THE USE OF SMARTPHONES AMONG STUDENTS IN RELATION TO THEIR EDUCATION AND SOCIAL LIFE

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Abstract

In a world where technology is ever evolving, providing students with more effective way of living and studying, the traditional cellular phone is being replaced with the smarter and faster smartphone. This technological innovation has become a fashionable necessity, providing access to the Internet at all times and allowing a new way of communicating, socializing and more specifically mobile learning. This research paper investigates how students are taking advantage of this innovative technology, socially and in their education. A more in-depth look will also be given to the potential of mobile learning and the question of whether smartphones are replacing laptops. For the purpose of this research, 124 students have been surveyed to uncover how smartphones affect their social life and education. From the results, some very interesting findings have arisen, that provides an insight into how students are benefiting from using their smartphones for educational purposes.

Introduction

The literature on smartphones especially in educational use is still very nascent as it is a relatively new phenomenon. There are many different definitions of smartphones. Some sources define smartphones as devices that let you make telephone calls, but also add features that, in the past, you would have found only on a personal digital assistant or a computer--such as the ability to send and receive e-mails and edit Office documents. Though, the distinction between *smartphones* and *feature phones* can be vague, and there is no official definition for what constitutes the difference between them.

Smartphones are now seen as a pocket computer and a personal assistant. They are usable as a kind of always-available knowledge machine, and everyone walks around with these devices that can tell them just about anything they would like to know. These mobile devices are enabling a new mobile lifestyle. With the increase in smartphones and with the advanced mobile technologies used in smartphones, they are seen as a must have phone for many people around the world. In comparison to laptops, smartphones have certain advantages such as providing Internet access anywhere at anytime without boot up time.

Smartphones are everywhere nowadays and are being used by people for calls, SMS, emails, browsing the Internet, blogging, social networks, watching videos, reading e-books, listening to podcasts, using applications (referred to

as apps), to shopping/banking online and many more ways. These pocket almost computers are becoming increasingly popular, especially among students, and are now seen as a very fashionable and stylish phone to have. They are giving students the opportunity of new ways to access information and as a result might assist in learning.

Our paper aims to answer the following research question: In what ways do smartphones affect the social life and education of students?

More specifically, we will review the current relationship students have with their smartphones, evaluate the relationship between smartphones and students' social life, evaluate the relationship between smartphones and students' education, and specify novel trends in the usage of smartphones. The survey was conducted among the students of the University of Nicosia in Cyprus.

Literature Review

The take up of smartphones has been particularly rapid in the student population. Research by Paterson and Low, (2011) found that between March and November 2010 alone, there was a 17% increase in use of smartphones among university students, and that 68% of students who planned a change expected their next phone to be a smartphone, an adoption rate faster than the general population. The initial studies that looked at the impact of smartphones and mobile computing devices on education perceived the influence as being an extension of e-learning (Herrington & Herrington, 2007). The advantages expected were those of increased flexibility and the potential for the de-compartmentalization of learning.

However, Vavoula, Pachler, and Kikulska-Hulme (2009) argued that the impact is so great that it is far more than an extension of e-learning, changing attitudes and expectations of learning, the context it which learning takes place, and the learning processes themselves. According to Vavoula et al., research supports the increased autonomy gained in learning; the devices empower students, enhancing informal learning as well as formal learning with students' ability to access information and educational resources 24 hours a day, from wherever they have an internet connection for the smartphone.

The use of a smartphone creates a new type of virtual learning environment (VLE) that is far removed from that provided by the traditional desktop or laptop computer through temporal mobility. As the resources are available at hand almost all the time, students may take time to learn on the bus or read notes while waiting in line at a take away restaurant, etc. (Wankel & Blessinger, 2013).

The smartphone may be primarily perceived as a tool that facilitates increased access to resources in different locations, where learning may otherwise have been precluded (Wankel & Blessinger, 2013). Paterson and Low (2011) found that this increased accessibility translated to an increase in actual accessing of resources, with students using smartphones to immediately look up and check information in a university database, which would not have taken place in a traditional computing environment. A recent news article highlighted

practical experiences and the way smartphones may help students to organize their time and studies, with students using various applications such as StudyBlue Flash Cards to help revise their work, as well as utilizing apps such as Evernote Peek as a note taking service that is also used to aid with the organization of the notes (Lytle, 2012).

