# Influence of Smartphone Usage on Student's Academic Performance among Secondary Schools in Dharkeynley District-Mogadishu-Somalia 2023

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**Abstract**
In the present era, it can be said that almost all aspects of human life have faced or interacted with digital systems especially mobile platforms. Due to the prevalence of smartphones in our society, excessive use and even addiction have become significant global issues. The purpose of this study was to assess influence of Smartphone usage on student's academic performance among secondary schools in Dharkeynley district-Mogadishu-Somalia. The target population was 152 learners while sampled 110 using Sloverns formula in 3 secondary schools of this district. it was found that checking updates or notifications of smart phones lost the time instead of learning as well as in adequate reading resulted great influences on academic achievements. it was also implies that there is great harmful of using smart phones and students' academic performance.  The study recommended that head teachers should restrict the use of smart phone and make awareness towards parent of the students not to allow these phones of their young learners.
**Keywords:** Smart phone, academic, Harmful, time spent, performance

## 1.0 Introduction

In the current era, almost all aspects of human life have met or networked with digital systems including platforms. Due to the prevalence of smartphones in our society, excessive use and even addiction have become significant global issues. Most of the studies have explored the effects of problematic smartphone use and academic performance using students' self- reported course grades (Sunday et al., 2021). Nowadays, smartphones have become a part of every person's life. Smartphones are mobile phones that are useful for communicating, getting information, and exchanging news with relatives and friends. Globally, the explosion of smartphones and its related devices has greatly transformed teaching and learning in developed nations where developing nations are not the exception (Darko-Adjei, 2019). Regionally in Nigeria, Smartphones have emerged as one of the maximum famous verbal exchanges and multifunctional gadgets among those technologies and also this Research shows that almost all people, mainly the youngers, continue to be busy calling, checking messages, chatting, gaming, etc. and with the right to access the Internet, what's happening anytime, anywhere is shared in just a few seconds and spreads rapidly throughout the online community (Bello & Aliyu, 2022a). In Somalia, recent research entitled "impact of mobile phone usage on academic performance among some selected secondary school students in Banadir region, Mogadishu-Somalia" suggests that a lot of students perceive the cellular phone primarily as a leisure device, and most typically use cell phones for social networking, surfing the net, watching videos, and playing games (Ahmad, 2010). Nowadays technology is developing so rapidly, so we are required to be people who can keep up with technological developments. It is undeniable that today's technology has a good impact on humans if humans use it wisely but if humans use it not well this will have a bad impact (Jumrohtin, 2022) and also the potential relationship between telephone use and academic performance isn't clear since it has positive and negative effect on learning activities.  Though Students using their smartphones excessively in class get disengaged from what they are studying, which hurts their academic performance (Bello & Aliyu, 2022a). Therefore, the researcher felt a need to undertake the influence of smartphone usage in terms of time  and its harmful among secondary schools in DDMS, since the context is very few and the area of Dharkeynley district has scarcely been touched by researchers. This study is significant to the teachers, parents and students. The study also helps the policy makers, including: Ministry of Education, Umbrellas and executive managers to come up with good policy that can result better academic performance.

## 2.0 Literature review.

A smartphone is a mobile phone with more advanced computing capability and connectivity than a feature phone which has a limited functionality while students who use it excessively in class get disengaged from what they are studying, which hurts their academic performance (Bello & Aliyu, 2022b). The first smartphones combined the functions of a personal digital assistant (PDA) with a mobile phone. Many modern smartphones also include high-resolution touch screens and web browsers that display standard web pages as well as mobile-optimized

sites(Afriyie, 2017). However, Recent survey study found that 96% of US college students own smartphone by using in the class  (Bjerre-nielsen, 2021).

