

How Do Kastamonu University Education Faculty Fine Arts Education Department Music Education Department Students Use Their Smartphones?

Mustafa Kabataş^{1,*}

¹Music Education Department, Faculty of Education, Kastamonu University, Kastamonu 37100, Turkey

*Correspondence: Music Education Department, Faculty of Education, Kastamonu University, Kastamonu 37100, Turkey. Tel: 531-452-2651. E-mail: mustafa-kabatas@hotmail.com

Received: January 9, 2021

Accepted: January 25, 2021

Online Published: February 2, 2021

doi:10.5430/wje.v11n1p1

URL: <https://doi.org/10.5430/wje.v11n1p1>

Abstract

This work; Kastamonu University, Department of Fine Arts Education Faculty of Education was made to students in the Music Department in Turkey. The study is a descriptive field study and it was conducted with a questionnaire model. The study group of this study consists of all students of Kastamonu University Education Faculty Music Education Department. The aim of this study is to get an idea about the use of smart phones by music department students. In the study, a review was made of how music students use their smartphones. The questionnaire method was used to answer questions such as what kind of applications they use on smartphones and how much they benefit from the applications they use professionally. Research questions were asked which applications are the most popular for personal and school use, which applications are satisfied and which applications they are not satisfied with. The data obtained were presented in the form of a table and interpreted. It was concluded that the students used certain programs on their smartphones beneficial for their field education. The study is important because it contributes to researchers, field experts and similar studies.

Keywords: music, education, music education, smartphone, applications

1. Introduction

Smart phone is an advanced mobile communication device designed by adding the features of PDAs, a product of the computer world, to the classic features provided by the mobile phone. Smartphones have mobile operating systems. In this way, it can be used more actively for many different purposes and an application can be found for almost every job. The processors are ARM-based, which allows the batteries to last for a long time, and they can perform complex operations smoothly. Also, most smartphones have a Graphics Processor. In this way, they can run quality games that require more polygons easily and fluently Clark, W. & Luckin, R. (2013).

Most smartphones have hardware features that will increase the game and application performance and lead the development of original applications that are different from the others. In the vast majority of smartphones made so far, the screen resolution is 4: 3 or 16: 9 (widescreen) for convenient tasks such as opening pictures or playing videos. At the same time, the resolutions are rapidly upgraded and new technologies such as SUPER AMOLED and AMOLED are being switched to make any item displayed on the screen much brighter and more quality. Most smartphones have accelerometers to run games and applications more actively. Therefore, smartphones have several advantages, such as surfing the internet or playing games using sensors. At the same time, some of the new smartphones also have a gyroscope, or digital compass. In this way, they can offer the user the feature of screen rotation in all directions, which accelerometers cannot Stamper, S. E. (2012).

Smartphones are much more advanced than a normal cell phone would do. First of all, there are quality games and applications that will not look like the ones on the computer. However, these require much higher processor performance than mobile phones have. ARM-based processors are used in almost all smartphones. The main reason for using such processors is their low power consumption and yet high performance. At the same time, graphics processors

are also available in most smartphones to ensure high game performance. In this way, 3D games that require a large number of polygons can be played fluently. At the same time, graphics processors, effects used in smart phones and textures used in 3D games also increase the performance. Most smartphones have complete connectivity. In other words, you can connect to wireless networks (Wi-Fi) with smart phones, exchange files with Bluetooth (Blue tooth), and make a quality conversation with high antenna performance. At the same time, with the NFC (Near Field Communication) system in Nokia's latest phones, which is one of the few companies that play a major role in this field, banking transactions can be performed on smartphones that include NFC systems instead of credit cards. Another issue where HTC plays a big role is the phones with three-dimensional screens without glasses. These phones have high screen resolutions, and can be switched to a three-dimensional display with a single button without the need for any glasses or additional accessories. In a smartphone designed with 3D effects like HTC Sense, the glasses-free three-dimensional system works very well. The biggest features of smartphones compared to normal phones are special operating systems. Today, many smartphones have Android operating systems. Mobile Operating Systems give smartphones the flexibility, features and number of applications that a mobile phone does not have Gong & Wallace (2012).

Smart phones can run many application technologies that make our lives easier. There are hundreds of applications that a musician will use. A musician can reach many functional needs such as metronoma, note archive, recording facilities, arrangement possibilities thanks to these applications.