The flexibility has also created social or interactional mobility. It is known that students can gain a great deal from interactions with peer groups, and smartphones have increased the potential to participate in interactive groups (Wankel &and Blessinger, 2013). Wankel and Blessinger found that the increased level of interaction, in terms of volume and diversity, and ability to interact simultaneously with multiple groups, increased information and feedback inputs, which enhanced the cognitive learning processes. Gikas and Grant, (2013) supported the value of smartphones for interactions, specifically finding increased value of peer group collaborations at both a formal level with peer group projects and on an informal level through social networking mediums, which increased student communication. Collaboration would also increase social interaction as it created higher levels of group cohesion.

The increases in communication and collaboration were found to be greatest when the use of smartphones was incorporated into the design and delivery of the courses (Gikas & Grant, 2013). Shim, Dekleva, Guo, and Mittleman (2011) also found benefits were gained with interaction between students and teachers in a virtual learning environment, which was also often linked to the design of the courses. Wegerif and De Laat, (2011) argued that it was not only the quantity of interactions that increased, but also the quality of the group dynamics improved with the use of collaborative mediums on smartphones. This higher level of collaboration also reflects the greater level of ambiguity between educational and social communication, where the differentiation becomes blurred (Vavoula et al., 2009).

Benson and Morgan (2013) also noted potential benefits to students with the large number of educational apps that exist creating potential opportunities for more impendent learning, helping to develop a more engaged student. Also noted was the functionality of apps, which in some cases may provide easy solutions to problems. While apps to help learning may be beneficial, apps that give answers so students can effectively *cheat*, for example, equation solvers for a mathematics student, may be seen as undermining the learning experience, making it more difficult for students to gains the supporting theoretical skills.

Gikas and Grant (2013) may have found many positive aspects of the students' experiences using smartphones, but they also found some negative experiences. The negative experiences were predominantly frustrations associated with the use of the devices, usually linked to the inability to access data and the limitation of the hardware, software or systems they were utilizing. There are also some negative experiences for some students in terms of the social interaction and the presence of bullying, especially on social networking sites (Kalpidou, Costin, & Morris 2011; Livingstone & Brake, 2010).

An interesting study by Poellhuber and Anderson (2011) found that the experiences of all students were not the same, and that some students would benefit to a greater extent and report higher levels of experiences gained through their smartphones. In a study of 3,000 students the male students and the younger students reported higher levels of positive experience and related benefits. Female students reported fewer positive experiences, and the older or mature students benefited the least. Poellhuber and Anderson noted that, importantly, this result was not due to differences in a willingness to learn to use and then utilize social software as it was found that older students displayed a greater interest in learning to use these mediums.

Smartphones have changed students' experiences. They have provided increased accessibility to resources and empowered students in terms of where and when learning takes place. They have increased the potential for peer learning though higher levels of interactions and collaboration. However, while they have provided benefits, there are also less advantageous considerations; the potential for alienation, bullying and disparate benefits are also present.

Educational Use of Smartphones

College students are always up to date with the latest technology and with the use of smartphones. Benefits are very clear for students, mainly as they enable them access to any knowledge or information whenever and wherever students need it.

To begin with, they can keep students organised. By utilizing the smartphone as a personal organiser with automatic reminders, students will be able to keep track of lecture times, meeting times, tests and assignments dates/deadlines. They can also help with making study timetables and contact lists that will benefit the students and keep them organised. There are so many opportunities and advantages now available for students with the whole world of online learning.

Adding to this, students with smartphones can leave their laptop, books and notes at home. Students will not have to wait for their laptop to boot up and fear for the decreasing battery life. Students can download an e-book on their phone instead of bringing a book to school and can read lecture slides off Blackboard on their phone instead of printing them and bringing them to class. Students can also take notes in class with their phone and record the lecture on their phone. If there is a topic that a student does not know about that is being discussed in class, she/ he could look up the information via his smartphone as any needed information is at hand.