2.1 The concept of the smartphone in learning performance
2.1.1 Time spent of smart phone usage per day and student's learning performance
It cannot be denied that smartphones are sometimes unwisely used by students such that misuses and deviations occur. Therefore, with the cases of smartphone misuse in learning, some high schools have issued regulations that prohibit the usage of smartphones while learning (Putranta et al., 2021). According to (Afriyie, 2017) the use of the mobile phone to interactively teach and learn at the primary and secondary school levels in Ghana is not being encouraged at all because students are banned from possessing and using their phones during school hours. From the past review, The researcher found 42 (students 46.7%) use their smartphones for learning between 2 to 4 hours daily, 34 students with 37.8% between 0 to 1 hour, and 14 students with 15.6% for more than 5 hours in a day (Bello & Aliyu, 2022a). When students spend time on their phones to the extent of neglecting their practices of daily life, engaging in excessive smartphone use, or excessively texting on their phones, there is a tendency to develop behavioral addiction to smartphone use, thereby experiencing a decline in academic performance(Sunday et al., 2021).

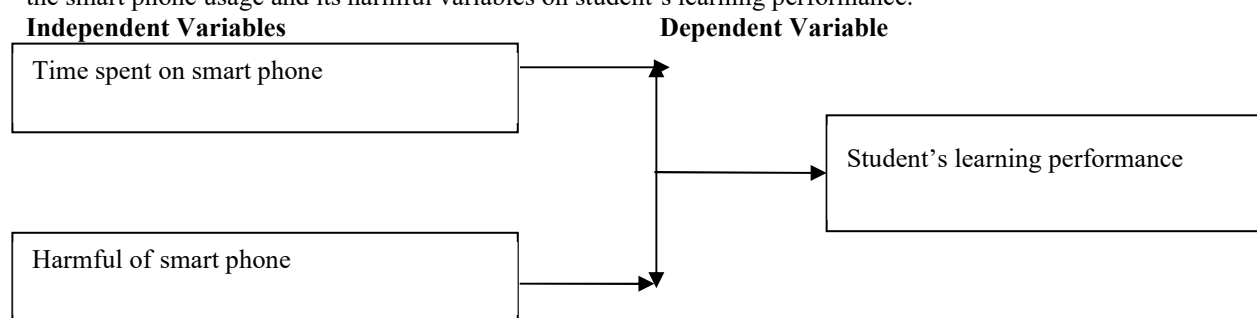2.1.2 Harmful of using smart phone and student's learning performance
The use of smartphones for learning is denoted as is "a double edge sword"  or positive or negative depending on how it is utilized for the purpose of learning as presented (Darko-Adjei, 2019). The researchers (Lee et al., 2018) showed that smartphone addicts suffered from the sleep deprivation phenomenon by delaying their sleeping time beyond midnight by engaging in phone use. The consequences of multitasking with the smartphone on academic performance showed a negative relationship between students' problematic mobile phone use and academic performance (Sunday et al., 2021). Another researcher, discusses that it is a clear indication that less attention is given by the students to their academic work and activities. The easy internet access on smartphones enables students to easily look up their examination and/or tests questions online and without internet they use past exams in gallery and also find the answers to their examinations or test questions online, thereby helping the students to pass their examination, but not helping them to have knowledge about what they are being taught by their teachers (Management, 2018). Additionally, Research done by (Jumrohtin, 2022) shows that smartphones are used as a means of cheating in doing questions from teachers and also students get lazy in terms of reading and writing because they are bored and prefer fun things which make them busy in learning activities.

2.1.3 Effect of the Use of Smartphones in Students' Learning performance
The use of smartphones has a great impact and consequences on community education and mental life as they act as a distraction and disturb its user from important tasks with inappropriate notifications that disrupt the lifestyle of society especially secondary learners(Bello & Aliyu, 2022b). In relation to the learning of secondary school level, Researchers have received negative outcomes and consequences of smartphone resulting from overuse of mobile phones, including lack of sleep quality, poor learning, everyday inattention , attention deficit and academic procrastination, deterioration of personal relationships, and negative academic performance while positive outcome of the users include reinforcement of social interactions which will be frustrated the progress of the students' academic achievement (Sunday et al., 2021).

