

Role of Smartphone in Students Learning at a Private High School in Cambodia

Phany Moeung
Bun Rany Hun Sen Koh Sla High School

Corresponding Author: Phany Moeung phanymoeung3@gmail.com

ARTICLE INFO

Keywords: Smartphone Roles, Students Learning, High School Students, Impacts, Cambodia

Received : 7, March

Revised : 13, April

Accepted: 29, May

©2024 Moeung: This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

The study explores the smartphone's role in hindering and helping high school students learn English at a private school in Cambodia. The study used a questionnaire with items adapted from previous literature to investigate a group of students' perceptions of the effects of smartphones on communication, engagement, performance, and self-efficacy. It also looked into the general impacts of smartphones on students' language learning. Responding to the COVID-19 pandemic, an online link to the questionnaire using Google Forms was electronically shared with 200 students in a population of 515. One hundred forty-six participants completed the questionnaire. Descriptive statistics analyses, such as percentage, mean, and standard deviation, were performed for the study. The results from the investigation showed that smartphones positively impacted students' language learning overall. The researcher also discovered a reported association between smartphone and self-efficacy, communication, engagement, and student academic performance. Therefore, classroom teachers, educators, and policymakers need to continue exploring the potential of smartphones in enhancing language learning experience and outcomes and motivating students as they go through different experiences in English language learning. Based on the student participants' quantitative and narrative responses, the study recommends careful use of smartphones in the classroom and strict measures to reduce negative consequences.

INTRODUCTION

Since Apple Inc. debuted its state-of-the-art iPhone in 2007, along with the advent of other smartphones a few years later such as Samsung, smartphones are now being widely used due to their affordable price (Ried, 2018). They benefit people, from improving quality of life to enhancing businesses, advancing health care, raising awareness about entertainment, and accelerating communication. Seeing these advantages, many educational institutions have incorporated smartphones and other advanced technologies into curriculum to enhance education. However, smartphones can distract students' attention if they are misused (Baah, 2018; Alhasanat, 2020; Williams & Cendon, 2019).

Numerous studies investigated the impacts of smartphones, and the results were different. Several studies in Asia, the Middle East, Europe, and America found the positive impacts of smartphones (Tao, Yang, Lai, & Chau, 2018; Baleghizadeh & Oladrostam, 2010; Payne, Wharrad, & Watts, 2012); Shaw & Tran, 2015). Teachers and students acknowledged the positive impacts the smartphones have on their teaching and learning. With smartphones, students performed better, and their academic achievement was highly satisfied.

The other studies, however, indicated that smartphones did not play a significant role in education. They distracted and hindered students' academic performance. Overusing smartphones caused depression and anxiety, reduced physical activities, interfered with students' attention, and made students addicted. Moreover, assault and robbery linked to smartphone use (Williams & Cendon, 2019).

In Cambodia, smartphones are widely used compared to the past where only a few people could afford smartphones. The use of smartphones among teachers and students in high schools also increases daily. Phong and Sola (2015), who conducted a study on the state of Khmer-enabled phone, smartphone, and Internet/Facebook use in Cambodia, reported a sharp increase in smartphone use among Cambodian people in just two years from 19.8% in 2013 to 39.5% in 2015. They stated that due to popularity, low cost, economic development, and the need to access the internet, smartphone sales increased significantly. The highest number of smartphone users were Cambodian-educated urban youths. However, few investigations have been conducted on the impacts of smartphones on education.

The study aims to answer the following questions:

1. What are the student participants' perceptions towards the use of smartphone in communication, engagement, academic performance, and self-efficacy?
2. What impact does smartphone have on the participants' language learning, as reported in the online questionnaire?
3. What can the participants do to ensure their use of smartphone facilitates, rather than impedes, their English language learning?

THEORETICAL REVIEW

Classification of Technology in Education

Technology integration in education, especially in language teaching, significantly improves, enhances, and develops learners' knowledge. In the past, whiteboards, markers, and pens were regarded as technology, but these things are used daily nowadays (Bax, 2012). The 1990s saw the integration of new technologies in education. In the 21st century, technology is more advanced and is widely used among the younger generations.

Gao (2019) categorized technology into two types according to their nature of use: pedagogical technology and operational technology. Pedagogical technology refers to a technology used for learning and teaching processes, for example Power Point presentation, internet, Google Classroom, and so forth. Operational technology, on the other hand, is a type of technology used for operative and administrative work, such as email, online data management system, and Telegram. However, both can be overlapped. For example, when the Telegram is used to convey information, do school work and provide extra materials for the students, it is considered as pedagogical and operational technology.

Pedagogical technology is divided further into tool-based technology and program-based technology. Tool-based technology is used for general purposes such as Ms. Word, internet, smartboard, e-book, YouTube, TED talk, slideshow, Canvas, and Blackboard. Program-based technology is designed for specific use. The examples are Educational Game and Summit Learning Program (Gao, 2019).

Definitions of Smartphone

Anshari, Almunawar, Shahrill, Wicaksono and Huda (2017) defined smartphone as a mobile device that can perform multiple things like a computer. It is developed using a modern operating system and is capable of performing many tasks such as internet search and communication. Samwar and Soomro (2013) described that a smartphone is not only used for calling and messaging but also has capabilities to view photos, play video, play games, play and record audio-video via a built-in chamber, send and receive emails, create applications for social websites and surf the web. Similarly, Keengwe and Bhargava (2014) defined a smartphone as a mobile technology that is portable, wireless, and non-wireless.

Smartphone, one of the most innovative tools for human in the 21st century, refers to a minicomputer (Singh & Samah, 2018; Jihyuk & Yoonmo, 2013). Because smartphone performs incredible tasks, it is not just a phone but also a minicomputer (Baah, 2018). Moreover, smartphone is useful for teaching and learning languages (Alzubi & Singh, 2019).

Kanthawongs, Jabutay, and Upalanala (2016) revealed that the terms "smartphone" and "smart phone" are interchangeably used to refer to a hand phone with internet connection and built-in applications. People rely on smartphone for communication, business, job, schoolwork and so forth. Some people cannot live without it.

The Use of Smartphone in Classroom

In the past, life was not very modern because we did not have the cutting-edge technologies. Now, technologies are very modern after the invention of iPhone in 2007. Since then, smartphone is ubiquitously integrated not only in schools but also in medical settings, businesses, science, and so on (Shaw & Tan, 2015; Payne, Wharrad & Watts, 2012; Tran, Morra, Lo, Quan, Abrams & Wu, 2014). Thomas and Munoz (2016) mentioned that when mobile phones emerged in classrooms 25 years ago, teachers banned students from using mobile phones provided that mobile phone interfered and affected students' performance. Presently, however, many smartphones are used by teachers and students, thus prompting researchers, scholars and teachers to investigate the impacts of smartphones on learning (Baleghizadeh & Oladrostam, 2010).

