	t	P
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Calculator	Public	21%	49%	30%	1.91	0.71	298	-1.40	0.162
	Private	21%	36%	43%	1.79	0.77			
Games	Public	17%	44%	39%	1.79	0.72	298	-2.48	0.014*
	Private	11%	37%	52%	1.59	0.68			

Table 5 portrays that 21% of public schools' students often used their mobile phone for calculator, 49% used rarely and 30% never used. Whereas, 21% of private schools often used their mobile phone for calculator, 36% used rarely and 43% never used. Table 3 further presents the comparison of public and private students' usage of mobile phone for calculator by conducting independent sample t-test. Result depicts that there is no significant difference ($p>0.05$) between the mean score of public and private school students' usage of their mobile phone for calculator. Table 5 also portrays that 17% of public schools' students often used their mobile phone for games, 44% used rarely and only 39% never used. Whereas, 11% of private schools often used their mobile phone for games, 37% used rarely and 52% never. Table 5 further presents the comparison of public and private students' usage their mobile phone for games by conducting independent sample t-test. Result depicts that there is significant difference ($p<0.05$) between the mean score of public and private school students' usage of mobile phone for games. It shows that public school students ($M=1.79$) use their mobile phone for video recording more than private school students ($M=1.59$).

**Table-6: Comparison of Students' usage of
Radio and Audio Recording (N=300)**

Usages	Category	Often	Rarely	Never	Mean	SD	Df	t	P
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Radio	Public	31%	45%	24%	2.07	0.74	298	-0.077	0.939
	Private	32%	43%	25%	2.07	0.76			
Audio Recording	Public	38%	41%	21%	2.18	0.75	298	0.743	0.458
	Private	47%	30%	23%	2.25	0.81			

Table 6 portrays 31% of public schools' students often used their mobile phone for radio, 45% used rarely and 24% never used. Whereas, 32% of private schools often used their mobile phone for radio, 43% used rarely and 25% never used. Table 5 further presents the comparison of public and private students' usage of mobile phone for camera by conducting independent sample t-test. Result depicts that there is no significant difference ($p>0.05$) between the mean score of public and private school students' usage of their mobile phone for radio. Table 6 also portrays that 38% of public schools' students often used their mobile phone for audio recording, 41% used rarely and 21% never used. Whereas, 47% of private schools often used their mobile phone for audio recording, 30% used rarely and 23% never. Table 6 further presents the comparison of public and private students' usage of audio recording through their mobile phone by conducting independent sample t-test. Result depicts that there is no significant difference ($p>0.05$) between the mean score of public and private school students' usage of mobile phone for audio recording.

Table-7: Comparison of public and private school students' perception and attitude towards mobile phone usage (N=300)

Statement	Category	Mean	SD	T	P
Attaining new ideas about different subjects	Public	1.49	0.739	2.033	0.043*
	Private	1.69	0.900		
Using mobile phone for learning English vocabulary	Public	1.07	0.250	7.066	0.000*
	Private	1.53	0.757		
Learning concepts about science subjects	Public	1.25	0.570	6.435	0.000*
	Private	1.79	0.840		
Discussing difficult homework topics	Public	1.17	0.502	3.100	0.002*
	Private	1.40	0.742		

Using mobile phone in sports and games	Public	1.08	0.350	3.193	0.002*
	Private	1.27	0.620		
Using mobile phone in literary activities	Public	1.57	0.772	1.770	0.078
	Private	1.73	0.857		
Conveying students' progress to the parents	Public	1.16	0.465	4.230	0.000*
	Private	1.47	0.745		
Sharing ideas through conference call/Message	Public	1.08	0.357	3.164	0.002*
	Private	1.28	0.687		

Table 7 shows that:

- There is significant difference ($p < 0.05$) between the mean score of public (M=1.49) and private (M=1.69) school students' perception and attitude about attaining the new ideas of different subjects through mobile phone.
- There is significant difference ($p < 0.05$) between the mean score of public (M=1.07) and private (M=1.53) school students' understanding about learning English vocabulary through mobile phone.
- There is significant difference ($p < 0.05$) between the mean score of public (M=1.25) and private (M=1.79) school students' concept of learning science subjects through mobile phone.
- There is significant difference ($p < 0.05$) between the mean score of public (M=1.17) and private (M=1.40) school students' using mobile phone for discussing difficult homework topics with teachers.
- There is significant difference ($p < 0.05$) between the mean score of public (M=1.08) and private (M=1.27) school students' awareness and about the use of mobile phone for sports and game purposes.
- There is no significant difference ($p > 0.05$) between the mean score of public (M=1.57) and private (M=1.73)

school students' approach about using mobile phone in literary activities.

- There is significant difference ($p < 0.05$) between the mean score of public ($M=1.16$) and private ($M=1.47$) school students' perception about conveying their progress to parents through mobile phone.
- There is significant difference ($p < 0.05$) between the mean score of public ($M=1.08$) and private ($M=1.28$) school students' sharing their ideas with their peers through conference call / messages.