In this study, Kastamonu University, Faculty of Education, Fine Arts Education Department Music Department students in Turkey, smartphones were made to have an idea about how they benefit from and which applications they use. After this research conducted in 2019, many steps have been taken to contribute to the field. With music programs that can be downloaded free of charge to smart phones; Many students use it to prepare for special aptitude tests, a mandatory test used to help them move from high school to higher education. It also requires freshmen college students to purchase a smartphone Arkansas, & Bostic (2013). Campus faculty encourage to integrate the smartphone with additional lessons throughout the campus, including all general education courses typically taken in the first and second years (Bostic, 2013). While there was a lot of published interest in smartphones and other similar programs, the researchers wanted to know if this enthusiasm was shared by freshmen. Research questions included which apps were most popular for personal and school-related use, in which subjects they used smartphones most, and whether students were satisfied with the current level of smartphone integration in the curriculum Clark, W. & Luckin, R. (2013).

1.1 Literature Review

Since its inception in 2010, the adoption of smartphone technology in higher education has been increasing Mango, (2015). The reasons for this accelerated adoption include: rapid information dissemination, students' current preference for "m-learning", the emergence of technological developments, and positive faculty perceptions of smartphone integration Divall & Zgarrick, 2014; Dorman, 2007; Nguyen, Barton, and Nguyen (2015). For this article, "m-learning" is defined as mobile learning where the student is not in a fixed or predetermined position and can access classroom content material Gong & Wallace (2012).

Smartphone and other mobile devices are required for m-learning to take place. DiVall and Zgarrick (2014) stated that the portability of the smartphone makes it a suitable tool for fast workflow in the classroom. Kinash, Brand, Mathew, and Kordyban (2011) reported that students of today's ever-changing digital world are more comfortable learning using a smartphone. Research shows that some students believe that the smartphone is a good "m-learning" classroom tool to facilitate collaboration, peer interactions, and sharing of group work Alyahya & Gall, 2012; Hahn & Bussell, 2012; Kinash, Brand & Mathew (2012). Other factors reported to contribute to student support for smartphone use in the classroom are screen size, battery life, and weight Pappas, Miller, Meier, & Moorfield Lang (2012).

1.2 Software

The biggest features of smartphones compared to normal phones are special operating systems. Today, many smartphones have Android operating systems. Mobile Operating Systems give smartphones the flexibility, features and number of applications that a mobile phone does not have.

Android: A device using the Android system: Samsung Galaxy It is the most used mobile operating system in smartphones in the world. Android is developed by Google and the latest version officially released for smartphones is Android 10. It is also used for Android, tablet computers. Android is not only for touch screen phones, but also because it is open source to many devices such as Pc, Tablet etc. can be downloaded. Samsung and HTC have been the companies that use and support the most android so far. Android uses Google Play as its app store. It is an open source and Linux based mobile operating system. Android can run on many devices around the world. It can provide

performance to users even in systems with low hardware Krueger, C. W. (1992).

IOS: It is a mobile operating system produced and developed by Apple. It only works on Apple-branded devices such as iPhone and iPad. The latest version officially announced is iOS 10.0.1. At the same time, iOS is seen by some circles as a lightened Mac OS. IOS uses the AppStore, which has the most applications in the world, as an application store. It is closed source. It is also highly stabilized with iPhone and other Apple Mobile devices. A software called iTunes is needed in order to require high performance and to be synchronized with the computer.

Symbian: It is the second most used mobile operating system in the world. It is developed by Nokia. The most current official version is Symbian Belle. Usually available on Nokia devices. Sony Ericsson and Samsung also have Symbian devices. Recently, however, Symbian has lost its former popularity. Symbian is made to suit all shapes. S40 Platform and S60v3 platform can be used in all kinds of slide phones and push buttons. S60v5 platform is for touch screen phones. Also for Symbian, which is only available on Nokia devices, touchscreen and QWERTY keypad phones. Symbian uses the Nokia Ovi Store (Nokia Store) as its application store. It is the 3rd largest app store in the world rankings. It can even work on low-grade smartphones. However, stability problems have arisen due to its use in smartphones with very low-grade hardware and it has lost its popularity. For this reason, the number of applications has shifted to Android and iOS Clark, W. & Luckin, R. (2013).

Windows: It is an operating system under development, produced by Microsoft. The latest mobile version officially announced is Windows 10 Mobile. The top manufacturers of mobile devices for Windows are Microsoft and Nokia. Windows uses the Microsoft Store (formerly Marketplace) as its app store. It is also highly stabilized with Lumia devices.

