SMARTPHONES IN ESL CLASSROOM: IS IT WORTH THE RISKS?

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ABSTRACT

With the improvements in mobile technologies, smartphones have shifted from devices of mere verbal or text communication to ones that have access to a wealth of information and resources from around the globe with just a touch of the user's fingertips. The goal of this study is to investigate how integrating smartphones into an English as a Second Language (ESL) setting enhances diploma students' use of smartphones in the classroom, engagement with the lesson, and understanding of the content. Rather than viewing smartphones as disruption or distraction of students' learning in the classroom, this study aims to understand how smartphones can serve as tools for increasing students' learning and promoting higher levels of engagement among students. Furthermore, this study utilized a pre and-post test design, design-based research to understand and determine the effectiveness of smartphones as a learning instructional tool in the classroom as tools for engagement and student learning. The results of this study provide teachers' knowledge about how cell phones can support students' learning in the classroom.

Keywords: Smartphones, Mobile Learning, ESL/ELT

1.0 INTRODUCTION

Distractions have always been a part of learning. From passing notes around class to whispering to the person next to them, it has always been a challenge for instructors to keep students on task and focused on the work. However, in the age of digital technology, attention spans are getting shorter and the distractions available on mobile devices (social media, games, streaming music and video) are more enticing that these devices can fit in the palm of your hand makes them even more available.

Since smartphones and other handheld devices stormed their way onto the market, there have been completely opposed opinions as to whether they should or should not be used in the classroom. Does having these devices in an ESL teaching environment, increase distraction or enhance discovery? Perhaps the question "Should smartphones be allowed in classrooms?" and "What are the ways these devices can be used to improve the learning experience for ESL students and increase their success?"

The traditional view of in-class mobile use causes a distraction to the student using the device, to those around them who are disturbed by the flickering screen, and to the lecturer, who loses personal interaction with the student who is focused on something else. Some institutions take the view that the disadvantages outweigh any positives, and have put either a partial or a total ban on mobile devices being used during teaching. This may solve the immediate problem, but it also eliminates the ability to engage with students on a platform that they are familiar with and which is with them wherever they go. Therefore, with advances in educational technology and an increase in their accessibility and use, teachers have the continuous need to be on the forefront of academic advances.

1.1 SIGNIFICANCE OF THE STUDY

Since smartphones entered into mainstream use, they have often been overlooked as tools of classroom instruction. While the rules in educational institutions have tightened to restrict smartphone use in academic settings, smartphones have gained in popularity, accessibility and function. Technology tools have become available for student use in the classroom and while many are successful, no technological tool has been quite as successful at integrating into a student's everyday life as the smartphone. This study contributes to our understanding on how utilizing smartphones as instructional tools in the ESL classroom impacts student engagement and learning by implementing a lesson plan where a smartphone is used to support students' learning. This study explores not only how students' learning may change over the course of the lesson, but also assesses students' perceptions of smartphone use in the classroom. The results of this study provide teachers' knowledge about how smartphones can support students' learning in the ESL classroom.

2.0 REVIEW OF LITERATURE

With the increased use of smartphones, students are becoming progressively distracted and their attention is being diverted from the course content during class time (Kuznekoff & Titsworth, 2013). These distractions and disruptions are occurring even with classroom and electronic device policies in place in the classroom and school level (Obringer & Coffey, 2007, St. Gerard, 2006). It has been shown that as a disruptive device, smartphones can decrease student performance (Baker et. al, 2012, Kuznekoff and Titsworth, 2013). However, teachers and students alike have also reported an increase in student engagement and motivation when smartphones were integrated into the classroom as educational tools (Thomas, O'Bannon and Bolton, 2013, Pursell, 2009).

Students are requesting an increase in lessons that tap into mobile technologies, not so they can become distracted, but so that they may have more experience with technologies seen in the real world and so desegregation takes place between their academic and personal lives with the "anytime, anywhere" qualities smartphones bring to a student's learning (Houser, Thorton, & Kluge, 2002, Kolb, 2011). The view that smartphones are merely a social, communicative device is shifting to one that these devices are pocket sized computers that promote the development of communicative and collaborative skills that mirror what is

seen in the 21st century (Shuler, 2009). Students around the world are utilizing these devices toward their learning of English and math as well as accessing course information on the go (Prensky, 2005). In today's modern classroom the discussion is shifting away from the question of "Can smartphones be used as instructional tools in the classroom" to how it can be beneficial in the ESL classrooms?