2.2. Conceptual Model of the Research Study
Figure 1 is the depiction of the conceptual framework of the undertaken study in which we showed the impact of smartphone on the academic performance of students. Moreover, we have also shown the influence of time lost of the smart phone usage and its harmful variables on student's learning performance.

**Independent Variables**                                    **Dependent Variable**

| Time spent on smart phone |

| Student's learning performance |

| Harmful of smart phone |

3.1 Research design
Descriptive research design selected to explore association between dependent and independent variables to assess

any effect between these variables. According to (Sekaran Uma, 2014) descriptive design is often used to investigate "what is" by combining qualitative and quantitative research methodologies as the researcher investigates "What is the influence of smartphone on student's learning achievement among secondary schools in Dharkenley district?" This was used  questionnaires to collect data from secondary school students (Bello & Aliyu, 2022b). This method is also suitable for the study because it will support the collection of the data from sizeable population.

3.2 Sampling Strategy and Sample Size
The researcher used quota sampling technique which is one of the non-probability sampling to select a sample that can be representative of the target population. This is equivalent of stratified sampling. Like stratified sampling, the researcher first identifies the stratums and their proportions as they are represented in the population. Then convenience or judgment sampling is used to select the required number of subjects from each stratum (Omar, 2017). The researcher populated 152 members including learners and working staff from three schools among secondary schools in DhDMS. The investigator also sampled 110 questionnaires distributed to the part of secondary students and some academic staffs through ODK online system for that the researcher employed Slovene's formula to determine the sample size with maximum acceptable error of 5%. $n=\frac{N}{1+N\alpha^2}$, $n=\frac{152}{1+152(0.05)^2}$ = 110, n. stand for sample size,  N. stand for population and a. stand for acceptable error.

Table 3.1 Sample Size

| No | Secondary schools | No of population | Sample size |
|---|---|---|---|
| 1 | Al-Anwar | 62 | 45 |
| 2 | Somali pen | 46 | 33 |
| 3 | Hillaac | 44 | 32 |
| | **Total** | **152** | **110** |

3.3 Data Processing and analysis
The researcher used Statistical Package for the Social Sciences (SPSS) software to carry out the quantitative analysis. Descriptive statistics applied to organize, summarize, and present data in an informative way. After collected data through the ODK, Excel uploaded directly to the SPSS software analyzer by using frequency, percentages and tables. However, Chi-square analysis was used for computing the influence of smart phone usage on student's learning performance of secondary schools in Dharkeynley district with the formula of $\chi^2 = \sum \frac{(O-E)^2}{E}$, where n is the number of respondents, O is the observed frequency and E is the expected frequency.

3.4 Demographic characteristics of the respondents
This part presents the background information of the respondents who participated in this study. Its purpose is to find out the characteristics of the respondents in socio-demographics profiles. In total 110 respondents filled in the questionnaires through ODK of selected SSDhD in Mogadishu.

Table 3.2 Profile of the respondents

| Demographics | | frequency | Percent |
|---|---|---|---|
| Gender | Male | 58 | 53% |
| | Female | 52 | 47% |
| Marital status | Single | 84 | 76.4% |
| | Married | 23 | 20.9% |
| | Divorced | 3 | 2.7% |
| Age in yrs | Below 18 years | 61 | 55.5% |
| | 18-25 | 37 | 33.6% |
| | 26-35 | 4 | 3.6% |
| | Above 35 | 8 | 7.3% |
| Education level | Secondary | 93 | 84.5% |
| | Bachelor | 11 | 10% |
| | Master | 4 | 3.6% |
| | PHD | 2 | 1.8% |

## 4.0 Results

The researcher employed chi-square analysis to test influence of smartphone   usage (independent) on student's academic consequences among secondary schools in Dharkeynley district (dependent variable). The researcher applied the statistical package for social sciences (SPSS V 20.0) to code, enter and compute the measurements of the chi-square for the study. The Chi-Square statistic used in the Test of Independence is labeled Pearson Chi-Square. This compares the observed count in each table cell to the count which would be expected under the assumption of relationship between variables  in the use of  smart phone and its influence towards academic performance.