Multiple studies on the impacts of smartphones were conducted in Asia, Europe, Africa, and America. The results were incompatible. Ariel and Elishar-Malka (2019) reported that some studies discovered positive impacts of smartphones on academic performance whereas others found smartphone distracting. There are also studies that found both positive and negative impacts of smartphones.

Positive Impacts of Smartphone in Learning

Smartphone use increases sharply in schools and universities. Its impacts have been debated amongst scholars, researchers and teachers. They have different perceptions towards smartphones. So, they conducted research to explore whether smartphone were beneficial for learning. The findings were positive.

A study conducted in China by Tao et al (2018) discovered that smartphone positively influenced students' learning and everyone who used it. Zhao, Yuping, Maideen, Moe and Nasirudeen (2018) compared the relationship between smartphone and academic performance amongst the students from an institution of higher learning in Singapore. They found that students who use smartphones for learning purposes performed better. Similarly, Barr (2011) found that 15 out of 20 students use smartphone for several activities such as taking photos, recording pair-presentation, searching Google voice for pronunciation, downloading apps, and reading news on BBC, CNN, Discovery, Times and MTV.

In the Middle East, numerous studies demonstrate the advantages of smartphone. Baleghizadeh and Oladrostam (2010) who investigated the effects of mobile assisted language learning on grammatical accuracy on 40 female pre-intermediate EFL students at Kish Language Institute in Isfahan reported that students have better performance on a multiple-choice grammar. Alzubi and Singh (2019), who investigated 70 male students at Najran University in Saudi Arabia on the reading learning strategies through smartphones, claimed that smartphone helps motivate students learn and promote self-efficacy, positive attitudes, intention to seek information, and the need for success in reading. Hawi and Samaha (2016) who investigated the adverse effects of smartphone addiction on academic performance among 293 students reported that although students, both males and females, addicted to smartphone, they still received high GPAs with distinction.

In England, a study conducted by Payne et al (2012) in a medical setting through an online survey was positive. Many participants agreed that educational apps in smartphone accelerated their patients' treatment and reduced medical errors. Sormunen, Lavonen and Juuti (2019) also identified similar positive trends of smartphone in a primary science class in Finland. The researchers spent two academic school years to investigate the effect of smartphone used by nine pupils with learning difficulties. The results indicated that the performance varied in different practices. However, in general, smartphone is beneficial for supporting students with learning difficulties.

Two studies conducted by Thomas and Munoz (2016) and Shaw and Tan (2015) in the United States revealed similar findings. Thomas and Munoz surveyed 628 high school students in urban district of Midwest region of the United States. The outcomes were that smartphone was more positive than negative in terms of classwork. Shaw and Tran (2015) investigated 46 general surgical residents using quantitative approach at the University of Florida, College of Medicine. In order to collect the data, they used the UF Surgery Application to distribute two questions to the participants. The results demonstrated that the participants were more engaged in their study when technology was employed. Moreover, a study by Tran, Morra, Lo, Quan, Abrams, and Wu (2014) on final-year medical students at the University of Toronto in Canada declared that when smartphone is used for clinical work, it provides imminent efficiency in delivering better patient care.

Cochrane (2010) and Woodcock, Middleton and Nortcliffe (2012) found that smartphone is so special in a sense that it improves, enhances and accelerates learning and teaching environment. Sharing and discussing between teachers and students will be more tasteful if smartphone is integrated. Having a smartphone in hand helps students earn knowledge anywhere at any time.

Barati and Zolhavarieh (2012) investigated a group of undergraduate students and a group of lecturers on their readiness to use smartphone at Multimedia University of Malaysia. The findings indicated that both lecturers and students agreed that smartphone was a useful tool for communication between students and teachers. Having good communication through smartphone opened to a new way of learning for students who might be shy in classroom. Hence, it motivated students to learn the language faster.

A study by Nalliveetil and Alenazi (2016) on 52 male students studying English at Aljouf University, Saudi Arabia, found positive impacts of smartphone on students' learning. With smartphone, students reported that learning was strengthened. Likewise, Kim, Rueckert, Kim, and Seo (2013) discovered the positive points of smartphone. They suggested that mobile technologies such as smartphone was potential in a way that it offered new learning experiences, thereby engaging students in learning activities outside of classrooms.

Robinson, Cronin, Ibrahim, Jinks, Molitor, Newman, and Shapiro (2013) found that smartphone was useful due to the fact that it served as educational assistance for students to develop their ability to learn the language. Rahamat, Shah, Din and Abd Aziz (2017) also pointed that teachers should employ smartphone in the classroom to make their learning environment more

meaningful. More significantly, Han and Yi (2018) also suggested that since smartphone improved students' academic performance, policymakers and educators should apply this modern device in the classrooms.

The Negative Impacts of Smartphone in Learning

Though smartphone benefits students significantly, other studies reported drawbacks of smartphone. Lee, Cho, Kim, and Noh (2015) did a survey on smartphone addiction and its implications for learning at a university in Seoul, South Korea. Two hundred and ten students participated in the survey. The results showed that more students became addicted to smartphone leading to poor performance in school. They also found that the other apps in their smartphone distract their attention when they were studying. The similar study on the impact of smartphone overuse in South Korea by Hwang, Yoo, and Cho (2012) compared two groups of people: overuse group and normal use group. The results indicated that smartphone negatively increased more anxiety and depression on the overused group than on the normal group. Bagci and Peksen (2018) investigated the smartphone addiction of vocational school students from different variables at Sakarya University in Malaysia. The results indicated that smartphone moderately caused addiction to students.

Baah (2018) surveyed teachers in Ghana's high schools on the reason why teachers were not willing to integrate smart phones in their classroom. The results showed that students were not allowed to use smartphones in all high schools in the Wenchi Municipality because teachers believed that smartphone was an interference to the students. Mtega, Bernard, Msungu and Sanare (2012) did not discuss the effect of smartphone but their study, which was conducted in Tansania, reported that the participants underutilized smartphone as they did not recognize the capacity of their smartphone. They also reported that the higher cost of downloading some online apps were the other hindrances. Ifeanyi and Chukwuere (2018) demonstrated that smartphone was a distractor to students' learning in certain aspects.

Similar to Mtega et al. (2012), Alhasanat (2020) who conducted a study at Arab Open University in Jordan encountered a breakthrough in his research. The study discussed the impacts of smartphone used by students learning Arabic language. The challenge was the scarcity of the programs and applications. Azizifara and Gowharya (2015) obtained negative data from their research on 40 male and female students in Ilam Mojtama Fani Tehran English language institute, Iran. The respondents reported that smartphone did not satisfy their language learning process. In fact, it caused addiction, teaching interference, reduction of physical exercise, and loss of control. Chaudhry and Tripathy (2018) who conducted a study at Biju Pattnaik University of Technology and Kalinga Institute of Industrial Technology University in India reported smartphone addiction and academic performance. The study found that there was negative correlation between smartphone addiction and academic performance. The participants agreed that smartphone should be banned. Moreover, the study also found negative correlation between smartphone addiction and sport activities which lead to unhealthy habit.