1.3 Student Preference

Previous studies support a generally positive student attitude towards smartphone use in the classroom Kinash, Brand, & Mathew (2012). Kinash, (et al., 2011). Rossing, Miller, Cecil, & Stamper. (2011). Wakefield & Smith, (2011). A research study of 135 undergraduate students completed in 2010-2011 showed that 42% of students agreed that their smartphone had a positive effect on their learning (Kinash, Brand, & Mathew, 2012). A case study by Lahmers et al. (2015) examined students' satisfaction with smartphone use. In this study, a sample group of 34 first-year graduate students completed self-reported preliminary and final questionnaires from autumn 2013 to spring 2015 Lahmers (et al., 2015). Students reported their level of comfort and familiarity with smartphone technology in both pre and post surveys. The results indicated that 82% of the students who took the pre-survey and 94% of the students who completed the questionnaire comfortably use the smartphone in their class assignments DuBose, C., Amienyi, S., & DuBose, B. (2017).

Another published survey explored students' views on the pros and cons of smartphone and other mobile learning (m-learning) technologies in the classroom Gong & Wallace, (2012). Using the snowball sampling method, an electronic questionnaire was sent to the system mails of the students of Kastamonu University, Faculty of Education, Department of Fine Arts Education, Department of Music Education. The results showed that students perceived laptops as the most preferred mobile classroom technology, while smartphones ranked second Gong & Wallace. (2012).

Research studies show that besides determining student preference for smartphone users in the classroom, the inclusion of this technology leads to positive learning outcomes Clark & Luckin, 2013; Diemer, Fernandez, & Streepey, (2012; Mango. (2014). Mango (2014) researched 35 students enrolled in two classes of first-year music programs. Students used smartphones for an average of 30-45 minutes per week during the semester for the activities pre-designed by the instructor. At the end of the course, students were given a questionnaire to explore their perceptions of the effect of smartphones on music learning, as well as their perception of learning during classroom activities while using a smartphone. The results, with an overall average of 4.2 on the 5.0 Likert scale, strongly demonstrated that students see the smartphone as an effective tool to help them learn (Mango, 2015).

1.4 Technological Advances

Smartphones have undergone improvements in design, hardware and software since their introduction in 2000. Initially, the smartphone was simply "a device, a device consuming content and providing limited data input" Drew, (2011). As one of its primary functions, it enabled users to read and modify Microsoft Office documents Drew, (2011). A year later, the smartphone was introduced with additional features including front and rear cameras that have improved its recognition as a preferred camera option Kastrenakes, (2015). In less than two years, the smart phone evolution was quickly staged Kastrenakes, (2015). Each successive generation provided better image resolution, faster charging capabilities and stylish designs Kastrenakes, (2015). The third and fourth generations of the smartphone have

provided a wide range of differences, from storage to data speed and GPS options Nations, (2016).

Fifth and sixth generation smartphones were tagged respectively. These smartphones offered different features to consumers and offered consumers more options according to their personal preferences Nations, (2016). For example; 2nd generation smartphones offer additional color, are thinner, and offer better quality using the rear camera Nations, (2016). 2nd generation smartphones also offer both slow mode and burst mode for different photo taking options Nations, (2016). While many features of different smartphones versions have been improved, a few features of all versions have remained the same Nations, (2016).

During the evolution of smartphones, one of the most notable (and useful) developments in smartphones has been the development of educational apps. Both students and educators have discovered that using smartphones and tablets is now much more useful than the old chalkboard Jian & Tseng, (2012). Ironically, various applications are now complementing the use of Smartboard, the technological alternative to the traditional blackboard, causing smartphones to use various applications for activities such as video streaming and other applications Nations, (2016). Smartphone use is defined as a new constant in higher education classrooms. Students and faculty continue to adopt smartphones and similar m-learning devices Kinash, Brand, & Mathew, (2012).

However, more research is needed on students 'and lecturers' perceptions of this device. With the increasing popularity of smartphones and other m-learning devices, some researchers have focused on faculty use and perception of smartphones in the classroom DiVall & Zgarrick, (2014). A 2011 web-based needs assessment survey followed in 2013 revealed that faculty members' smartphone uses and perceptions are different DiVall & Zgarrick, (2014). In this study, respondents were most likely to use the smartphone for email access and management, file access, connectivity, paper / project annotation, teaching and student assessment in laboratories / seminars. The faculty, whose responsibilities were off-campus, were more likely to use the smartphone corresponding to the description and popularity of the devices used for m-learning DuBose, C., Amienyi, S., & DuBose, B. (2017).

