

Effects of Gadgets on Students' Academic Performance at Secondary Level in Islamabad

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Abstract

This research aimed to know the effects of gadgets on students' academic performance at the secondary level in Islamabad. The objectives of the study were to know the effects of electronic gadgets on the academic performance of secondary school students. The other objective of the study was, to evaluate the usage of gadgets in demographic variation regarding gender among secondary school students. The study was descriptive in nature and a survey method was used for the collection of the data. The secondary school working in the jurisdictions of the federal capital were, taken as the populations of the study. The data was collected through questionnaires and the researcher administered the questionnaires with the help of a research assistant. The result of the data reflected that theirs is a significant impact of electronic gadgets on the academic performance of secondary school students. Moreover, it was also depicted from the result that, modern gadgets greatly improve the performance of educational standards. It was also concluded that electronic gadgets help in the solving of mathematical questions. However, the excessive use of gadgets effect the health of the student. This effect the performance of the students as well. It is also evident from the result that, gadgets help to relieve the stress, and are also the best source of entertainment for the students. It was also recommended based on the above study, that the teachers may kindly guide the students in the positive use of mobile. The awareness, the seminar is also continuously conducted in this regard. Moreover, educational importance is also given to the students.

Keywords: *Teachers, Electronics, Gadget, Performance, Academic, School.*

1 Introduction

In modern times, education is considered to be the spin for the progress of any country. And nations that value education and skills are successful. The family environment considers the first school of a child. An individual learns many things in the home environment and in this way, he changes his behavior a lot, and even under normal circumstances, he observes many things, which affect him.

Michael [1] defined distance education as a network where teaching methodologies,

technology integration, and way of teaching are included. This education also makes it easier for students who do not seem to be present but are connected with education. And through this distance education, the instructor can use technology to reach out to far-away students.

Electronic gadgets mainly consist of Radio, Television (TV), Tablets, Video Games, Cell Phones, and Computers. These have assumed a central role in the daily lives of school-going children at all levels. The effects of electronic gadgets on secondary school students are

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multiple both positive and negative. These influence the cognitive, social, and behavioral development of students.

Yamani [2] "As soon as they leave school, they reconnect with the 21st century". He expressed the influence of electronic gadgets on student's life, "electronics in our daily life influence a lot, they can affect in many ways we never had thought about it." The secondary school students are more vulnerable to electronic gadgets belonging to different groups as mentioned below:

- i. Students being emotionally disturbed.
- ii. Children have limitations in learning.
- iii. Children being neglected by parents/guardians.
- iv. Children belonging to distressed families.

In the past, when electronic gadgets were not introduced into the student culture, secondary school students' interest was absorbed in their studies, academics, co-curricular activities, sports learning through libraries, newspapers, symposiums, declamations, and all healthy activities. As time passed, modern inventions and technology revolutionized the complete behavior and attitude of students who are now more interested in electronic gadgets playing video games and watching horror movies. These gadgets have become contributory to students' character building, moral values, personality, religion, patriotism, nationalism, integrity, truthfulness, deeds, academic performance, and future academic career.

2 Literature Review

Education is considered essential for any nation's survival. The success of any country depends upon its education system. Educated manpower is considered an asset for a nation. This manpower may take a country on the path of development. According to Park, Kee & Valenzuela,[3] "

The real purpose of education is the complete development of any individual.

Sharma, [4] explains that the purpose of all these activities is for a person to understand the responsibilities well and include him a responsible educated person.

Blair & Fletcher,[5] in their research paper have concluded that state of art gadgets has an emotional meaning for the school students/adolescents. Though previous research has been conducted on the usage of state of art gadgets by the young adults. Taylor,[6] but very less focus was given to why they purchase the state of art gadgets. With the maturity and saturation of the electronic markets, marketers are trying to sustain their existing customers, along with putting more effort to grab new ones, especially the school students, to maximize their profits (Hurt et al., [7].