4.1Time spent on smart phone and academic performance
This independent variable investigates the time lost on smart phone usage during academic activities using Chi-square cross tab analysis test.

Table 4.1 Time spent on smart phone

| IV1 statements In terms of time spent on smart phones by the students | Consequences of multitasking with smartphone on academic performance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agree | | | Disagree | | | | | |
| | No | Exp.No | % | No | Exp.No | % | X²(df) | p-value | Phi |
| 1.1 Miss use instead of leaning<br>Above3 hrs<br>Less than 3 hrs | 33<br>39 | 32.1<br>39.9 | 45.8%<br>54.2% | 16<br>22 | 16.9<br>22.1 | 42.1%<br>57.9% | .140(1) | .708 | .708 |
| 1.2Check updates in the news<br>Above3 hrs<br>Less than 3 hrs | 41<br>31 | 31.4<br>40.6 | 56.9%<br>43.1% | 7<br>31 | 16.6<br>21.4 | 18.4%<br>81.6% | 15.008(1) | .000 | .000 |
| 1.3 Play different games<br>Above3 hrs<br>Less than 3 hrs | 40<br>32 | 36.0<br>36.0 | 55.6%<br>44.4% | 15<br>23 | 19.0<br>19.0 | 39.5%<br>60.5% | 2.573(1) | .109 | .109 |
| 1.4 Use for learning purpose<br>Above3 hrs<br>Less than 3 hrs | 31<br>41 | 30.8<br>41.2 | 43.1%<br>56.9% | 16<br>22 | 15.2<br>21.8 | 42.1%<br>57.9% | .009(1) | .924 | .924 |
| 1.5 They use un necessary chats<br>Above3 hrs<br>Less than 3 hrs | 41<br>31 | 34.0<br>38.0 | 56.9%<br>43.1% | 11<br>27 | 18.0<br>20.0 | 28.9%<br>71.1% | 7.822(1) | .005 | .005 |

Table 4.1 IV 1.1 indicates that the misuse of smartphones is done by students during learning  above 3 hours per day for number of 49 (44.5%) and  less than 3 hours were 61 (55.5%). IV 1.2 Shows that checking updates and notifications of smartphones is lost the time instead of studying above 3 hours per day for respondents of 48 (43.6%) and less than 3 hours were 62(56.4%). IV 1.3 Proves that playing games and other abusing of smartphones is done by students when they get chance above 3 hours per day for number of 55 (50.0%) and less than 3 hours were 55(50.0%). IV 1.4 Demonstrates that students use their smart phones for learning purposes above 3 hours per day for number of 47 (42.7%) and less than 3 hours were 63(57.3%). IV 1.5 Establishes that students those using smart phone spend in adequate reading for their lessons above 3 hours per day for number of 52 (42.3%) and less than 3 hours were 58(52.7%). In general, 72 respondents agreed that consequences effect of student's academic achievements while the rest of 38 answered disagree.

Based on the analysis of the chi-square test in terms of time, the researcher found that there is a significant relationship between 1.2 checking updates or notifications of smart phones and students' overall academic achievements since p-value is less than 0.05. Its also found that there is association between 1.5 inadequate reading of lessons and students' academic performance since p-value < 0.05.But the rest of the variables, the researcher did not found association towards academic achievements in terms of time since p-value >0.05.

4.2 Harmful of smart phone usage and student's learning performance
This IV investigates harmful on smart phone use during academic activities using Chi-square test.