2. Methodology

This study was conducted to evaluate students' smartphone use in order to lay the foundations of corporate smartphone use and determine how students feel about smartphones in the classroom. A questionnaire was applied to students studying at Kastamonu University, Faculty of Education, Department of Fine Arts Education, Department of Music Education, in the 2018-2019 academic spring term. The purpose of the survey is to determine how much students use their smartphones and what programs they use. To determine whether they use programs that will contribute to the field of music. It should not be forgotten that although music students tend to change their major or take the most appropriate course for their program, it is desirable in music lessons, but a homogeneous group cannot be obtained.

The survey consisted of quantitative and qualitative data. Open response questions asked students to identify:

- their top five favorite apps,
- the top five apps most frequently used for personal use,
- the top five apps most frequently used for school related use,
- the class for which they would most likely use the smartphone
- the types of activities performed using the smartphone for the listed classes,
- the class for which they would least likely use the smartphone
- and what factors they believed contributed towards any lack of smartphone use.

For these open response questions, students were asked not to include YouTube. Previous research studies indicated that YouTube is an overwhelming favorite for faculty and students, and researchers were interested in maximizing available responses DuBose, (2013).

Necessary permissions were obtained for this study before the survey distribution. Between 2018 and 2019, the data of 49 first year students were collected and entered into SPSS for analysis. Electronic survey distribution was used via Qualtrics software in the fall of 2015 and 2016. Questionnaire responses were entered manually in Qualtrics or SPSS, and both paper and electronic questionnaire responses were analyzed with SPSS version 23 statistical software. The accuracy of manual survey entry has been verified by random selection of third-party completed surveys. Writer. The coding results, which were tabulated by the first author, were also examined and verified for accuracy.

3. Result

The study was applied to students studying at Kastamonu University Education Faculty, Fine Arts Education Department, Department of Music Education in 2018 and 2019. It was tried to understand how students use smart phones, which programs they use, and how the programs they use are beneficial in the field of music and in the lessons in music schools.

The survey samples varied over the years, and 2018 showed that there were fewer students surveyed (Table 1). Of the 49 students, 31 (65.2%) were male and 18 (34.8%) were female. Students' ages range from 20 to 30, with 22 and 23 year olds in the majority (70% and 21% respectively). Participation numbers varied from year to year, depending on student enrollment and First Year Experience (Making Connections), faculty encouraging voluntary student participation.

Table 1. Frequency of Survey Responses by Year

Year	Percent of total n	Frequency (n)
2018	9	24.3%
2019	40	75.7%
Total	49	100 %

Table 1 shows the distribution of the questionnaires administered to students between 2018 and 2019. There are 9 surveys conducted in 2018. This covers 24.3%. Considering that students have just started school, it is natural that this rate is low. But considering the general average, the rate is low. Even though it is thought that the use of smart phones by students is the same, it can be said that the applications they use at school and in the field of music have increased year by year.

Table 2. Participation Demographics of Music Teaching Students according to The Lessons

Lessons	Frequency (n)	Percent of total n
Musical hearing training	11	22.5%
Instrument training	10	20.4%
Piano	8	16.4%
Music history	7	14.2%
Orchestra	5	10.2%
Choir	7	14.2%
Total	49	100%

Table 2 shows the breakthrough and distribution of the music department students according to the courses. If we look at the results; 11 people average 22.5% for Musical hearing training course, 10 people average 20.4% for Instrument training, 16.4% average for Piano class, 7 people average 14.2 for Music history, 5 people average 10.2% for Orchestra class, 7 people average 14.2 for Choir class people participated. A total of 49 people participated in the survey study. When the results are interpreted, 11 people with an average of 22.5% show the highest participation in the Musical hearing training course. When the results are interpreted, the number of people with an average of 10.2% in the Orchestra lesson shows the lowest participation. As can be understood from Table 2, there is a significant difference in the use of music applications on smart phones of music department students according to the lessons. It can be argued whether this difference stems from the teaching of the lesson or the teacher of the lesson.

Most Commonly Used Apps: Students were asked to list their top five favorite apps (Table 3), as well as their top five apps for personal (Table 4) and school related use (Table 5). Researchers expected to find the same apps listed for both "Top Five Favorite Apps" and "Top Five Apps for Personal Use." This hypothesis holds true for at least 4 out of 5 apps, with Snapchat, Instagram, Twitter, and Facebook remaining in the top five each year for both categories. Interestingly, Pinterest was a staple within the "Favorite Apps" category until 2016, when it was replaced by Group Me.