2.1 Socialization Theory

According to this theory the individual, through the process of the learning experience, develops the attitude and behavior. An individual's skills are to connect his knowledge and his education with society and socialization (Moschis & Churchill, [8]. In the recent times the interest levels seemed to be increasing in the area among a few groups mainly the following:

- i. Public policymakers who wish to understand the impact of marketing activities on youth and how their consumption behavior, attitudes, and values develop.
- ii. Marketers, as they are interested in how to improve their marketing activities and direct them toward the youth.
- iii. Consumer educators whose primary wish is to understand the development abilities of the young's and their ability to respond to external stimuli so that they can come up with better plans to prepare young to effectively perform in the marketplace.
- iv. To explore new directions and opportunities for further research the student socialization and consumer behavior process have been an interesting area for researchers.

The socialization theory suggests that when an individual comes across various

experiences, they help him develop his attitudes and behaviors through the background contexts and setups are different but the influence is the same (King & Multon, [9]).

2.2 Use of social media through Electronic Gadgets

Rashid [10] discusses the theoretical structure of media fortune and social attendance, so media is far ahead in terms of social performance and from social media groups we can connect with a lot more. The study supports the information processing system and taking into account its importance the role of media richness should be considered. Communication media has received insufficient attention and new technologies should be introduced. Social media.

2.3 Use of Gadgets

Simonson [11] carried out a survey, mentioned in the study of Mahmood [12], which gives us the following information:

- i. Young adults use social gadgets for connecting more than their parents for socialization.
- ii. The total usage of social media through electronic gadgets per week by the marketers to target young adults is about 65% whereas about 39% of the marketers give more than 10 hours per week or more.
- iii. Facebook, Twitter, Youtube, and LinkedIn are the most frequently used applications through mobile phones by young individuals to connect.
- iv. Electronic media usage helps young individuals to introduce themselves to a large number of people quickly and helps in spreading their social circle through the virtual world.
- v. There is no such expense associated with the usage of electronic gadgets as the only thing it takes to promote a social circle is time. So, it increases the expense of the student's academic performance.

vi. Also, with the use of electronic gadgets for socialization many young individuals gain popularity, and also it gives the insight into using new technology for being recognized and keeping self-up-to-date.

The advent of Internet-based electronic media has allowed an individual to join other people with almost the same personalities and interest groups that they seek to get along with

3 Technology

Integrating the use of technology with education is a relatively a new initiative with no as such big origin and the one which is yet to struggle for its rights and recognition, similar to how a new country is fighting to establish internationally sovereign boundaries, both recognized and accepted, Luppicini, [13]. The most vital element that supports the use of technology in the education organization is the Internet. E-learning or Online learning has become one of the fastest trends in education and poses an encouraging alternative to traditional learning, Zabng, Zhao, Zhou, Nunamaker, [14].

3.1 Gadget and Internet

The technology-incorporated products in today's world are the, most useful and reliable sources for obtaining information and also communicating them through the channel, not only for the individuals but also for the organizations at large, Tariq and Mehmood [15]. Alongside if we see the role of the internet, we have found that the Internet plays an important role in student's academic lives as they mostly rely on the internet for obtaining information of a different kind to help them in their studies and also to get assisted by the experts if they require a consultation (Siraj et al., [16])

3.2 Academics and Gadget

Modern technology in today's time has been largely grown in recent times, which is the reason it is adopted by a greater number of people from all sorts of age groups. But when it comes to the lives of the young generation, technology has taken place of an important

variable that governs most of their life's affairs, ranging from social interaction to educational aspects. A greater number of young generations, especially students have the access to computers, smartphones, electronic gadgets of different kinds, the internet with modified bandwidth connections, video games both online and offline, and many other kinds of technological-based electronic gadgets, most states of the art. The technology has so evolved today that it has proportionally changed society as well on a larger scale. The user base of technology-based products across the globe is tremendous and keeps on increasing day by day. Among the many changes that have been applied to these products include the technological breakthrough in the fields of information, widespread proliferation, and communication, UNICEF, [17].