Williams and Cendon (2019) in Brazil argued that smartphone was a concerned device that could put people in danger in terms of assault and robbery. In the US, Froese, Carpenter, Inman, Schooley, Barnes, Brecht & Chacon (2012) issued a warning that smartphone was what to blame for the reduction of students score. Hanson, Drumheller, Mallard, McKee and Schlegel (2010) found that students used smartphone in inappropriate ways, not for the learning. Tindell and Bohlander (2014) cautioned that students did not pay attention to the instructors while they were studying. Instead, students wasted their time texting uselessly on their phone.

Przybylski and Weinstein (2012), in his experiment, identified flaws that negatively affected human relationship in terms of closeness, connection and conversation. Kuss and Griffiths (2011) also discovered that smartphone interfered human relationship and decreased actual community participation and academic performance.

The Mixed Impacts of Smartphone in Learning

Other studies reported the negative and positive impacts of smartphones. Keengwe and Bhargava (2014) proclaimed that smartphone enhances student's academic performance but can disturb learning if used inappropriately. Seifert (2015) uncovered a few unrelated findings from his/her study amongst pupils, college students and lecturers. From pupil's perspective, students should be allowed to use smartphone in the class because smartphone promotes students' interest, pleasure, curiosity, diversity, interactivity, access to information and overcome learning difficulties. From college student's perspective, students should be banned from using any smart devices, for they may use them in appropriate ways. From lecturer's perspective, as long as they are not ready to use smartphone because they are not adept at using it, smartphone should not be integrated. According to Sarwar and Soomro (2013), the results of their study revealed that no matter what context smartphone is used, smartphone presents both negativity and positivity. Ariel and Elishar-Malka (2019) surveyed 336 students and 236 lecturers at some large academic institutions in Israel. The results demonstrated two contrasting ideas. While lecturers considered smartphone illegitimate, a high number of students considered smartphone legitimate. Nonetheless, both parties agreed that smartphone enhances their intuition, but during presentation or class discussion smartphone is a real disturbance because it deteriorates attention and coordination. In Brunei, Anshari et al (2017) investigated 355 school students and university students across the country using questionnaires. The results showed that while students find smartphone useful for their study because they can download a lot of necessary materials, lecturers argued that smartphone distracts students from concentrations and dependency, thus leading to poor academic achievement. A study by Wallac, Clark, and White (2012) also discovered mixed impacts of smartphone. They pointed out that while smartphone enhances students' learning and patient care, smartphone causes potential problems; thereby, it is important that policymakers designate strict policies or guidelines to ensure the proper use of this device.

METHODOLOGY

Design and Research Site

The study employed a quantitative research approach using survey design for the study. This approach identifies a trend which can be observed in a population of individuals within a similar situational context (Cresswell, 2012, p. 21).

Sovannaphumi School was chosen as a research site. This school offered General English Program and Khmer General Education from K-1 to K-12. The curriculum was categorized into full-time and part-time. The school ran from Monday to Friday. General English Program was broken down into four terms making up of 12 months – two semesters. There were 28 campuses at the time of the survey. Of those 28, there were 19 campuses in Phnom Penh and 9 campuses in the provinces. All of those were selected as sample sites.

Participants

Three groups of high school students studying General English Program in grade 10, 11 and 12 from full-time and part-time were selected. The total population was 515. This number dropped significantly due to COVID-19 pandemic. Only 200 students were selected among 515.

Sampling Technique

The stratified random sampling was used to select the participants. Students from each grade were selected so that it appropriately represented the whole population. Since the selected sample sizes were 200, the number was calculated based on math formula to get the exact strata from selected campuses (see Table 3.1).

After obtaining the actual number of strata, the fish bowl draw was used to randomly choose the participant. Each element was numbered using separate slips of paper, putting all the slips of papers into a box, and then picked them out one by one without looking until the number of slips selected equaled the sample size (Kumar, 2011, p. 200). To provide equal chance of being selected, the lucky draw was performed by putting back the selected slip of paper to the fish bowl.

Table 3.1 *Procedure of Stratified Random Sampling*

Campus	Level		
	10	11	12
DP	0	71	0
TEP	0	10	9
TP	0	51	0
TAK1	26	15	54
TAK2	0	0	8
WP	0	0	9
PHT	0	0	13
CPV1	6	13	17
TK	0	30	0
PCT1	25	0	0
SMC	11	0	0
BTB	26	0	0
NTS	12	0	0
BB	8	0	0

KPS	0	0	6
POP2	54	27	10
SR1	15	0	0
TOTAL	172	217	126
Grand Total	515		
Actual selected per grade	92	94	73
Expected number of chosen participants per grade (Strata)	67	84	49

* Number of selected participants were highlighted in bold

Data Collection Methods and Instruments

Questionnaires were used in the survey. Due to COVID-19 pandemic, only Google Forms was distributed to the participants. The instruments were adapted from previous studies. In order to obtain authentic and correct responses, both Khmer and English were used in the questionnaires.

Reliability of the Instruments

To ensure the reliability of the instrument, Cronbach's Coefficient Alpha test was used to perform the consistency of each variable. According to Fraenkel, Wallen and Hyun (2012), the Cronbach's Alpha of .00 reveals a total absence of a relationship; therefore, there is no reliability at all; however, a Cronbach's Alpha of 1.00 is considered as the highest possible coefficient. In this sense, a preferable Cronbach's Alpha should be at least .70 or higher so as to obtain the relationship. Furthermore, Pallant (2007) suggested that if the number of items is less than 10, achieving a Cronbach's Alpha of > .50 should be fine.

From Table 4.2, the highest value of Cronbach's Alpha for this study was .839 for "Purposes of using smartphone", followed by "Positive impacts of smartphone" with value of .810. The Cronbach's Alpha for "Negative impacts of smartphone" was .783, "Smartphone and communication, engagement, academic performance, and self-efficacy" was .779, "Use of application" was .759, and "Ensuring the proper use of smartphone" was .710. We can see that the Alpha test value was all greater than .60, thus implying that all variables were reliable and very good for this study.

Table 3.2 *The Summary of Cronbach's Alpha Analysis*

Dimensions	n	Number of questions	Alpha test
Purposes of using smartphone	146	13	.839
Use of application	146	15	.759
Smartphone and communication, engagement, academic performance & self-efficacy	146	30	.779
Positive impacts of smartphone	146	9	.810

Negative impacts of smartphone	146	8	.783
Ensuring the proper use of smartphone	146	10	.710

Data Analysis

Descriptive statistics such as standard deviation, percentage, mean and frequency were used to perform the analysis. To present the findings more visually, table, bar chart, pie chart, and flow chat were also utilized so as to provide clearer messages to the readers. Moreover, in order to accelerate the process of data analysis, the data from Google Forms was downloaded in the form of Microsoft Excel 2010. It was checked for errors and then transferred from Microsoft Excel to SPSS version 20 for analysis.

