



(RESEARCH ARTICLE)



## Impact of attachment to cell phones on classroom learning

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### Abstract

This study investigated the influence of cell phone attachment on classroom learning among Senior Secondary students in Delta Central Senatorial District, Delta State. Guided by three research questions, the study utilized a correlational survey research design. The population comprised 15,170 Senior Secondary students, with a sample of 375 students drawn from 19 secondary schools using proportionate stratified random sampling. Data were collected using two researcher-designed questionnaires: the Cell Phone Attachment Questionnaire (CEPAQ) and the Classroom Learning Questionnaire (CLQ). The validity and reliability of the questionnaires were established, with reliability coefficients of 0.71 for CEPAQ and 0.80 for CLQ, calculated using Cronbach's Alpha. Pearson Product Moment Correlation (PPMC) was employed to answer the research questions. The findings revealed a positive relationship between cell phone attachment and classroom learning, with gender and age exerting positive moderating impacts on this relationship. The study concluded that cell phone attachment significantly affects classroom learning and recommended, among other measures, that school administrators monitor phone usage in classrooms to mitigate negative impacts.

**Keywords:** Attachment; Cell Phones; Classroom Learning; Gender; Age

### 1. Introduction

Learning involves the dynamic interaction between teachers, students, and various resources within the classroom setting. This interaction serves to bridge the gap between ignorance and knowledge, fostering a balanced exchange between educators and learners. According to Brown (2015), classroom interaction forms the foundation of second language (L2) acquisition, facilitating the development of communicative skills and the construction of social identities through collaborative efforts. Consequently, effective learning occurs through interactions among peers, between educators and students, and with learning materials within the educational environment, ultimately enhancing social competencies.

The pervasive integration of cell phones into daily routines has become a defining feature of contemporary youth culture. The extensive usage of cell phones has cultivated diverse mobile lifestyles among today's younger generation (Zixue & Cheng, 2022), transforming these devices into multitasking tools for consuming various media across multiple platforms. Continuous engagement with cell phones often fosters intimate and affectionate relationships between users and their devices. Consequently, researchers are urged to explore the emotional and psychological dimensions of cell phone usage beyond its functional and behavioral aspects. One theoretical framework for understanding these dimensions is mobile attachment theory, which underscores the emotional bonds formed between individuals and their cell phones.

Furthermore, cell phones have not only permeated classroom environments but have also become ubiquitous tools in the majority of educational settings.

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According to Shuter et al. (2017), American students use mobile phones in class, compared to the way they use computers and tablets. Strong mobile phones may have advantages, but studies reveal that in classroom environments, people tend to see them more as distractions than as tools for studying. According to Finn and Ledbetter (2013), instructors' worries about wireless communication technology interfering with students' learning have led to limitations on their usage in the classroom. McCoy (2016) conducted a study revealing that 29.5% of respondents reported using digital devices for non-class purposes during 21-60% of class sessions. McCoy (2016) enumerated three demerits of using phone in the classroom to include lack of attention, missing instructional content and distracting themselves and other others. Kuznekoff *et al.* (2015) pointed out that learners who are with habit of sending unrelated text messages during class are prone to distraction. Despite potential prohibitions, students often persist in using their cell phones in classroom settings, particularly in larger classes, as observed by Grinols & Rajesh (2014) and Olufadi (2015). Consequently, it is common for many college instructors to impose unilateral bans on cell phone use in their classrooms.

In recent years, there has been a growing recognition of the impact of mobile phone use on academic learning environments. Several studies (O'Bannon & Thomas, 2015; Benjamin, 2016; Lowe, 2017; have highlighted the potential detrimental effects of allowing students to use their mobile devices in the classroom. One key concern among educators is the negative impact of non-academic use of mobile phones on students' attention and engagement during class. Non-academic use of mobile phones, such as texting, social media browsing, and playing games, can divert students' attention away from the learning process (Bain, 2015). When students are distracted by their phones, they miss out on important lecture content, discussions, and opportunities for active learning. This lack of focus can hinder their understanding and retention of the course materials, negatively impacting their academic performance. Additionally, the presence of mobile phones in the classroom can create disruptions that hinder the teaching-learning process (Olufadi, 2015). When students are constantly checking their phones, it disrupts the flow of instruction and disrupts the learning environment. Teachers may find it difficult to maintain control over the classroom and ensure that all students are actively engaged in the learning process.