Table 3. Top 5 Reported Apps

2018 Application	%	2019 Application	%
Instagram	69%	Instagram	80%
Twitter	60%	Facebook	61%
Facebook	53%	Twitter	54%
Whatsapp	32%	Whatsapp	41%
Snapchat	27%	Pinterest	30%

Table 3 shows the top five apps most used by Music students on their smartphones between 2018 and 2019. If we interpret toblo; In 2018, instagram was 69%, twitter 60%, facebook 53%, whatsapp 32%, snapchat 27%. In 2019, instagram was given as 80%, twitter 61%, facebook 54%, whatsapp 41% and snapchat 30%. When the two-year period is shown, the highest rate was instagram, second was twitter, third was facebook, fourth was whatsapp, and the last was Snapchat. Considering the year 2019, a significant difference is observed in all applications compared to the previous year. It is common for students to increase their use of programs by seeing each other.

Table 4. Top 5 Apps per Year for Personal Use

2018 Application	%	2019 Application	%
Instagram	64.2%	Instagram	80.5%
Twitter	59.6%	Facebook	59.3%
Facebook	56.0%	Twitter	51.2%
Whatsapp	27.5%	Whatsapp	43.9%
Snapchat	22.9%	Pinterest	28.5%

Table 4 shows the top five apps most used by Music students on their smartphones between 2018 and 2019. If we interpret toblo; In 2018, instagram was 64.2%, twitter 59.6%, facebook 56.0%, whatsapp 27.5%, snapchat 22.9%. In 2019, instagram was given as 80.5%, twitter 59.3%, facebook 51.2%, whatsapp 43.9% and snapchat 28.5%. When the two-year period is shown, the highest rate was instagram, second was twitter, third was facebook, fourth was whatsapp, and the last was Snapchat. Considering the year 2019, a significant difference is observed in all applications compared to the previous year. It is common for students to increase their use of programs by seeing each other.

Unlike favorite apps and personal app categories, school-related usage practices are more fluid (Table 5). While popular apps for fall 2018 focus on the items needed to complete class assignments, the fall 2019 transition shows a combination of classroom-related functions.

Table 5. Top 5 Apps per Year for School Related Use

2018	%	2019	%
Keynote	50.4%	Blackboard	42.3%
Pages	40.3%	Notability	42.3%
Blackboard	29.3%	Smart Campus	39.0%
iBooks	25.6%	iBooks	23.6%
iMovie	17.4%	Safari	16.3%

Table 5 shows the top five apps most used by Music students on their smartphones between 2018 and 2019. If we interpret toblo; In 2018, keynote was 50.9%, page 40.3%, blackboard 29.3%, ibooks, 25.6%, imovie 17.4%. In 2019, blackboard was given as 42.3%, notability 42.3%, smart campus 39.0%, ibooks, 23.6%, safari 16.3%. When the two-year period is shown, the highest rate was keynote, second was motability, third was pages, fourth was smart campus, and the last was safari. Considering the year 2019, a significant difference is observed in all applications compared to the previous year. It is common for students to increase their use of programs by seeing each other.

Smartphone Integration in the Classroom: The researchers wanted to find out if students were using smartphones in the classroom, and if not, then why not? Data analysis shows that more than half of the students use smart phones, Musical hearing training, Instrument training, Piano, Music history, Orchestra, Choir. The most common activities listed for smartphone use included note taking, accessing Blackboard and / or PowerPoint slides, and completing quizzes through Socrative, Blackboard, or other application software.