The content analysis using themes were also performed for qualitative responses obtaining from further comments’ part at the end of the questionnaire. The frequency table, therefore, was constructed to display the data.

RESULTS

Smartphone and Communication

Smartphone plays a significant part in communication for human, but its roles on communication in education in Cambodia have rarely been discussed. To examine whether the use of smartphone for communication has any effects on students’ English language learning, six items that inquired into their perceptions were employed. One item was reverse-coded “With smartphone, I spend a lot of time, chatting with my friends”.

Table 4.1 displays the number of items used to investigate students’ perceptions, mean, standard deviation and percentage. There was no missing data for these items (N=146). Most items revealed that the mean was slightly above 3.0 whereas standard deviation was from .5 to .6. This illustrated that the majority of the participants agreed with the statements for the roles of smartphone on communication in their English language learning. As can be observed, more than 90% agreed that with smartphone they could text each other online using English, discussed assignment, got feedback quickly from teachers, and interacted with others using multiple tools. Moreover, 80.1% also agreed that with smartphone they could easily have a longer conversation with others. However, 76.7% disagreed that with smartphone they did not spend much time chatting with their friends (reverse-coded).

Table 4.1 Mean, Standard Deviation and Percentage for Students' Perceptions of Smartphone on Communication (n=146)

Item	M	SD	Response Distribution %	
			D	A
I use English as a medium of communication while chatting online.	3.16	.512	4.8	95.2
With smartphone, I spend a lot of time, chatting with my friends. *	2.10	.640	76.7	23.3
With smartphone, I can discuss the assignment with my classmates.	3.34	.554	2.7	97.3
With a smartphone, I can get feedback quickly from teachers.	3.14	.575	8.9	91.1
With a smartphone, I can interact with others using multiple tools.	3.25	.533	3.4	96.6
With a smartphone, I can easily have a longer conversation with others.	2.95	.608	19.9	80.1
Total:	3.00	0.57	19.4	80.6

*Reverse-coded

Smartphone and Engagement

Engagement is one of the factors keeping the lesson going smoothly. Students were asked to report their opinions. The results (Table 4.2) obtained from the participants shows 76%, the highest percentage, along with mean of 2.83 and standard deviation of .555 agreed that smartphone made them proud of learning. In the same vain, 73.3% said that smartphone made them actively involved in learning ($M=2.82$, $SD= .587$), and 66.4% ($M=2.71$, $SD=.598$) said they were more engaged in a group discussion when they were with smartphone. More significantly, 61.6% never missed the class when they used smartphone. 58.2% - the same percentage obtained from two variables - also revealed that they felt motivated to learn when they got up and never got bored with smartphone while 41.8% did not agree with this. However, when asked if they paid attention to teachers' explanation when they were with smartphone, 69.6% said that they did not.

Table 4.2 Mean, Standard Deviation and Percentage for Students' Perceptions of Smartphone on engagement (n=146)

Item	M	SD	Response Distribution %	
			D	A
When using a smartphone in learning, I never miss the class.	2.67	.666	38.4	61.6
With a smartphone, I am more engaged in a group discussion.	2.71	.598	33.6	66.4

When I get up in the morning, I feel like going to learning.	2.62	.687	41.8	58.2
With a smartphone, I never get bored.	2.70	.800	41.8	58.2
I am proud of the learning work that I do using smartphone.	2.83	.555	24	76
With a smartphone, I get actively involved in my learning.	2.82	.587	26.7	73.3
With a smartphone, I pay much attention to teacher's explanation.	2.11	.789	69.9	30.1
Total:	2.63	0.66	39.46	60.54

Smartphone and Academic Performance

To explore the roles of smartphone on students' academic performance, eight items were used. The first four items in the Table 4.3 were negative, so reverse-coding were performed to maintain consistency in the scale.

The highest mean score was 2.97 accounted 87.7% of the respondents who agreed that smartphone made them easier to complete their coursework. The second most agreed item (78.8%) was "Using a smartphone increases my course work productivity" ($M=2.84, SD=.521$). Additionally, 75.3% agreed that with smartphone their performance was improved, and 72.6% reported that using a smartphone gave them greater control over their studies. For the reverse-coded items, 70.5% believed that smartphone helped them study more efficiently; smartphone did not make them lazy (67.1%); smartphone were not the main cause of their poor academic performance in the exams (61.0%); smartphone provided a better plan for their learning (59.6%).

Table 4.3 Mean, Standard Deviation and Percentage for Students' Perceptions of Smartphone on academic performance (n=146)

Item	M	SD	Response Distribution %	
			D	A
With a smartphone, I am lazy to do homework. *	2.76	.668	32.9	67.1
Smartphones are the main cause of my poor performance in the exams. *	2.71	.742	39.0	61.0
I never have a better plan for my learning when I use smartphone. *	2.66	.625	40.1	59.6
Using a smartphone does not help me to study more efficiently. *	2.86	.733	29.5	70.5
Using a smartphone improves my performance in studying.	2.77	.573	24.7	75.3
Using a smartphone increases my course work productivity.	2.84	.521	21.2	78.8
Using a smartphone makes it easier to complete my course work.	2.97	.498	12.3	87.7
Using a smartphone gives me greater control over my studies.	2.82	.607	27.4	72.6
Total:	2.8	0.545	28.38	71.575

*Reverse coded

Smartphone and Self-Efficacy

Table 4.4 gives the information about students' perceptions of smartphone towards self-efficacy. As can be seen, "With a smartphone, I can access lots of information" obtained the highest mean ($M=3.17$; $SD=.517$) although the obtained percentage was 95.2% compared to the last item "With a smartphone, I can share course-related information with friends", which received the highest percentage of all (97.3%). This indicates that most participants chose strongly agree on item four. Likewise, whereas "With a smartphone, I can watch course-related video files" obtained 94.5%, the item "With a smartphone, I can record many lessons" obtained only 91.1%. The mean of both items, nonetheless, was not symmetrical in a sense that the mean of item 6 ($M=3.16$) outnumbered the mean of item 7 ($M=3.12$). Furthermore, there were only 7.5% disagreed with the item one "With a smartphone, I can submit assignments" ($M=3.08$; $SD=.526$) whereas 6.2% disagreed with item eight "With a smartphone, I can listen to course-related audio files" ($M=3.08$, $SD=.471$). 81.5% of the participants agreed that with smartphone they could register for courses and managed files. For item 3 "Smartphone allows me to work on presentations smoothly", only 52.7% agreed that smartphone allowed them to work on presentation smoothly. Overall, most items attained higher percentage towards agreement.