Literature has reported other negative effects of unregulated mobile phone use in the classroom. Kuznekoff and Titsworth (2013) reported, "students who use their mobile phones during class lectures tend to write down less information, recall less information, and perform worse on a multiple-choice test than those students who abstain from using their mobile phones during class" (p. 251). In addition, such phone use interferes with students' ability to concentrate on other activities (Elder, 2013). Wei et al. (2012) indicated that mobile phone use interrupts students from focusing on the main learning task in class. These researchers discovered that when students send text messages in class, they must switch back and forth between information processing tasks (e.g., sending a text message and listening to the lecture). Students find this changeover to be distracting, which makes them less focused on the lessons being taught (Stephens & Pantoja, 2016; Wei et al., 2012). A technology strategy should be put in place in the classroom to control this distraction (Tindell & Bohlander, 2012). Ideally, this policy would encourage the use of mobile phones for pedagogy while prohibiting their usage for purposes that distract from learning. Instructors find that texting is the most annoying usage of mobile phones since it is not usually included in lesson preparations. When Holtgraves (2011) examined the mobile phone use patterns of 224 college students, she discovered that the classroom ranked as the second most common place for respondents to text. Regrettably, she also discovered that students text more for social connections than for informative objectives. Scholars enumerate many incentives behind students' texting during class—information that is crucial for educators attempting to reduce outside-of-class mobile phone usage. Certain students may text as a means of escape (Jin & Park, 2010); others may text as a means of control (Madell & Muncer, 2007; Stephens & Pantoja, 2016). Additionally, it's possible that students are texting in class because they lack the self-control to ignore the interruption of incoming texts (Stephens & Pantoja, 2016; Wei et al., 2012).

On the flip side, some researchers argue that mobile phones could have a positive impact on student learning if used constructively within the classroom (Ledbetter & Finn, 2013; O'Bannon & Thomas, 2015). For instance, Cheung (2008) suggests that mobile phones could enhance classroom experiments by facilitating easier and more efficient communication for students to submit answers or participate in online activities. O'Bannon and Thomas (2015) found that mobile phones were particularly beneficial in fostering digital fluency, providing flexible learning opportunities, allowing for differentiated instruction, and increasing access to technology within the classroom. However, studies confirming or refuting these potential benefits remain scarce.

Ramsay (2012) highlighted the unique characteristics of mobile devices, such as portability, connectivity, and interactivity, which offer educational applications beyond traditional information and communication technologies. Instructors are also urged to clarify the pedagogical objectives of technology use, as students' comprehension of the purpose behind its integration is crucial for successful implementation (Terras & Ramsay, 2012).

Raza et al. (2020) note that cell phones have become an indispensable part of modern lifestyle, influencing students' studies, moral values, and mentality during classroom interactions. The ubiquitous use of cell phones, particularly among secondary school students, has significantly increased in recent years, often leading to distractions in the learning process. Many students are observed engaging with cell phones for various non-academic activities during class, such as gaming, chatting, and social media interaction.

Cell phone attachment can lead to behavioral addictions with social, cultural, and economic implications, affecting students' classroom performance regardless of age, gender, or location (Morris, 2020). Gender plays a significant role in cell phone attachment and usage patterns, with female students often using phones for social interactions and entertainment more than their male counterparts (Lee et al., 2021; Pawlowska & Potembska, 2012). Age also influences cell phone attachment, with younger generations exhibiting higher levels of smartphone usage compared to older individuals (Hawi & Samaha, 2017). The increasing exposure to modern technological gadgets from a young age further exacerbates the generation gap in smartphone use.

### **1.1. Statement of Problem**

The rate at which teenagers bring cell phones to the classroom to get connected these few years had drawn the attentions of many researchers. Teenagers' (students) have been seen using phones to facilitate with applications which enable video recording, listening to music, downloading movies, playing games and accessing the Internet while in school and particularly in the classroom. Phones have become the last thing secondary school students look at before going to sleep, and the first thing they look at in the morning. Many secondary school students have become so dependent on Smartphone devices that they rely on them to establish new social connections and exchanging pictures. Thus, attachment to cell phones has become a means to avoid daily problems, and to relieve feelings of depression, helplessness, and guilt. In particular, students often use cell phone in constructing their own reality instead of the classroom learning situation which creates self-denial and social isolation.

Today, the growing availability of mobile phones with Internet connection and expansion in the range of services especially in school has affected the academic and learning process. Having information at their fingertips terms of performing daily activities, maintaining relationships with peers and making calls to their friends at night has led to phone attachment among students causing sleeping habits in the classroom. Classroom dazzling, sleeping and mopping could be as a result of cell phone attachment among students. This necessitated the researcher to carry out the impact of attachment to cell phones on classroom learning with respect to gender and age.

### **1.2. Research Questions**

- What is the relationship between cell phone attachment and classroom learning?
- What is the moderating impact of gender on cell phone attachment and classroom learning?
- What is the moderating impact of age on cell phone attachment and classroom learning?

### **1.3. Purpose of the Study**

The general purpose of the study is to determine the impact of attachment to cell phones on classroom learning. But in specific terms, the study:

- explore the relationship between cell phone attachment and classroom learning
- find out the moderating impact of gender on cell phone attachment and classroom learning
- the moderating impact of age on cell phone attachment and classroom learning.