2.1 THE CHALLENGES OF MOBILE DEVICE USE DISTRACTIONS TO STUDENT LEARNING

Smartphones can offer an abundance of beneficial tools, as many educators and administrators today still believe they serve a great distraction to the students operating them. Within a single mobile device, students have access to social media, the web, games as well as email and messaging. In a classroom setting, accessing any of these tools when not directed can lead to a distraction in their learning and a disruption in their content knowledge. Recent statistics demonstrate that students have increased the amount they text from 60 texts a day to 100 per day. Furthermore, students have admitted to sending text messages during class, regardless of the smartphone limitations their classrooms may hold (Kuznekoff & Titsworth, 2013). While many may argue that students texting is more than likely higher than these statistics show, what these numbers do shed light on is that smartphone usage is on the rise and at risk of being a distraction to their studies.

An increase in student texting during class time not only means that their attention is not focused on the content they are to be learned, but further increases their opportunity for cheating during assessments. This division in their attention can significantly impact their learning. With their attention drawn elsewhere, the information they are gathering may often be incomplete or inaccurate. This can then lead to the long-term memory storage of incomplete and inaccurate information (Kuznekoff & Titsworth, 2013). Ultimately, their divided attention can impact their performance not only in the class they are enrolled, but subsequent classes that build on that knowledge. During testing, students may be tempted to cheat by texting during assessments or taking pictures of certain test questions (Pursell, 2009). With the ease and accessibility of smartphones, the opportunity to cheat is a valid concern of most educators. Many have, in fact, developed protocols of smartphones or bag placement in a class while a test is being taken.

2.2 THEORETICAL FRAMEWORK

Collaborative Learning Theory and Interactionist Approach are the theories that have something in common with smartphones in the learning field. All of these theories provide learners with an appropriate learning environment that should be provided with the important elements of successful learning and teaching processes such as interaction, motivation, cooperation and enthusiasm.

2.2.1 COLLABORATIVE LEARNING THEORY

The theory underlines using smartphones in the reading comprehension classroom is Collaborative Learning Theory. This theory emphasizes the group interaction. The essential element, which contributes to the successful collaboration, is shared among people (Fageeh, 2011). According to this theory, the role of the teacher becomes a facilitator rather than a leader of the class. The learners should work collaboratively to achieve the goal of the learning process. Smartphones gives the learners several chances to collaborate in which they become capable of sharing their thoughts and feelings. Therefore, smartphones offer the learners not only a joyful environment, but also an effective environment in which they are able to exchange and share educative information.

2.2.2 INTERACTIONIST APPROACH

With this approach, the learners can learn through interaction with others. They believe that the learning process can be easier when they get input, which should be comprehensible, and then figure the meaning out through negotiation in order to produce output and give feedback. Learners become able to build their knowledge and their linguistic ability through interaction with others until they achieve the wanted level of comprehension (Yang, 2007). In addition, smartphones provide opportunities to learners and their instructor to communicate whenever they want. When they interact with each other to do different tasks or to discuss a particular topic, unlike face-to-face interaction, they have time to think, to correct their mistakes and to equally comment; that is, this can enhance their reading proficiency and comprehension ability. Collaboration, providing and receiving feedback, equal opportunities for participation, enough time to think and correct their mistakes, inserting photos, video clips, and other documents and exchanging information are essential characteristics that smartphones provide learners with.

2.3 CULTIVATION OF 21st CENTURY SKILLS

The foundation behind educational institutions is that they are to prepare their students for the world they are about to enter. This not only includes important interpersonal skills such as communication and collaboration, but technical skills such as researching, creating and analyzing complex concepts and scenarios. Today's marketplace is becoming increasingly technology based. Businesses that have locations in various countries require their employees to collaborate and communicate across distances. Aside from needing basic technical skills such as computer and word processing, employees of various job markets are required to perform research and create presentations, products and proposals. With this being the marketplace that the current generation of students is entering, it is imperative that the educational institutions they are attending are equipping them with the necessary knowledge and skills to be successful. In order to provide these knowledge and skills sets, educators must then incorporate mobile devices and technologies into their curriculum. Utilizing a variety of technologies and modalities for learning in the classroom is beneficial for students in general.

Every student does not learn in the same manner or through the same mediums. Incorporating various forms of instruction in the classroom ensures that all student's needs are met. Many educators have found that by incorporating visual aids in their classroom, students create a deeper understanding of the key concepts (Escalada, 1995). Furthermore, utilizing the Internet strengthens course lessons and magnifies student learning (Motiwalla, 2007). These findings illuminate that various forms of

exposure of content to students, particularly in the form of technology, can enhance a student's educational experience and, therefore, their learning. Furthermore, teaching students through the use of technology and imagery allows educators to teach "nature as it is, rather than in idealized form" (Escalada, 1995). This is becoming significantly more important to consider as the integration of mobile devices into people's everyday lives expands.