Table 4.4 Mean, Standard Deviation and Percentage for Students' Perceptions of Smartphone on self-efficacy ($n=146$)

Item	M	SD	Response Distribution %	
			D	A
With a smartphone, I can submit assignments.	3.08	.526	7.5	92.5
With a smartphone, I can register for courses.	2.90	.508	18.5	81.5
Smartphone allows me to work on presentations smoothly.	2.58	.759	47.3	52.7
With a smartphone, I can access lots of information.	3.17	.517	4.8	95.2
Smartphone enables me to manage files.	2.90	.591	18.5	81.5
With a smartphone, I can record many lessons.	3.16	.564	8.9	91.1
With a smartphone, I can watch course-related video files.	3.12	.497	5.5	94.5
With a smartphone, I can listen to course-related audio files.	3.08	.471	6.2	93.8
With a smartphone, I can share course-related information with friends.	3.14	.455	2.7	97.3
Total:	3.01	0.543	13.32	86.67

Figure 4.1 illustrates the variation in mean between communication, engagement, performance and self-efficacy. The highest mean was in self-efficacy, which comprised 3.01, accompanied by mean of communication, which

comprised 3.00. The third highest mean was performance ($M=2.8$), while engagement obtained the lowest mean of 2.63.

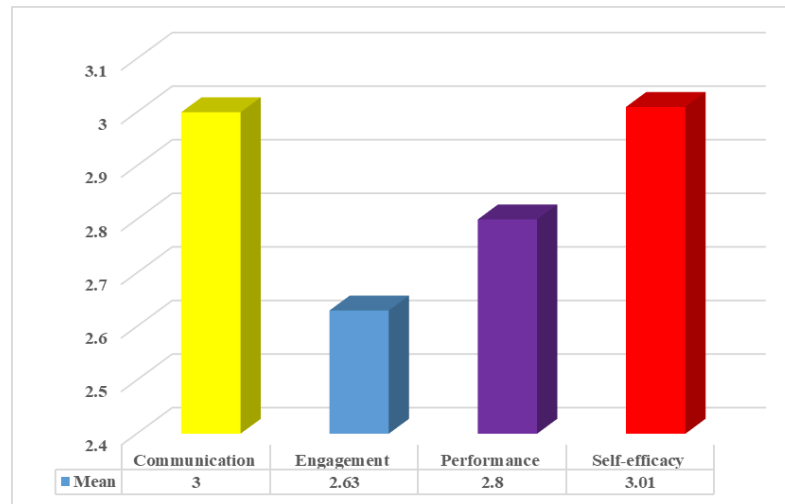


Figure 4.1 Comparison between Mean of Communication, Engagement, Performance, and Self-Efficacy

Positive Impacts of Smartphone

Numerous studies show that smartphones positively impact students’ academic journey. To explore whether this is true for Cambodian context, nine items were employed to measure students’ perceptions on the positive impacts of smartphone. Table 4.5 shows mean and standard deviation from the survey of 146 respondents. The highest mean above 3.0 was seen on items 2, 3, 7, 8, and 9 justifying that “smartphone widens the scope of learning activities; smartphone provides texting as a substitute for chatter; smartphone helps improve my language learning; and, smartphone is important for communication; smartphone gives access to information instantly during study” had impacts between moderate and big. Items 1, 4, 5, and 6, by the way, revealed mean slightly less than the aforementioned items meaning that students placed smartphone between small and moderate impacts in terms of maintaining concentration, providing visual presentation, maintaining an atmosphere of learning, and summarizing lessons.

Table 4.5 Summary of Mean and Standard Deviation on Positive Impact of Smartphone

Item	<i>n</i>	<i>M</i>	<i>SD</i>
1. Smartphone helps maintain my concentration and attention.	146	2.62	0.798
2. Smartphone widens the scope of learning activities.	146	3.01	0.928
3. Smartphone provides texting as a substitute for chatter.	146	3.44	1.003
4. Smartphone provides visual presentations.	146	2.87	1.052
5. Smartphone maintains an atmosphere of learning.	146	2.65	1.041
6. Smartphone allows me to take notes/summarize lesson content easily.	146	2.65	1.041
7. Smartphone helps improve my language learning.	146	3.47	1.058
8. Smartphone is important for communication.	146	3.71	1.126

9. Smartphone gives access to information instantly during study.	146	3.75	1.111
Total	146	3.13	1.017

Negative Impacts of Smartphone

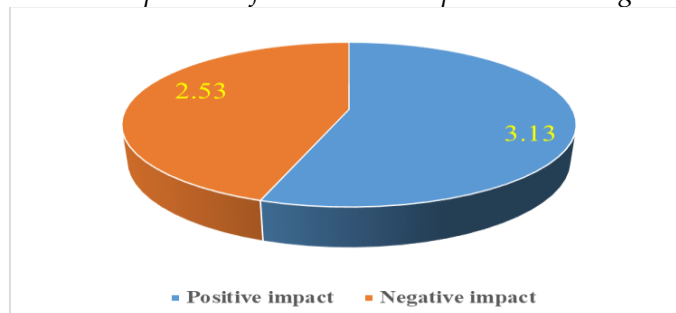
In addition to positive impacts of smartphone, the negative impacts were investigated. Eight items adapted from Ifeanyi and Chukwuere (2018) were used to weigh students' perceptions. Table 4.6 shows that the mean of most items (items 2, 4, 5, 6, & 7) was lower than 3.0 whereas only 2 items (items 1 and 3) had mean higher than 3.0. The chances of being less productive in studies and disturbed by the smartphone were around 1-2 times per month which was considered low.

Table 4.6 Summary of Mean and Standard Deviation on Negative Impact of Smartphone

Item	<i>n</i>	<i>M</i>	<i>SD</i>
1. How often do smartphones distract your learning in general?	146	3.51	1.314
2. How often do you receive calls on your smartphone in class?	146	2.34	1.216
3. How often do you receive text messages on your smartphone while in class?	146	3.13	1.674
4. Do you often engage in replying to text messages on your smartphone while in class?	146	2.4	1.478
5. How often does your smartphone ring and end up disturbing the class?	146	2.01	1.171
6. Do you always take pictures with your smartphone while lessons are going on?	146	2.01	1.171
7. Does your use of smartphones make you do less schoolwork?	146	2.2	1.184
8. Does your smartphone deprive you from getting enough sleep?	146	2.72	1.664
Total:	146	2.54	1.359

The pie chart compares the mean of positive impacts and negative impacts. As shown, the mean of positive impact ($M=3.13$) was higher than the mean of negative impact ($M=2.53$). As reported in the introduction part of this section, the scale of positive impact ranged from 1 to 5 whereas the scale of negative impact ranged from 1 to 6; hence, it is concluded that there was a significant variation between these two impacts.