■ Conclusions

The conclusions were drawn from the analysis of the students' responses as the public and private secondary school students have the same status in mobile phone possession as well in access to their parents' mobile phone. On the other hand public school students use more internet, text messaging, MMS, camera, video recording, games than private secondary school students while in the case of voice call, radio, audio recording and calculator usage status found same. The perception of private secondary school students for learning new ideas of different subjects, English vocabulary, concept of science subjects, literary activities, sports and games, conference call was better than public secondary school students.

■ References

- Abulakhirat, E.M. (2007). ICTool for African Youth Empowerment. In *Conference Proceedings, 2nd International Conference on ICT for Development, Education and Training*, Nairobi, Kenya, ICWE GmbH, p.1

- Aladejana, F.O. and Idowu, L. (2006). ICT in Teaching and Learning: The Obafemi Awolowo University, Ile-Ife Experience. *Conference Proceedings, 1st International Conference on ICT for Development, Education and Training*, Berlin, Germany ICWE, GmbH, pp. 25-28.6
- Al-Fahad, F. N. (April 2009), Students' Attitudes and Perceptions Towards the effectiveness of Mobile Learning in King Saud University. *The Turkish Online Journal of Educational Technology*.8.(2)art.10. Retrieved Sep. 2.2009 from the World Wide Web: <http://www.eric.ed.gov/ERICWebPortal/Home.portal?>
- Attewell, J. & Savill-Smith, C. (2004). *Learning with mobile devices: research and development – a book of papers*. London: Learning and Skills Development Agency.
- Attewell, J. & Savill-Smith, C. (2005). *Mobile learning anytime everywhere*. London,UK:London: Learning and Skills Development Agency.
- Basoglu, E. B., & Akdemir, Ö. (2010). A comparison of undergraduate students' English vocabulary learning: Using mobile phones and flash cards. *Turkish Online Journal of Educational Technology*, 9 (3), 1-7.
- Baya'a, N., and Daher, W. (2009). Students' Perception of Mathematics Learning Using Mobile Phones. Paper presented at 4th International Conference on Interactive Mobile and Computer Aided Learning, Amman, Jordan. 22-24 April 2009.
- Fozder, B. F. and Kumar, L. S. (June 2007). Mobile Learning and Student Retention. *International Review of Research in Open and Distance Learning*. 8.(2). Retrieved Sep. 2.2009 from the World Wide Web:<http://www.eric.ed.gov/ERICWebPortal/Home.portal?>
- Hendrikz, J. (2006). Mobile Phone Technology as an Instrument for student support in Africa. In *Conference Proceedings, 1st International Conference on ICT for Development, Education and Training*, Berlin, Germany ICWE, GmbH, p. 199-201.

- Huang, Y. M., Jeng, Y. L., & Huang, T. C. (2009). An educational mobile blogging system for supporting collaborative learning. *Educational Technology & Society*, 12 (2), 163-175.
- Katz, J. E. (2005) 'Mobile phones in educational settings', In K. Nyiri (Ed.) *A sense of place: The global and the local in mobile communication*: pp. 305-317. Vienna: Passagen Verlag.
- Kennedy, G., & Cropper, S. (2010). Using wikis for collaborative learning: Assessing collaboration through contribution. *Australasian Journal of Educational Technology*, 26 (3), 341-354.
- McConatha, D., Praul, M., & Lynch, M. J. (2008). Mobile learning in higher education: An empirical assessment of a new educational tool. *The Turkish Online Journal of Educational Technology*, 7 (3), 15-21.
- Motiwalla, L. F. (2007). Mobile learning: A framework and evaluation. *Computers & Education*, 49 (3), 581-596.
- Pachler, N. (2018). Towards m-maturity: the nature and role of appropriation in mobile learning. Paper accepted for mLearning. Terford. Shropshire, october2008.
- Thornton, P., & Houser, C. (2005). Using mobile phones in English Education in Japan. *Journal of Computer Assisted Learning*, 21, 217-228.
- Thatcher, A. and Mooney, G. (2008). Managing Social Activity and Participation in Large Classes with Mobile Phone Technology. *International Journal of Interactive Mobile Technologies*. 2 (3). Retrieved Sep. 2.2009 from the World Wide Web: <http://online.journals.org/ijim/article/viewArticle/525>
- Sankale, J. (2007).in the Palm of your Hand: Supporting Rural Teacher Professional Development and Practice through the use of Mobile Phones. In *Conference Proceedings, 1st International Conference on ICT for Development, Education and Training*, Berlin, Germany ICWE, GmbH, p.58.

- Thornton, P., & Houser, C. (2005). Using mobile phones in English education. *Journal of Computer Assisted Learning*, 21, 217-228.
- Vavoula, G., M. Sharples, P. Rudman, J. Meek, and P. Lonsdale. (2009). MyArtSpace: Design and evaluation of support for learning with multimedia phones between classrooms and museums. *Computers & Education*, 53 (2), 286–299.