As stated previously, if the world students are engaged in and destined to be a part of is rich in technology that enables them access to information once difficult to obtain, it would be arguably foolish to block or limit their exposure and experiences with the content through those mediums. Many students can identify specific forms of technology which would require proficient skills in future jobs, thus rendering the need to develop these skills in school. From working with digital video cameras to word processing, students recognize the need for these technological skills in the professional world and have an interest in seeing these devices used in a classroom setting (Spires, Lee & Turner, 2008).

In this manner, students are no longer limited to engage with the content through a book or pen and paper, but can rather experience the content in an engaging form. With the use of smartphones and mobile devices in the classroom, students can gain many beneficial skills that will allow them to be competitive contributors in the global marketplace. Through the utilization of smartphones in the classroom, students will learn how to collaborate with their peers through a multimodal approach. Furthermore, smartphone utilization allows communication to expand to a global realm that allows students to build their learning through conversations with others (Shuler, 2009). Shuler further explains that mobile technologies facilitate what researchers call 'conversational learning,' in that they naturally support an environment where people can converse with each other by interrogating and sharing their descriptions of the world.

Mobile technologies, such as smartphones, promote an environment that allows students to communicate with each other in a manner that further develops an essential life skill. These devices further allow students to communicate with others in ways beyond the traditional sense of the word with both their educators and peers alike (Shuler, 2009). One of the most beneficial aspects of integrating mobile devices into education relates to the longevity of the knowledge and skills this integration presents. Researchers have found that when students utilize mobile devices in their class activities, they not only develop higher order thinking skills as well as higher-level intellectual skills, but they develop an improved perspective toward their learning which in turn fosters a deeper understanding of content (Escalada, 1995). He also demonstrated that smartphones are no longer restricted to sending text messages or engaging in social media, but can be used to cultivate refined 21st century skills that are applicable across all content areas and fields. Therefore, these skills are cultivated through the use of mobile technologies in a classroom setting, for the greater success of the future educational endeavors and beyond.

3.0 METHODOLOGY

In order to ascertain the role of smartphones as educational tools in student learning and engagement, the researcher conducted an experiment to determine the effectiveness of such devices. The researcher conducted a pre-assessment to determine student prior knowledge of the content addressed in the lesson. Besides, in the pre-assessment, there were questions to elicit student opinions and thoughts on smartphones as instructional tools as well as how often students access their phones for non academic purposes, such as texting, social media, etc., during the course of a lesson. The pre-assessment included questions that allowed for students to rank their answers their answers in terms of smartphone use or level of importance. The researcher then conducted a lesson which utilized smartphones as a central component of the activity. During the course of the lesson, the researcher observed students' affective level of engagement as well as any off task behavior. Following the completion of the lesson, the researcher administered the same pre-assessment as a post-assessment to measure student learning and any potential changes in students' opinion or use of smartphones in the classroom.

3.1 PARTICIPANTS

The participants of this study included 124 diploma students in a public university in Perak and included 71 students were male and 53 females.

3.2 DATA COLLECTION

Data collection took place by the researcher within four separate, but similar, English language course (ELC) classes over the course of one week. Each class session was with a duration of 120 minutes. Each class is similar in size, ranging from thirty-two and thirty-four students, and each classroom contained students classified as English learners and/or who have an ELC151 syllabus. Selecting classes that were similar in demographic and time helped to ensure that any differences in data could be associated with the variable being tested the effect of smartphones as an instructional tool on student learning and engagement. The role of the teacher in the research was to teach a lesson which utilized smartphones as a primary component in the completion of the lesson. The use of the smartphones as an instructional tool was decided on by the teacher and was dependent upon the content of the lesson.

For the purpose of this lesson, an application was utilized in the smart devices in order for students to explore the reading comprehension components and collaborate tools with their peers. The role of the students was to complete the lesson through the use of the instructional tool. For this study, the researcher conducted pre-test and post-tests with all four classes of students. The pre-test was a survey was taken prior to the beginning of the lesson and was given electronically using google forms. The post-test was given under the same conditions with exception to being taken at the end of the lesson. The students filled out the surveys anonymously. In the surveys, students were asked about their use of smartphones in and out of the classroom, their perception of smartphones and their potential educational uses. Students were also asked content based questions that were covered through the lessons.