Figure 4.2 The comparison of mean between positive and negative impacts



Maintaining the Proper use of Smartphone

Table 4.7 demonstrates the mean, standard deviation, and percentage obtained from the survey of 146 participants. Two items obtained the highest percentages with more than 90%, and the mean was more than 3.0. In these items, students agreed that it was useful to download applications to help them learn grammar, vocabulary, reading, writing, listening and speaking faster and listen to English language teaching audios/podcasts on their smartphone. Item 3 received the lowest percentage (56%) of usefulness where 43.2% of the participants did not consider turning on airplane mode to prevent them from distraction as needed or useful.

Table 4.7 Mean, Standard Deviation and Percentage of Ensuring the Proper Use of Smartphone (N=146)

Item	M	SD	Response Distribution %	
			NU	U
1. I download applications to help me learn grammar, vocabulary, reading, writing, listening & speaking faster.	3.19	0.657	8.2	91.8
2. I put aside my smartphone when the lesson is going on.	2.86	0.711	23.3	76.7
3. I turn on airplane mode to prevent me from distraction when I am studying.	2.6	0.958	43.2	56.8
4. I turn on silent mode when I go to bed.	2.79	0.862	32.9	67.1
5. I schedule alarm to help remind me of learning sessions.	3.09	0.723	16.4	83.6
6. I set up the policy of using smartphone.	2.88	0.738	19.9	80.1
7. I do not spend much time playing game.	2.91	0.778	19.1	80.1
8. I listen to English language teaching audios/podcasts on my smartphone.	3.13	0.613	8.9	91.1
9. I delete any apps which are not useful for my studies.	2.94	0.717	24.7	75.3
10. I use smartphone camera to film myself practicing speaking English rather than take unnecessary photos.	2.78	0.818	30.1	69.9
Total:	2.91	0.757	22.67	77.33

Students' Attitude to Wards Smartphone in Education

This is an additional section where the participants were asked to report their opinions on the use of smartphone in education using adjectives. Eight adjectives were grouped into positive and negative. The positive adjectives were brilliant, essential, helpful, innovative, and simple. The negative adjectives were terrible, distracting, and unnecessary. The results shown in table 4.8 reported that the number of checked items on positive adjectives were higher than the number of checked items on negative adjectives. The highest percentage of checked items was with the adjective "helpful", which accounted 70.5% (n=103), followed by the adjective "simple" (50.7%), "essential" (22.6%) and "brilliant" (19.2%). The adjective innovative obtained the lowest percentage (17.1%). In contrast, 17% (n=25), the highest percentage in negative group, of the participants considered smartphone as distracting. "Terrible" and "unnecessary" obtained lower percentage.

Table 4.8 *Summary of Checked Adjectives*

Variable	<i>n</i>	%
Positive		
Brilliant	28	19.2
Essential	33	22.6
Helpful	103	70.5
Innovative	25	17.1
Simple	74	50.7
Negative		
Terrible	5	3.4
Distracting	25	17.1
Unnecessary	3	2.1

DISCUSSION

Students' Perceptions

The study inquired into the relationship of the variables of communication, engagement, academic performance and self-efficacy. The investigation has not been conducted in Cambodian context so far. Therefore, it strengthened the credibility of this study.

Communication: The combined mean of communication was high ($M=3:00$, $SD=0.57$). The number of participants agreed with the statement was 80.6%, thereby indicating that smartphone was mainly used for communication, such as discussing assignment with classmates, chatting with friends online, and getting feedback from teachers. This finding agrees with Wallace et al. (2012), who discovered that more than 80% of the participants used their smartphone to communicate with their peers, teachers, and members of their community. The finding also agrees with Barati and Zolhavarieh (2012), who found that with smartphone the communication between teachers and students improved because it motivates students who are shy to talk to their instructor openly than they would in class. This is true because some students do not enjoy talking face-to-face with their teachers or classmates. Kim et al. (2013) reported that the more students use smartphone for communication, the more students attain higher learning outcomes because communication via mobile device increases students' extrinsic motivation to learn. The highest mean score of all variables of communication was in item three which stated that "with smartphone, I can discuss the assignment with my classmates". This statement complies with Kim et al (2013) because it is true that the more students discuss assignment with their classmates, the more they perform better. However, Kim et al (2013) questioned that how come one can make communication possible without internet access? So, the possibility to scrutinize another aspect of smartphone requires. Besides, the study was also in agreement with Robinson et al. (2013), who reported that 90% of the participants believed that smartphone was either useful or very useful for communication at school.

Engagement: This study reports the higher score of combined mean of engagement ($M=2.63$). The number of participants who disagreed with the statement was 39.46% whereas 60.54% agreed with the statement. Thus, it is rather difficult to conclude whether smartphone impacts students on

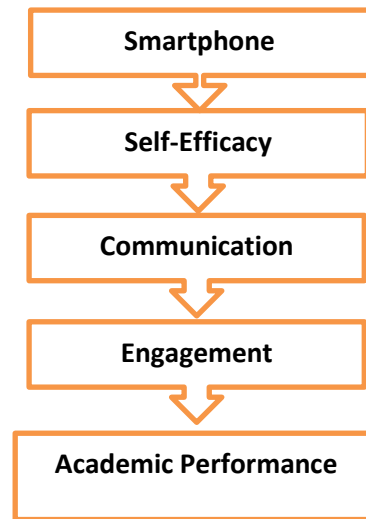
engagement in English learning. The study by Anshari et al (2017) found advantages of smartphone used in classroom because it allows teachers to access teaching materials but argued that improper use of smartphone leads to distraction, and students depend too much on smartphone, lose quality of face-to-face interaction and lack hands-on skills. Similar findings are found in this study. For Tao et al (2018), smartphones effectively influence student engagement. They recommend teachers should incorporate smartphones in classroom to enhance students' learning.

Academic performance: multiple studies found positive impacts of smartphone on academic performance (Baleghizadeh & Oladrostam, 2010; Zhao et al, 2018; Hawi & Samaha, 2016; Sormunen et al, 2019; Thomas & Munoz, 2016; Cochran, 2010; Woodcock, Middleton & Nortcliffe, 2012). In this study, 72% of the participants reported that with smartphone they performed better whereas 28% did not ($M=2.8$, $SD=0.54$). Nonetheless, the tendency is small ($M=2.8$) compared to previous studies. This study also does not agree with Han and Yi (2018), who found that the higher level of communication, the higher level of performance. For this study, despite the level of communication, the level of academic performance shows small tendency towards positivity.

Self-efficacy: according to Bandura (2010), self-efficacy is the belief in an ability to succeed in something. This belief is important to motivate people to accomplish their tasks successfully and effectively. The study indicates the high level of self-efficacy among the students with a combined mean of 3.01. Given this we infer that a majority of students were very confident in their ability in using smartphone. Han and Yi (2018) found a relationship between smartphone self-efficacy and behavioural intention to use smartphone. They claimed that this relationship influenced academic performance. In this study, it is found that smartphone self-efficacy influences student academic performance but only to some extents because the tendency towards positivity is rather weak compared to the past studies.