Table 4.2 Harmful of smart phone

| Statements in terms of harmful on smart phones by the students | Consequences of multitasking with smartphone on academic performance | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agree | | | Disagree | | | | | |
| | No | Exp.No | % | No | Exp.No | % | X²(df) | p-value | Phi |
| 2.1 Getting lazy in reading Satisfied Unsatisfied | 55 17 | 45.8 26.2 | 76.4% 23.6% | 15 23 | 24.2 13.8 | 39.5% 60.5% | 14.647(1) | .000 | .000 |
| 2.2 Make busy in mind Satisfied Unsatisfied | 59 13 | 54.4 21.6 | 81.9% 18.1% | 18 20 | 26.6 11.4 | 47.4% 52.6% | 14.160(1) | .000 | .000 |
| 2.3 Easily look up exams Satisfied Unsatisfied | 69 3 | 55.6 16.4 | 95.8% 4.2% | 16 22 | 29.4 8.6 | 42.1% 57.9% | 40.884(1) | .000 | .000 |
| 2.4 Keep and store answers Satisfied Unsatisfied | 67 5 | 53.7 18.3 | 93.1% 6.9% | 15 23 | 28.3 9.7 | 39.5% 60.5% | 37.633(1) | .000 | .000 |

Table 4.2 IV 2.1 indicates that students using smart phone get lazy in terms of reading and writing because they are bored and prefer fun things which make them busy in learning activities as satisfied respondents were 70 for the percentage of 63.6% and unsatisfied respondents were 40 with the percentage of 36.3%. The researcher found that there is negative impact between getting lazy of the learners and their overall academic achievements since p-value is less than 0.05. IV 2.2 Demonstrates that students using smart phone become busy as 77 respondents satisfied these statements for the percentage of 70.0% and unsatisfied respondents were 33 with the percentage of 30.0%. The study also showed that there is great association between problematic phone and students' overall academic achievements since p-value < 0.05. IV 2.3 Shows that easy internet access on smartphones enables students to easily look up their exams and/or tests from online and without internet they use past exams in gallery as the respondents satisfied of 85 for the percentage of 77.3% and unsatisfied respondents were 25 with the percentage of 22.7%. Thus; Looking up exams on smart phones have great negative association to the academic performance of the students in secondary schools for the significance of .000. IV 2.4 indicates that smartphones can be used as a means of storing and keeping answers as satisfied respondents were 82 for the percentage of 74.5% and unsatisfied respondents were 28 with the percentage of 25.5%. Based on keeping and storing answers in smartphone memories have an impact on students' academic performance since p-value is .000.

**5.0 Discussion**
The results of the undertaken research demonstrate the smartphone has an influence on student academic performance in Secondary schools. The previous literature exhibited that students spend time on their smart phones to the extent of neglecting their practices of daily life, engaging in excessive use, or excessively texting on their phones and this tendency might decline in academic performance (Sunday et al., 2021).

Based on the analysis of the chi-square test in terms of time, the outcome demonstrations that smart phone has a significant relationship between uncountable notifications and insufficient reading of lessons to the students' academic performance since p-value < 0.05. Like wise; the analysis of the chi-square test in terms of harmful, the researcher found that there is negative impact relationship between getting lazy , busy of reading notifications, cheating exams and storing past papers of the learners and their decline of academic achievements since p-value is less than 0.05.

**6.0 Conclusions**
The study showed that glancing updates or notifications of smart phones and in adequate reading of the lessons was significantly affect to the students' overall academic achievements since p-value is less than .05 0r 5%. The research also indicated that harmful of smart phones was significantly influence to the students' overall academic performance since p-value is less than .05 0r 5%. In terms of IV, The finding indicates that significant positive relationship exists between smartphone usage and the performance of the students.

**7.0 Limitations and Recommendations**
-The main constraint of the study was principals managing secondary schools and students may give negative information to the researcher.
-On the basis of findings the study suggests the following recommendations:
   1. The study recommended that the head teachers should restrict the use of smart phone and make awareness towards parent of the students not to allow smart phone their young generation.
   2. Schools authorities should check, prohibit using smart phone during learning activities.

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