3.3 INSTRUMENTATION

The survey used in this study assessed the student's current use of smartphones during class time. The survey included questions such as "How often do you access your smartphone during class time? , "Do you view your smartphone as an educational tool?", and "Approximately, how many hours a day do you actually spend on your smartphone?"Observations were also conducted throughout the course of the lesson. The researcher conducted classroom observations and documented students' level of task engagement, ranking of student engagement and the number and content of student questions and comments. Finally, students were surveyed again at the end of the lesson where they were asked questions such as, "How often did you access your smartphone during class time?" and "Do you view your smartphone as an educational tool?"

3.4 DATA ANALYSIS

Pre and post-test data from the two classrooms participating in the study were collected. From these assessments, descriptive statistics were utilized to analyze student responses. Percentages of student responses to questions addressing their use of smartphones during class time, the frequency with which smartphones are accessed in a class setting, and student perception of smartphones in an educational setting were analyzed to observe trends as well as understand student perception. Additionally, percentages of student responses to content based questions were analyzed for growth in student understanding. A paired t-test was also used to evaluate if there was a statistically significant difference between the pre and the post test with respect to students' understanding of the content. A pre- and post-test design study was created to understand the influence of smartphones have on a student's engagement and ability to learn and comprehend content in a classroom setting is essential to lesson planning and equipping students for success. The study incorporated the use of smartphones as a key instructional tool and data on student perceptions of smartphones, their use of smartphones in and out of the classroom, and their understanding of the content addressed in the lesson.

4.0 RESULTS & DISCUSSIONS

In the midst of advancements of smartphones, mobile technologies are increasingly infiltrating the lives of students and the population alike. The benefits that mobile technologies offer to the academic experience of students far outweigh any potential distraction or disruption they may cause in the classroom. With their ability to engage and motivate students in their learning as well as cultivate and develop 21st century skills, these devices and the tools they offer, enable students to be equipped and successful contributors to their future marketplace. Lessons that utilize mobile technologies have shown to increase student engagement and have a positive impact on student learning. It is clear that the students who participated in this research, just as the ones in other research conducted, have a desire to utilize smartphones as instructional tools in the classroom and do not feel they serve as distractions in their education. Smartphone and mobile technology policies and lessons that support their use should be designed and implemented that allow students access and use of devices that can support their education.

4.1 SUMMARY OF FINDINGS

The pre-test and post-tests confirmed that student learning improves with the implementation of smartphones as instructional tools. Students showed a visible increase in understanding of the content over the course of the lesson. Furthermore, smartphones have shown to have no significant adverse impact on student engagement as students were actively participating and engaged throughout the lesson. Students overall reported that smartphones did not serve as distractions to their learning and that they perceive them to be instructional tools rather than strictly for social purposes. Despite this perception, the majority students reported that their teachers almost never request them to use their phones for academic purposes during class time.

4.1.1 STUDENT SOCIAL USE OF SMARTPHONES

On the pretest, 41.9% of students reported that they never use their smartphones for social purposes, 43.5% of students reported that they used their smartphones 1 to 3 times per class per day, 8.1% of students reported that they used their smartphones 4 to 6 times per class per day, 4% of students reported that they used their smartphones 7 to 9 times per class per day, and 2.4% of students reported that they used their smartphones 10 times or more per class per day for social purposes. On the posttest, when specifically asked about the lesson during which they were using smartphones for content learning in the classroom, 57.3% of students reported that they never used their smartphones for social purposes, 29% of students reported that they used their smartphones 1 to 3 times, 8.1% of students reported that they used their smartphones 4 to 6 times, 1.6% of students reported that they used their smartphones 7 to 9 times, 4% of students reported that they used their smartphones 10 times or more for social purposes during the lesson. This suggests that students used their smartphones less for social purposes during the lesson than they usually do during regular class time.

4.1.2 STUDENT EDUCATIONAL USE OF SMARTPHONES

On the pretest, 18.5% of students reported that they never use smartphones for learning purposes in class, 68.5% of students reported that they use smartphones 1 to 3 times per class per day, 9.7% of students reported that they use smartphones 4 to 6 times per class per day, 3.2% of students reported that they use smartphones 7 to 9 times per class per day for learning purposes in class. When asked about how often their teachers ask them to use smartphones in class for learning purposes, 15.3% of students reported that their teachers never ask them to use their smartphones in class, 53.2% of students reported that their teachers almost never ask them to use their smartphones in class, 26.6% of students reported that their teachers sometimes ask them to use their smartphones in class, and 4.8% of students reported that their teachers ask them to use their smartphones in class all the time.