Amongst the four variables, self-efficacy obtains the highest mean score, which indicates that students have strong belief in their ability to perform smartphone. The combined mean of other variable also shows more positivity than negativity although it is slightly low. Given this we can assume that smartphone self-efficacy may influence communication. A good communication between students and teachers then leads to an engagement but only at a certain level. And, this engagement perhaps further influences academic performance (See flow chart in figure 5.1). This does not mean smartphone strongly impacts academic performance, but there are at least some associations. Therefore, further research is required to investigate teachers' perspectives.

Figure 5.1 *The association between Smartphone and Self-Efficacy, Communication, Engagement and Academic Performance*



Impacts of Smartphone

Positive impact: with a combined mean of 3.13, the study indicates moderate impacts on students' learning. The three most impacts are giving access to information instantly, communicating, and improving language learning. The findings agree with Tao et al (2018), Zhao et al (2018), Barr (2011), Baleghizadeh and Oladrostam (2010), Alzubi and Singh (2019), Hawi and Samaha (2016), Payne et al (2012), Sormunen et al (2019), Thomas and Munoz (2016), Shaw and Tan (2015), Tran et al (2014), Cochrane (2010), Woodcock et al (2012), Nalliveettil and Alenazi (2016), Han and Yi (2018), Robinson et al. (2013), Rahamat et al. (2017), Kim et al. (2013) and Barati and Zolhavarieh (2012). Though present finding indicates similar results to previous studies, it may not be enough to support the claim because the impacts are moderate. Hence, the negative impacts are discussed.

Negative impact: the study highlighted low negative impacts. The mean score is 2.54, which is considered low compared to the score obtained in positive impact. Therefore, it does not correspond to the past studies by Lee et al (2015), Hwang et al (2012), Baah (2018), Mtega (2012), Alhasanat (2020), Azizifara and Gowharya (2015), Chaudhry and Tripath (2018), Williams and Cendon (2019), Froese et al (2012), Hanson et al (2010), Tindell and Bohlander (2014), Przybylski and Weinstein (2012), and Kuss and Griffiths (2011), Ifeanyi and Chukwuere (2018) and Bagci and Pekson (2018). Their findings demonstrated negative threats of smartphones to students' learning. However, a majority of students tend to agree on smartphone distraction on learning.

Although students rated smartphone as a distraction in one variable, the evidence clearly reveals positive impacts over negative impacts. To further support this, items were constructed to allowed students to check on negative or positive adjectives that best fit their belief towards smartphone usage. The results showed more students placed a check mark on positive adjectives more than negative adjectives. They agreed that smartphone is helpful, essential, brilliant,

and innovative. However, half of them thought that smartphone is simple, so they stayed neutral.

The answers obtained from open-ended comment elaborate and support the findings. A high proportion of students wrote that smartphone was useful, important, and innovative for studies. This is compatible with the findings discovered by Robinson et al. (2013). Others reported that smartphone is both advantageous and disadvantageous. While it entertains students to access information when they get bored, smartphone threatens students when they spend more time using it. This finding complies with Keengwe and Bhargava (2014), Seifert (2015), Sarwar and Soomro (2013), Ariel and Elishar-Malka (2019), and Anshari et al (2017). In addition, a few students believe that smartphone causes addition and affects behavior, health, and attention.

Although there are drawbacks, the impacts are more positive than negative. Thus, it is assumed that smartphone positively impacts students' learning but at a certain degree.

Ensuring the Proper use of Smartphone

To find out if smartphone facilitates learning, students were asked to report their perceptions. They raised three important solutions. First, students should download applications to learn and improve grammar, vocabulary, reading, writing, listening and speaking. Second, students should listen to audio/podcast in English to improve their listening. Third, students should set alarm to help remind them of the learning session.

It is also important that students delete any apps that are not useful for their studies, do not spend much time playing games, set up a policy to use smartphone, put aside smartphone when the lesson is going on, turn on silent mode when going to bed, and use smartphone camera to film themselves practicing speaking English than to take unnecessary photos.

CONCLUSIONS AND RECOMMENDATIONS

Out of the four variables, all mean scores are more positive than negative. However, self-efficacy and communication indicate higher mean score than the mean score of engagement and academic performance. The results also show that the mean score of engagement and academic performance do not show very strong tendency towards positivity. The study, therefore, tends to rather contrast with the previous findings who found that the higher the self-efficacy, the higher the performance. However, the results are acceptable because the participants who agreed on the positive outnumber the negative. Hence, smartphone self-efficacy perhaps influences communication. Communication may influence engagement. Engagement influences students' language learning.

Furthermore, the mean score of positive impacts is greater than the mean score of negative impacts, but the positive impact is moderate. Students believe that smartphone is useful because it enables them to access information, communicate, improve language learning, widen the scope of learning activities, and provide texting as a substitute for chatter.

The study recommends students:

- download applications to help them learn grammar, vocabulary, reading, writing, listening and speaking faster.

- put aside smartphone when the lesson is going on.
- turn on silent mode when going to bed.
- schedule alarm to help remind them of learning sessions.
- set up a policy to use smartphone.
- do not spend much time playing games.
- listen to English language teaching audios/podcasts on their smartphone.
- delete apps that unnecessary for their studies.
- use smartphone camera to film themselves practicing English than to take useless photos.

FURTHER STUDY

Every research certainly has limitations. Limitations in the sense of research limitations that influence the researcher's ability to explore the data being studied, limited data available, or external research factors such as limited time and resources. So further research is needed to complete this research.

REFERENCES

- Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017).
- Smartphones usage in the classrooms: Learning aid or interference?. *Education and Information Technologies*, 22(6), 3063-3079.
- Alzubi, A. A. F., & Singh, M. K. A. (2019). Investigating Reading Learning Strategies through Smartphones on Saudi Learners' Psychological Autonomy in Reading Context. *International Journal of Instruction*, 12(2), 99-114.
- Alhasanah, I. K. (2020). Using Smartphones in Learning Arabic by AOU Students. *Higher Education Studies*, 10(1).
- Ariel, Y., & Elishar-Malka, V. (2018). Learning in the smartphone era: Viewpoints and perceptions on both sides of the lectern. *Education and Information Technologies*, 24(4), 2329-2340.
- Azizifara, M. G. A., & Gowharya, H. (2015). The effect of smartphone on the reading comprehension proficiency of Iranian EFL learners. *Procedia-Social and Behavioral Sciences*, 199, 225-230.
- Bagci, H., & Peksen, M. F. (2018). Investigating the Smart Phone Addictions of Vocational School Students from Different Variables. *Malaysian Online Journal of Educational Technology*, 6(4), 40-52.
- Baleghizadeh, S., & Oladrostam, E. (2010). The effect of mobile assisted language learning(MALL) on grammatical accuracy of EFL students. *Mextesol Journal*, 34(2), 1-10.
- Baah, K. (20118). Integration of smart phones in teaching and learning in second cycle educational institutions. *International Journal of Advances in Scientific Research and Engineering*, 4(2), 65-73.
- Bandura, A. (2010). Self-efficacy. *The Corsini encyclopedia of psychology*, 1-3.