The innovative ways to learn by using podcasts and videos are now giving students great new opportunities to learn. Many classrooms, colleges, and universities are now tech savvy. Campus information, study materials, and homework assignments are being posted online, and many educators are beginning to podcast lessons and send students links to educational videos.

Apple has also launched ITunesU, which is for free mobile education use. It allows universities around the globe, for example, top-notch universities like Cambridge, MIT, Oxford and more, to put seminars, lectures, and podcasts up for everyone to see. It allows students from anywhere in the world to listen to these digital sessions through their IPhone.

Educational Apps: The most impressive educational application is the Essay Writing Wizard line, which help students understand how to write everything from a book report to a summary essay. It is fully interactive, allowing students to organize and input notes, ideas, research and even writing samples directly into the phone.

Mobile Learning

In more recent times, the concept of *m-learning* or mobile learning has emerged, and it is becoming increasingly popular. With the rapid development of mobile technologies, mobile learning has become a new trend in education. The portability and immediate communication properties of mobile devices influence the learning activities in peer interaction, resource acquirement, and content delivery (Lan & Sie, 2010). The difference between e-learning and m-learning is that ideally m-learning is less restrictive because m-learning allows learning to occur anywhere and at anytime while e-learning can be limited in mobility with devices like desktop computers.

In many universities smartphones, which were once banned in the classroom, are now being encouraged. They were banned, as universities did not realise the potentials of the mobile devices. The benefits of using a smartphone in a classroom are the same as using a laptop, but a smartphone is smaller, cheaper and more coveted by students. Since most students own a smartphone, it is appropriate for lectures to take advantage of this and to learn to use it as a learning tool for students.

Methodology

For the purpose of the research, we adapted a descriptive quantitative method for more conclusive results. A personal survey was distributed as to be able to reach a larger sample within a month. The choice of using a survey was made due to the statistical accuracy it provides, with the flexibility of information collected and analysed. In order to select the sample size, the stages in the selection of a sample have been followed and executed.

Our target population is the students of the University of Nicosia. The University welcomes a number of multinational students, as well as locals. The majority are Cypriot students, while students from more than fifteen countries and regions attend the University. The institution also provides exchange programs with other educational institutions in the European Union and the United States. Thus, the estimated target population is as much as five thousand students and more.

The sample frame selected was as broad as the target population, meaning no preferences towards gender, nationality or age were made. The sample frame was composed of all the students of the University of Nicosia. The large

number of potential respondents encouraged the choice of the sampling method used. In fact the non-probability sampling technique was chosen whereby the units of the sample are selected on the basis of the fieldworker's personal judgment and convenience. In order to narrow the target population in more controlled environments, two sample units were targeted-- the two main cafeterias situated in the University of Nicosia-- able to accommodate a large number of students. Therefore, the final sample size targeted was 124 respondents. The fieldworkers selected the numerous sampling units at different days of the week and at different hours of the day so that the possibility of getting a wider range of students was increased. At the end of the research all the targeted students replied to the survey.

Discussion

With smartphones sales rising and cell phone sales declining each year, more and more people are now beginning to replace their standard cell phone with the new and exciting smartphone. Smartphones can be seen everywhere. With the prices of smartphones decreasing and with the improved payment plans now available, it has given the opportunity for people to be able to afford a smartphone easier. Smartphones make people always available with the whole world at their hand since smartphones provide quick internet access anywhere. Smartphones are increasing among students, as they are huge fans of mobile communications technology and are usually the first people to embrace these new technologies/phones.

From the results of our survey and from the analysis we have found some very interesting findings that provide a fresh insight into how students are using their smartphones in their social and educational lives. The whole topic of smartphones is a new area of research where very limited literature review and findings have been publicized, especially when it comes to students' usage of smartphones in education. Our respondents were a combination of both males and females, from various age groups and also a mix of different nationalities from all around the world.

Smartphone Aiding Education

Research done in this area is in its initial stages and aimed at finding out whether or not smartphones are helping students with their education. We have seen from the literature review how smartphones can benefit students in their studies, the way students can study anywhere at anytime, more interaction among class members/ lecturers, an ability to learn from technologies like podcasts, e-books, apps and in many more ways. But there have been no publications or findings to determine if smartphones are actually helping students in their studies.