4 Academic Performance

Academic Performance is connected with teacher-student and learning institutes which are obtained from short-term and long-term educational standards. Academic performances indicate so many educational standards, diplomas, bachelor's degrees, and Cumulative GPA

In Pakistan, the Academic Performance of a Secondary School student is evaluated and graded via different types of testing methods individually and as a collective, such: The following are the tools of performance:

- i. Oral Quiz(s)
- ii. Surprise Test(s)
- iii. Monthly Test (s)
- iv. Quarterly Examination(s)
- v. Mid-Term Examination(s)
- vi. Annual Examination(s)

4.1 Technological Advancement

Mankind has progressed a lot in the communications sector over the last two decades. Telephonic communications got better and better in terms of voice quality and

portability. Then telephone sets went digital from dials. Cordless phones were introduced. Then Mankind saw a huge revolution in the form of Mobile Phones. Alongside the internet, mobile phones, computers, electronic tabs, electronic readers, etc. got entry into the hands of almost every human being. Nowadays, this technological advancement has penetrated every field ranging from aircraft to Operation Theaters and classrooms; this advancement is playing its role to expedite the role and tasks of every human being irrespective of his or her field of work/interest.

4.1.1 The Internet of Things (IoT) known as IoT-based solutions has revolutionized the learning capabilities and availability of information. The Internet is also known as "the Net," It is a worldwide system of computer networks and the internet connects all the networks and we can get different kinds of information from anywhere. With the help of the internet, we can stay in touch with the whole world. World Wide Web ("WWW" or "The Web") is also considered a part of the internet and has a lot of different web pages. Tim Berners-Lee at CERN, Geneva, Switzerland. Sir Tim Berners-Lee invented this web in 1989. It is also known as HTML.[18]

4.2 Gadgets, Internet:

i. **Mobile Phone** is a feature that allows any user to receive a call, and send a message where he needs and mobile phone is also widely used. Mobile phones with a lot of games, cameras, google, chrome, navigation and much more have become part of daily life not more than two decades ago. The mobile phone can also be considered a personal phone.

ii. **A computer** is an electronic machine that is designed for the convenience of a human being. The is capable of storing a lot of contents, storing them, and performing required actions by the humans. Thus, in today's modern age computer is not only a human need but also the need for the development of a nation as well.

iii. **Electronic Tablets** are an innovative form of computer that we can easily move

from one place to another. it is found with a rechargeable battery and thus it's more features are available in different models as well.

iv. **An E-reader** is an electronic device that is easy to move and is used for reading articles electronic books etc. any device which is used for reading text on the top of the display screen is also known as an e-reader. But the feature of this invention is that it works a lot in sunlight and its battery timing is also high it is portable and easy to use for reading purposes.

4.3 Gadgets Usage by the Children

State of art gadgets has now become an essential part of the school student's daily life. They have now begun to understand the use and functions of the state of art gadgets even in their early adulthood. With the prevalence of such phenomena among the young generation, it has highlighted an interesting fact that most of the young adults pursue to have state of art gadgets irrespective of their brand and high prices.

5 Effect on Youth (Children & Youth)

The growing popularity of state of art gadgets among young adults has added up both to the knowledge and challenges of academicians and the researcher's community. Adolescents believe that their appearance and the brands they own define them and their status in their social circle. State of art gadgets is an example of the advance and fashionable products that are admired by young adults. The term educational effect before was under the focus of researchers but for the adult, consumers mostly, not for the young adults (school students/adolescents).

Blair & Fletcher (2011) in their research paper have concluded that state of art gadgets has an emotional meaning for school students/adolescents. Though previous research has been conducted on the usage of state of art gadgets by the young adults (very less focus was given to why they purchase the state of art gadgets).