### **1.4. Significance of the study**

The findings of this study will be of great benefit to parents because it helps the parents to evaluate their children attitudes at home to determine if they are doing well or not in their learning so as to detect the causes of low performance and proffer solution accordingly .

The findings of this study will be significant to the teacher because it helps the teacher to understand the implications of phone attachment on the students' academic performance. This understanding enables the teacher to draw the attention of the students for more robust discussion, fact-finding, counseling and possibly discuss with the student parents to ascertain the causes of low academic performance and provide solution.

The findings of this study will be vital to the students because it helps the students to be more committed in their academic activities than involving in phone attachment behaviours that does not encourage excellent performance. The students are made to understand that focusing more on their academic activities would earn them in good academic performance.

The findings of this study will be of great importance to school administrators and management because it helps to formulate policies and templates that discourage secondary school students involving with cell phones attachment behaviours that may crumble their academic success.

The findings of this study will be significant to the general public because it helps the public to be aware of the negative implications of cell phone attachment so as to reduce or avoid its frequent usage. The findings of this study will be of immense importance to the body of knowledge because it will serve as good research materials for future research endeavours, by so doing it equally contribute to existing body of knowledge.

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## **2. Research method**

### **2.1. Research Design**

The correlational research design was used for the study. According to Fraenkel and Wallen (2019) correlational design seeks to correlate the possibility of relationships between two or more variables through a correlation coefficient without any effort to influence or manipulative of the variables. The correlation design was used to determine the relationship between the independent variable and the dependent variable.

### **2.2. Population of the Study**

The population of this study consisted of 15,170 Senior Secondary students in public schools. The total population was from all the 190 public secondary schools in Delta Central Senatorial District of Delta State which was obtained from Ministry of Secondary Education, Asaba.

### **2.3. Sample and Sampling Techniques**

The sample size of the study is 375 in accordance with Krejcie and Morgan (2006). In Krejcie and Morgan statistical table the sample size of a population of about 15000 is 375. This is adequate for .05 confidence level. This statistical table was used to make sure that a controllable sample size from the population of the study. A proportionate stratified random sampling technique based on location (urban/rural) was used to draw the sample for the study. Using the stratification, nine (9) schools which constitute 8% of the entire schools in urban area was selected and ten (10) schools which constitute 8% of the entire schools in rural area was selected making a total 15 schools that was selected. Simple random sampling techniques were then applied to select 25 students from the selected schools.

### **2.4. Research Instrument**

Two research questionnaires were used for data collection were. The questionnaires which were titled "Cell Phone Attachment Questionnaire (CEPAQ) and Classroom Learning Questionnaire (CLQ) was designed by the researcher respectively. The questionnaire was subjected to three sections; section A, B and C. Section A was designed to collect respondents' bio data such as sex and age of students. Section B and C consists of 10 items scales each which measured Cell Phone Attachment (CEPAQ) and Classroom Learning (CLQ). The respondents were requested to indicate their opinion on four points scale with close ended items as Very High (VH) =4, High (H) =3, Low (L) =2, Very Low (VL) =1.

### **2.5. Validity of Research Instrument**

The face and content validity of the questionnaires was established by three (3) experts in Guidance and Counseling Department. These experts assessed the instruments for appropriateness and suitability for the study, and their suggestions were effected as correction(s).

### **2.6. Reliability of the Research Instrument**

The reliability test of the instruments was carried out on 40 senior secondary school students in Delta North Senatorial District of Delta State. The result of the instrument was used to compute the reliability of the questionnaires. The Cronbach Alpha was applied for the computation of the reliability coefficient of the instruments and reliability coefficient values of 0.71 and 0.80 were obtained for CEPAQ and CLQ. The reliability was carried to establish the internal consistency of the instrument.

### 3. Methods of Data Collection

The researcher administered the instrument to the respondents with the help of three trained research assistants. This was done by giving the research assistants detailed instructions on how to carry out the data collection. The questionnaires were administered and collected back immediately to ensure a high return rate. A copy of the questionnaire was given to 375 students to complete. To ensure 100% recovery of the instrument, all copies of the questionnaire were retrieved the same day after completion.

#### 3.1. Method of Data Analysis

The research questions were answered using Pearson Product Moment Correlation (PPMC) and coefficient of determination.

### 4. Results and Discussion

#### 4.1. Research Question One: What is the relationship between cell phone attachment and classroom learning?

**Table 1** Pearson Product Moment Correlation and Coefficient of Determination of cell phone attachment and classroom learning

Variable	N	R	$r^2$	$r^2$ %	Decision
cell phone attachment	375	0.077	0.006	0.6	positive relationship
classroom learning					

Table 1 showed the r-value of 0.077 as the amount of relationship between cell phone attachment and classroom learning. The coefficient of determination ( $r^2$ ) is .006 and the amount of contribution of cell phone attachment to classroom learning is 0.6. The result showed a positive relationship between cell phone attachment and classroom learning?