From our results in the survey we have seen that:

- 48% of students feel that their smartphones are aiding them in their studies.
- 13% of students said that their smartphones have improved their grades, and 85% of students said their grades in class have stayed the same.

- 7% say the amount of time spent studying has improved since getting their smartphone, and 85% of students say the amount of time studying has stayed the same compared to using their laptop.

As smartphones are only being recognized as learning tools over the past few years, the authors believe this percentage is going to steadily increase each year. The rest of the students either do not know how to take advantage of their smartphones, or it could be that they are using their smartphones for their studies, but that they are not really recognizing it.

Smartphones Being a Distraction

From the literature review we can see that students can become distracted from their studies by using a smartphone. People can access their social networks or favourite websites with just a touch of a screen. In Question 18 responses we could see that 29% of the respondents agreed and said that their phones do distract them in their studies, and in Question 17 replies 52% of the students disagreed and said that their phones are not aiding them with their studies. In Question 20 9% of respondents said that the amount of time studying had decreased since owing their smartphones. These figures seem to indicate that smartphones can also be a negative element for some students who do not take advantage of the benefits it can offer them in education.

In Question 19 only 2.8% of the students said their average grade had decreased, which is quite a surprise considering the above figures. The fact that only 2.8% of the students saying that their average grade had decreased might indicate that even if some students feel they are studying less or becoming distracted more it is not affecting their grades when compared to the 13% of students who feel that their average grades have increased due to their smartphone.

Overall, wheter or not a student views the smartphone as a diatraction depends on each student's perception and behavior and on how each uses his or her smartphone. However, research results demonstrate that many more students are benefiting from using their smartphones in their education compared to the students who are not.

Smartphones as an Educational Tool

From the results in Question 22 on the survey we can also see how students are using their smartphones to help them with their education.

We can notice that emailing with fellow class members and lecturers, looking up infromation during a class about a related topic, reading class related notes, articles and slides and reading e-books are the most popular activities among students to do weekly. Watching class related videos and listening to course related podcasts are always popular features used by students on a weekly basis. Students are generally using most of the features available to them to aid them with their studies quite frequently.

The most significant features for students using their smartphone to gain an advantage over their studies were downloading educational apps, reading class

related notes, articles and slides, and reading e-books. This demonstrates that students are taking advantage of the new ways of learning that a smartphone provides. Many students now feel that using their smartphones helps them with their studies and also feel that using them increases their studying hours and average grades.

Recommendations

Our results support previous research that has been done in the area of students' social uses of their smartphones, but most of all the results from our research provide new findings into the whole area of students using their smartphone for education.

We believe that over the coming years smartphones will replace laptops, and that laptops will only be used for writing essays and presentations in the future. The introduction of the IPad could change all this, but it will probably take some time before the average student can afford IPads; just like it was with smartphones in the past. It is evident in our research that many students had limited knowledge of the potential benefits that smartphones could provide for them in their education. Over the coming year or two, educational apps are going to play an important part in students' lives as general apps are.

For *learning with smartphone*, to become a success in education, professors and lecturers will need to play a part in promoting smartphones for educational usage. Research demonstrates that students can learn about the potential benefits that smartphones are able to provide and that they need to start integrating and promoting smartphone usage in their work. Lecturers could do this by informing students about new educational apps, educational podcasts which are available to listen to, and e-books, which are available instead of educational videos to watch. It is clear that the popularity of smartphones is growing each day among students, and that smartphone capabilities are continuously improving Thus, we can safely conclude that over the coming years smartphones are going to become an essential item for all students especially in education.

What Could Have Been improved?

We are satisfied with the outcome of our research, but for optimum results it would have been more accurate to expand our sample size to other universities in Cyprus as well. The 124 respondents were a satisfactory sample size as an exploratory research approach, but in order to generalize the results a more representative sample of the student population would be needed. Also gender responses were unbalanced, and it would have been more useful to try and get a closer split of 50% male and female so we could have noticed more clearly if there was a difference between male and female usage of smartphones. This research paper ultimately represents exploratory efforts especially in the educational aspect.

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