5.1 Impact of Gadgets on Education

Today's think tanks suggest that the application of technology should indeed be encouraged and even incorporated into the daily routine activities of the students in their school curriculum and science subjects so that they can be at advantage in the coming time. Studies have shown that people learn a lot better from a combination of words and images than just from words alone. The below mention image depicts the old and new classrooms.

The changing role of technology in the field of education and social environment is establishing stronger and bigger grounds leading to motivation that did not exist in the past, for many new ideas to be incorporated. Nonetheless, the use of technology is not a trend that is followed by most of the universities today in our country and to a specific limit, worldwide.

The irresistible traditional way of teaching in the academic institutes, most of the higher education universities, is the sight of the information technology gap that exists between the developed and developing countries. According to different researches conducted it has been found that universities and colleges today need to change their course put line and curriculums, to compete with today's technology-dominated world.

6 Utilization of Gadgets in Education

The gadget is very useful for students to know the world issues and using the technology is an innovative way in the classroom. This way student assesses their mental skills and they can get better results from the use of technology. Thus, the use of technology has become very important in modern times.

There are following important concepts need to be evaluated for better understanding:

- i. Integration with educational materials
- ii. Making real use of worldly problems
- iii. reproduction and representation

- iv. conversation, discussion Boards, and meeting
- v. functioning Groups
- vi. instructions
- vii. Assessment after a few months

In Pakistan, the present usage of mobile phones and electronic gadgets such as electronic tabs, laptops, etc. is not only limited to the adults but even the infants and toddlers who can barely speak a single complete sentence, or know how to operate a smartphone (Modern Cell / Mobile phones) and they can easily navigate and operate Youtube and other websites (www) where they get entertained by the cartoons and other children entertainment materials.

6.1 Positive Impact of Gadgets on Students

Mobile phones are used for emergencies all over the world. Students can easily contact by mobile phones when they feel the need. Students can contact their parents without delay if they have any problems inside or outside the school. Similarly, students can contact the police and any other emergency agencies from their phones. That is the mobile phone can be better used in an emergency.

- i. Great tool for enhancing our learning
- ii. All doubts can be removed as soon as possible
- iii. The whole world can know
- iv. consultant /teacher/trainer/manager

7 Objectives of the Study

The objectives of the study were to:

- i. To know the effects of electronic gadgets on the academic performance of secondary school students.
- ii. To evaluate the usage of gadgets in demographic variations regarding gender among secondary school students.

7.1 Hypotheses of the Study

Hypotheses of the study were:

- i. H1. There will be no effects of electronic gadgets on the academic performance of secondary school students.
- ii. H2. There is no significant difference between male and female secondary school students' usage of gadgets.

8 Research Methodology of the Study

This study is descriptive. Survey techniques are used to collect data as per sample from students, teachers, and Heads / Principals of Islamabad Model Secondary Schools and Private Secondary Schools (registered by FBISE), urban Area, Islamabad. In this study there is one dependent variable comprising the academic achievements of secondary school students and one independent variable will be the usage of electronic gadgets. The study was descriptive in nature and a survey method was used for the collection of data.

8.1 Population

The population of the study comprises secondary level students, their respective teachers, and heads/principals from Islamabad Model Secondary Schools and Private Secondary Schools (registered by FBISE), urban area, Islamabad.

8.1.1 Sampling Method

The sample of Islamabad Model Secondary Schools and Private Secondary Schools (registered by FBISE) urban area of Islamabad are selected through a random sampling technique.

8.2 Data Collection and Quality Assurance

To gather valid perceptions and maximum possible reliable information that can help in generalizations, a quantitative instrument i.e. structured questionnaire was employed.