On the post-test, when specifically asked about the lesson during which they were using smartphones for content learning in the classroom, 12.9% of students reported that they never used smartphones for learning purposes during the lesson, 43.5% of students reported that they used smartphones 1 to 3 times, 19.4% of students reported that they used their smartphones 4 to 6 times, 10.5% of students reported that they used their smartphones 7 to 9 times, and 13.7% of students reported that they used

their smartphones 10 times or more for learning purposes during the lesson. Overall, while 81.5% of students reported using smartphones for learning purposes in class on the pretest, 87.1% of students reported using smartphones for learning purposes during the lesson on the post-test (see Table 1).

4.1.3 STUDENTS' UNDERSTANDING OF THE CONTENT

A paired t-test was conducted to measure a change in students' understanding of the content from pretest to posttest. The questions on the pre-and-post-test were the same. These questions include: (1) What characteristics are observable by looking at the facts and opinion statements given? (2) Looking at the elements of facts and opinion, which of the following statements are facts? (3) Why are the statements you selected in the previous question most likely to be facts? (4) Which of the statements are the characteristics of facts? There was a statistically significant difference between students' pre-test and post-test scores (see Table 2).

4.2 EDUCATIONAL IMPLICATIONS

The findings of this study suggest that students are engaged and motivated to learn when smartphones are used as instructional tools. The findings also show that smartphones do not serve as great or deleterious distractions as once believed, but rather help support student learning and understanding of course content. This supports previous research with similar conclusions (Escalada, 1995, Ivala & Gachago, 2012, Motiwalla, 2007, Pursell, 2009). Instead of finding that students are consistently distracted by their smartphones in class, students actually view their mobile devices as potential tools for instruction. This unexpected finding leads the researcher to two potential conclusions. It is possible that students mislead their social use of smartphones during class instruction as they did not want to displease their teacher. Despite the pre- and post-tests being anonymous, they may have felt that saying that they rarely access their phones for social purposes during class time would be the answer the researcher would want to see. Regardless of this possible conclusion, observation of student engagement and data analysis from student understanding of content show that any potential distraction was not great enough to deter a student from engaging with the content and comprehension skill.

The second potential conclusion the researcher may come to based on the unexpected low social use of smartphones during class time is that students are ready and prepared to use these devices as educational tools. This mirrors previous research that shows an interest and desire of students to utilize devices such as these more often in their studies (Spires, Lee & Turner, 2008). With this conclusion, it then becomes imperative that school policies and classroom instruction steer from the negative perception of these devices and seek to design and implement lessons that utilize a tool which students are seeking to use appropriately. With these results, teachers should be strategically placing themselves ahead of the curve for mobile technology implementation. Teachers and administrators should set aside any negative perceptions of smartphones and begin gearing lessons and activities towards tools and devices that students are not just interested in, but a device that is readily available due to their mass infiltration into people's everyday lives.

With smartphones gaining in popularity and prevalence, students have access to a device that has nearly unlimited resources and uses. With the many ways students access their smartphones for nonacademic purposes throughout the day, student engagement and learning can be improved by their use as educational tools. Additionally, students will become equipped with 21st century skills with increasing technology use in the classroom that will allow them to be fierce competitors in the marketplace. When technology is utilized in the classroom, students will develop communicative, critical thinking and problem solving skills that will be critical skills to develop in their futures. When students can access their education in a way that relates to their personal lives, there will be no restriction on what students may learn.

5.0 CONCLUSION

Smartphones carry the potential to significantly impact and revolutionize the way students learn and their experiences within a classroom. Students are ready and prepared to use a device they commonly carry as an educational tool as they positively impact student learning and engagement. With the increase in accessibility and development of various applications, the possibilities of the ways these devices may be used within the classroom is endless.

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APPENDICES

Table 1:Summary of students' responses to the survey questions on their perception of smartphone use

		Pre (1)	Post (1)	Pre (2)	Post (2)	Pre (3)	Post (3)	Pre (4)	Post (4)
1.	I believe smartphones are more for social purposes than for learning purposes	10.5%	12.9%	33.9%	24.2%	37.9%	35.5%	17.7%	27.4%
2.	I believe smartphones can be used for learning purposes	6.5%	4.8 %	13.7%	16.1%	24.2%	22.6%	55.6%	56.5%
3.	I get distracted by my smartphone in class and use it even when it's not allowed.	60.5%	50.0%	25.0%	30.6%	9.7%	12.1%	4.8%	7.3%

Table 2 : Summary of paired t-test results

Pre-test		Post-test				
M	SD	M	SD	Df	T	Sig.
1.3509	.87610	2.4035	1.19313	56	-4.810	.000*

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