#### 4.2. Research Question Two: What is the moderating impact of gender on cell phone attachment and classroom learning?

**Table 2** Multiple Correlation analysis of the moderating impact of gender on the relationship between phone addiction and academic Performance among secondary school students

Variables	N	R	$r^2$	$r^2$ %	Decision
Gender	375	0.093	0.009	0.8	Positive Relationship
Cell phone attachment					
Classroom learning					

Table 2 shows the result of a multiple correlation and coefficient of determination which was used to examine moderating relationship impact of gender on cell phone attachment and classroom learning. The result revealed that  $r = 0.093$ ,  $r^2 = 0.009$ , and  $r^2\% = 0.8$ . The result further showed that gender and attachment jointly contributed 0.8% to the classroom learning. The result showed a positive moderating impact of gender on phone attachment and classroom learning.

#### 4.3. Research Question Three: What is the moderating impact of age on cell phone attachment and classroom learning?

Table 3 shows the result of a multiple correlation and coefficient of determination which was used to examine moderating impact of age on cell phone attachment and classroom learning. The result revealed that  $r = 0.044$ ,  $r^2 = 0.01$ , and  $r^2\% = 1.9$ . The result further showed that age and cell phone attachment jointly contributed 1.9% to the classroom learning. The result showed a positive moderating impact of age on phone attachment and classroom learning.

**Table 3** Multiple Correlation analysis of the moderating impact of gender on the relationship between phone addiction and academic Performance among secondary school students

Variables	N	R	r <sup>2</sup>	r <sup>2</sup> %	Decision
Age	375	0.044	0.01	1.9	Positive Relationship
Cell phone attachment Classroom learning					

## 5. Discussion

The results of this study were discussed using the following titles:

### 5.1. Relationship between cell phone attachment and classroom learning

The first finding showed a positive relationship between cell phone attachment and classroom learning. The finding revealed that cell phone attachment contributed 0.6% to classroom learning. This finding indicated that cell phones are used for in-class research to quickly look for information pertaining topics or to locate sources for speeches or papers including the ability to access current events and to initiate student-teacher classroom discussion. The finding is not in alignment with Bain (2015), Benjamin (2016), and according to Lowe (2017), research on mobile phone usage in college classes regularly examines the detrimental effects of the devices' use, with a particular emphasis on the drawbacks of other than academic use, such as disrupting learners, encouraging dishonesty, and interfering with the work of colleagues.

### 5.2. Moderating impact of gender on cell phone attachment and classroom learning

The second finding of this study showed a positive moderating impact of gender on phone attachment and classroom learning. The finding revealed that gender and cell phone attachment jointly contributed 0.8% to the classroom learning. This result suggested that a classroom learning is unaffected by a person's gender, whether they are male or female. These positive relationships can create a sense of trust and rapport, which can enhance the learning process within the classroom. By implication, female maintain social relationships and have a stronger attachment with their phones while males are less users of the phones and they pay less attention to phones usage than the female in the classroom. The finding is in alignment with Pawlowska and Potembska (2012) opined that female use the phones for social gratification and reinforcements while male uses the phones for more process-oriented gratification.

### 5.3. Moderating impact of age on cell phone attachment and classroom learning

The third finding of this study showed a positive moderating impact of age on phone attachment and classroom learning. The finding revealed that age and cell phone attachment jointly contributed 1.9% to the classroom learning. This result suggested that a classroom learning is unaffected by a person's age. The situational anxiety that comes with the inability of accessing the phone and the concomitant feeling of being left out of friends' conversations, and lack of mindfulness (inattention and mind wandering) regarding the use or non-use of their phones is common to all ages. When the mobile phones are available, that is, totally allowed in the classroom, the student irrespective of age will perform significantly better on the test than any of the other conditions regarding the mobile phone. The finding is in alignment with Hawi and Samaha (2017), who stated that there is a significant degree of differences between persons who are of age than those who are younger in the use of smartphones.

## 6. Conclusion

On the basis of the finding obtained in the study, the researcher concludes that the relationship that exists between the independent variables and the dependent variable is both individually and collectively. That is, the independent variables were found to have moderated relationship with cell phone attachment including classroom learning.

### Recommendations

Based on findings, the following recommendations were made;

- Parents should as a matter of fact liaise with government to formulate policies to caution the associated consequence of students' attachment to cell phone in secondary school

- School administrators should check the contents of phones brought to school by students to monitor the negative usage of phones
- School counselors and or teachers should guide students on the possible distract aspect of phone in the classrooms

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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