TABLE I. DETAILS OF POPULATION

S.No	Secondary Schools of Urban Area Islamabad				
1	Islamabad Model Secondary Schools	Male	Female	Co-education	Total
i.	Total No of Schools	18	23	Nil	41
ii.	No. of Students	1860	2408	-do-	4268
iii.	No. of Teachers	96	115	-do-	211
2	Private Secondary Schools (Registered by FBISE)	Male	Female	Co-Education	Total
i.	Total No of Schools	3	11	42	56
ii.	No. of Students	240	880	3150	4270
iii.	No. of Teachers	16	66	234	316

TABLE II. SAMPLING FRAMEWORK

S.No	Secondary Schools of Urban Area Islamabad				
1	Islamabad Model Secondary Schools	Male	Female	Co-education	Total
i.	75 percent of the total No of schools	14	17	Nil	31
ii.	10 percent of the total No. of Students	186	241	-do-	427
iii.	50 percent of the total No. of Teachers	48	58	-do-	106
2	Private Secondary Schools (Registered by FBISE)	Male	Female	Co-education	Total
i.	75 percent of the total No of schools	2	8	32	42
ii.	10 percent of the total No. of Students	24	88	315	427
iii.	50 percent of the total No. of Teachers	8	33	117	158

After pretesting, the Instruments were refined and polished by removing minor errors or inaccuracies. The questionnaire was improved continuously based on the challenges faced in the collection of data through every form. This exercise of receiving input on the questionnaire continued on the

first 50 forms to improve the quality and validity of the research. Quantitative Instrument covers the whole range of students' perceptions, understanding, and learning habits through electronic gadgets through close-ended questions with several related queries and sub-sections was collected.

8.3 Data Analysis

Technically, data analysis is the comprehensive summary of the results of the survey about the study objectives. The researchers have carefully analyzed statistical data and interpreted the information to approach reliable generalizations.

The table 3 shows the total population of respondents as 8518. As per the percentage

selected ten percent of the whole population were selected for the sample i.e. 854. So 854 questionnaires were distributed among respondents and only 403 questionnaires were in useable form. The data were gathered in the era of covid, so many of the respondents did not return the filled questionnaires.

9 Results

Students Response Analysis

This section examines the student's responses.

TABLE III. TOTAL NO. OF USABLE QUESTIONNAIRES RETURNED BY STUDENTS

Respondents Group-A	Population	Sample Questionnaires		Useable Questionnaires
		Distributed	Returned	
Students	8518	854	454	403

9.1 Students' Demographic data:

The following table describes the demographic variable regarding gender

TABLE IV. DISTRIBUTION OF STUDENTS BY GENDER

Gender	Frequency	Percentage
Male	288	71%
Female	115	29%

The above table shows the percentage of males and females as 71 % and 29% respectively.

9.2 Results Based on the Professional Responses of Students

The following tables are presented as an inclusive or complete quantitative structure of the effects of electronic gadgets on students' academic performance in Islamabad.

Model summary of regression examines the relationship strength of electronic gadgets and students' academic performance of secondary school students. The amount of variability in the dependent variable was

calculated by R^2 . A moderate linear relationship was also obvious, for $R^2 = .677$ revealed that nearly 68% of the total variability in the response variable (students' academic performance) was the result of the interpreter variable (electronic gadgets). The models additionally represented the involvement of the usage of gadgets in the academic performance of students. The projected model ($R = .823$) indicates the relationship that existed between electronic gadgets and the academic performance of school students.

In this Coefficient summary of the model is presented. It demonstrated that the value of the coefficient of pay was .000. In addition, its t value was 2.956 and it was significant at the 0.05 level as $p = 0.000$. So, regression coefficients showed that usage of gadgets added positivity to students' academic performance [Table 6].

ANOVA summary of electronic gadgets on students' academic performance intended was calculated in Table 5. As, $F = 841.929 > .000$ which was extremely significant and verified that the student's academic performance was influenced by electronic gadgets [Table 7].