- Barati, M., & Zolhavarieh, S. (2012). Mobile learning and multi mobile service in higher education. *International Journal of Information and Education Technology*, 2(4), 297.
- Barrs, K. (2011). Mobility in learning: The feasibility of encouraging language learning on smartphones. *Reading*, 228-233.
- Bax, S. (2012). Normalisation Revisited: The Effective Use of Technology. *Medical Applications of Intelligent Data Analysis: Research Advancements: Research Advancements*, 35.
- Chaudhury, P., & Tripathy, H. K. (2018). A study on impact of smartphone addiction on academic performance. *International Journal of Engineering & Technology*, 7(2.6), 50-53.
- Chatterjee, S. (2014). A sociological outlook of mobile phone use in society. *International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS)*, 4(1), 59-63.
- Clabaugh, G. K. (2010). The educational theory of Lev Vygotsky: A multi-dimensional analysis. *New Foundations*, 1-18.
- Chick, R. C., Clifton, G. T., Peace, K. M., Propper, B. W., Hale, D. F., Alseidi, A. A., & Vreeland, T. J. (2020). Using technology to maintain the education of residents during the COVID-19 pandemic. *Journal of Surgical Education*.
- Cochrane, T. D. (2010). Beyond the Yellow Brick Road: mobile Web 2.0 informing a new institutional e-learning strategy. *Australasian Journal of Educational Technology*, 26(8).
- Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluation qualitative and quantitative research. *Boston: Person Educational, inc.*
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (Vol. 7). New York: McGraw-Hill.
- Froese, A. D., Carpenter, C. N., Inman, D. A., Schooley, J. R., Barnes, R. B., Brecht, P. W., & Chacon, J. D. (2012). Effects of classroom cell phone use on expected and actual learning. *College Student Journal*, 46(2), 323-332.
- Gao, P. P., Nagel, A., & Biedermann, H. (2019). Categorization of Educational Technologies as Related to Pedagogical Practices. In *Pedagogy and Pedagogical Challenges*. IntechOpen.
- Han, S., & Yi, Y. J. (2018). How does the smartphone usage of college students affect academic performance?. *Journal of Computer Assisted Learning*, 35(1), 13-22.
- Hanson, T. L., Drumheller, K., Mallard, J., McKee, C., & Schlegel, P. (2010). Cell phones, text messaging, and Facebook: Competing time demands of today's college students. *College teaching*, 59(1), 23-30.
- Hawi, N. S., & Samaha, M. (2016). To excel or not to excel: Strong evidence on the adverse effect of smartphone addiction on academic performance. *Computers & Education*, 98, 81-89.
- Hwang, K. H., Yoo, Y. S., & Cho, O. H. (2012). Smartphone overuse and upper extremity pain, anxiety, depression, and interpersonal relationships among college students. *The Journal of the Korea Contents Association*, 12(10), 365-375.

- Ifeanyi, I. P., & Chukwuere, J. E. (2018). The impact of using smartphones on the academic performance of undergraduate students. *Knowledge Management & E-Learning*, 10(3), 290-308.
- Johnson, K. E. (2009). *Second language teacher education: A sociocultural perspective*. Routledge.
- Joo, J., & Sang, Y. (2013). Exploring Koreans' smartphone usage: An integrated model of the technology acceptance model and uses and gratifications theory. *Computers in Human Behavior*, 29(6), 2512-2518.
- Kanthawongs, P., Jabutay, F. A., Upalanala, R., & Kanthawongs, P. (2016). An Empirical Study on the Impact of Self-Regulation and Compulsivity towards Smartphone Addiction of University Students. *International Association for Development of the Information Society*.
- Keengwe, J., & Bhargava, M. (2014). Mobile learning and integration of mobile technologies in education. *Education and Information Technologies*, 19(4), 737-746.
- Kim, D., Rueckert, D., Kim, D. J., & Seo, D. (2013). Students' perceptions and experiences of mobile learning. *Language Learning & Technology*, 17(3), 52-73.
- Kumar, R. (2005). *Research Methodology-A Step-by-Step Guide for Beginners* Singapore.
- Kuss, D. J., & Griffiths, M. D. (2011). Online social networking and addiction – a review of the psychological literature. *International journal of environmental research and public health*, 8(9), 3528-3552.
- Lee, J., Cho, B., Kim, Y., & Noh, J. (2015). Smartphone addiction in university students and its implication for learning. In *Emerging issues in smart learning* (pp. 297-305). Springer, Berlin, Heidelberg.
- Mtega, W. P., Bernard, R., Msungu, A. C., & Sanare, R. (2012). Using mobile phones for teaching and learning purposes in higher learning institutions: The case of Sokoine University of Agriculture in Tanzania.
- Nalliveetil, G. M., & Alenazi, T. H. K. (2016). The impact of mobile phones on English language learning: Perceptions of EFL undergraduates. *Journal of Language Teaching and Research*, 7(2), 264-272.
- Pallant, J. (2007). *A step by step guide to data analysis using SPSS for windows*.
- Payne, K. F. B., Wharrad, H., & Watts, K. (2012). Smartphone and medical related App use among medical students and junior doctors in the United Kingdom (UK): a regional survey. *BMC medical informatics and decision making*, 12(1), 121.
- Phong, K., & Solá, J. (2015). Mobile phones and Internet in Cambodia 2015. *Development Innovations*, November, 126.
- Przybylski, A. K., & Weinstein, N. (2013). Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality. *Journal of Social and Personal Relationships*, 30(3), 237-246.
- Rahamat, R. B., Shah, P. M., Din, R. B., & Abd Aziz, J. B. (2017). Students' readiness and Perceptions Towards Using Mobile Technologies for

- Learning the English Language Literature Component. *The English Teacher*, 16.
- Reid, A. J. (2018). A brief history of the smartphone. In *The Smartphone Paradox* (pp. 35-66).
- Palgrave Macmillan, Cham. Robinson, T., Cronin, T., Ibrahim, H., Jinks, M., Molitor, T., Newman, J., & Shapiro, J. (2013). Smartphone use and acceptability among clinical medical students: a questionnaire-based study. *Journal of medical systems*, 37(3), 9936.
- Rosenthal, J. W. (2013). *Handbook of undergraduate second language education*. Routledge.
- Rüschhoff, B., & Ritter, M. (2001). Technology-enhanced language learning: Construction of knowledge and template-based learning in the foreign language classroom. *Computer Assisted Language Learning*, 14(3-4), 219-232.
- Sarwar, M., & Soomro, T. R. (2013). Impact of smartphone's on society. *European journal of scientific research*, 98(2), 216-226.