TABLE V. MODEL SUMMARY OF ELECTRONIC GADGETS ON STUDENTS' ACADEMIC PERFORMANCE

Model Summary									
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.823 ^a	.677	.677	2.554	.677	841.929	1	401	.000
a. Predictors: (Constant), Gadget Usage									

TABLE VI. COEFFICIENTS SUMMARY OF GADGETS USAGE ON STUDENTS' ACADEMIC PERFORMANCE

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.828	2.648		2.956	.003
	Gadget Usage	.944	.033	.823	29.016	.000
a. Dependent Variable: Academic Performance						

TABLE VII. ANOVA SUMMARY OF ELECTRONIC GADGETS USAGE ON STUDENTS' ACADEMIC PERFORMANCE

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5491.201	1	5491.201	841.929	.000 ^a
	Residual	2615.389	401	6.522		
	Total	8106.591	402			
a. Predictors: (Constant), Gadget Usage						
b. Dependent Variable: Academic Performance						

TABLE VIII. USAGE OF ELECTRONIC GADGETS REGARDING GENDER

Group Statistics										
	Gender	N	Mean	Std. Deviation	Std. Error Mean					
Gadget_Usage	Male	288	81.42	3.755	.221					
	Female	115	80.95	4.288	.400					

Independent Samples Test										
		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	95% Confidence Interval	
									Lower	Upper
Gadget Usage	Equal variances assumed	2.326	.128	1.094	401	.275	.472	.432	-.376	1.321
	Equal variances not assumed			1.034	187.525	.303	.472	.457	-.429	1.374

An independent-sample t-test was accomplished to compare the usage of electronic gadgets Between male and female secondary school teachers. There was significance difference in the usage of electronic gadgets between 288 male ($M=81.42$, $SD=3.755$) and 115 female ($M=80.95$, $SD=4.288$) of secondary school students ; $t(401)=1.094$, $p=.275$. Results exposed that female and male student have no significant difference in usage of gadgets.

10 Discussion

The key focus of the research was to investigate the objectives of research which were: To explore the effects of electronic gadgets on students' academic performance and to evaluate the usage of gadgets in demographic variations regarding gender among secondary school students. The hypotheses were stated to test the objectives presented above.

According to the first hypothesis, the result of the study showed that there is a significant impact of electronic gadgets on the academic performance of secondary school students. the use of modern gadgets greatly improves the performance of educational standards in this way all students can perform well from their mental skills and understanding. Modern gadgets make life easier and thus improves the quality of education as well.

According to the second hypothesis, there is no significant difference between the responses of males and females regarding the usage of gadgets. Because the availability of gadgets is available same for the male and female students so they will use them well and it will have a positive effect on their academic performance as well. According to Kaplan & Haenlein, [19] Electronic gadgets are a collection of internet deal with demonstrations that systems rancid the concrete plus procedural sources of the net, then permit the formation and interchange of user-created at

ease and it is very useful for male and female as well.

11 Conclusion

It was concluded from the study that; electronic gadgets help in the solving of mathematical questions. Excessive use of gadgets affects the health of the student. That affects their performance. Gadget helps the student to get information anytime and anywhere. Distance education is very convenient for the students so that they can gain this education from any place at any time. Gadgets ruined the social relation of the students and affect their performance, which creates isolation. It is also concluded that the internet is the best source of the information for the students, but excessive use affects their academic activities. It is also evident from the findings that, gadgets help to relieve stress. It is also concluded that gadgets are the best source of entertainment for the students.

12 Recommendation

The following recommendations are offered in the light of all results and the conclusion of this study

- i. Teachers may kindly guide the students in the positive use of the mobile.
- ii. A seminar may kindly be conducted on the use of positive and negative use of mobile.
- iii. It is also recommended the use of gadgets the students at the secondary level should use the gadget for a limited time.
- iv. An awareness poster to be displayed at school about the positive use of the gadget.
- v. Furthermore, the positive use of gadgets should be promoted.
- vi. It further elaborates on the students to guide them about the importance of studying at the secondary level.

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