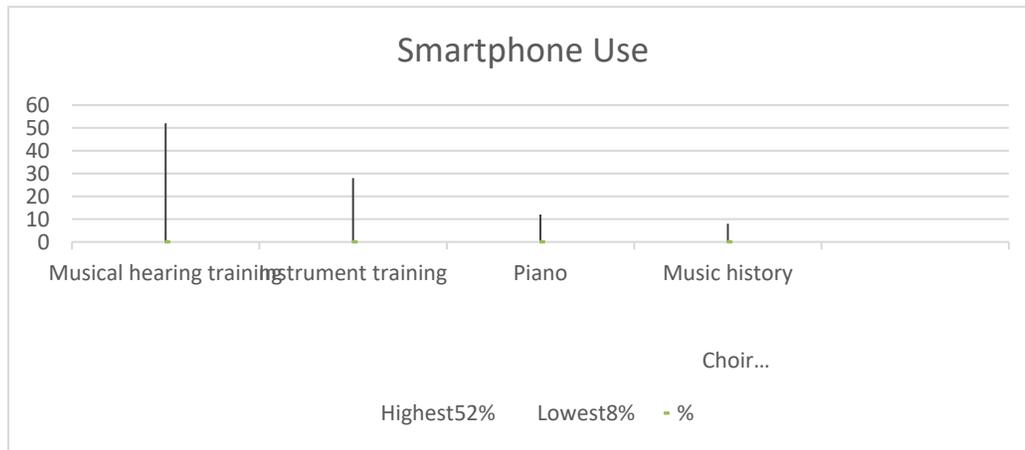


Figure 1. Most Common General Education Courses for Smartphone Use

Lessons reported for the least use of the smartphone included: music history, orchestra, choir. Lessons were recorded as the least likely to use smartphone technology.

Students provided information to the researchers for a variety of reasons that they believed smartphones were not used for specific lessons or classes (Table 6). The responses were coded into the most common responses: distraction, lack of faculty education, perceived subject mismatch, software compatibility problem, potentially untrained student, and reluctant academic.

Table 6. Reasons Students Believe the iPad is NOT Used in the Classroom

Reasons Students Believe the iPad is NOT Used in the Classroom
Students untrained on iPad potential
Unwilling professor
Perceived subject incompatibility
Software compatibility issue
Lack of faculty training
Faculty view as a distraction

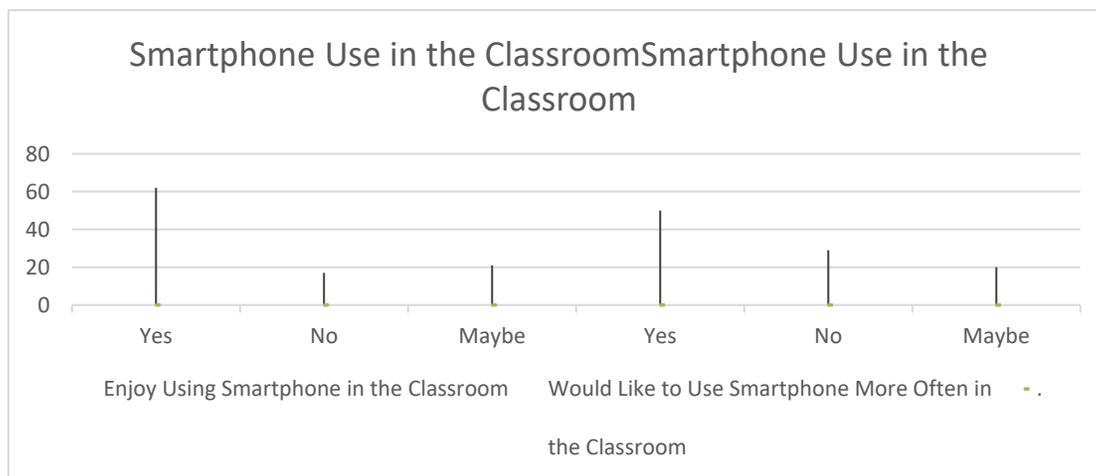


Figure 2. Student Perceptions Regarding Smartphone Use in the Classroom

"Distracting", "lack of faculty education" and "reluctant academic" were considered self-explanatory categories. "Perceived subject mismatch", "I think history is fine without it" or "What is a smartphone for college music?" It was used for answers like. The researchers chose the category based on information about popular apps used to take notes,

work with music, or apply recordings. At the end of the survey, the students were asked whether they liked using smartphone technology in the classroom. About 62% answered positively, 17% said they did not like it and 21% said they were not sure. When asked if they would like iPad technology to be used more frequently for classroom-related activities, only 50% said yes (Figure 2). Surprisingly, about 29% said they did not want to see more smartphone-related activity, while 20% said they were not sure.

4. Discussion

An analysis of the data shows that social media apps remain an overwhelming favorite, for both overall favorite apps and apps for personal use. For each year of this study, Facebook, Instagram (owned by Facebook), Twitter, and Snapchat remained in the top five. While Instagram and Snapchat were not surprising entries, rumors indicated that Facebook was decreasing in popularity Wagner, (2016). However, this study demonstrates that Facebook is alive and well for the current generation of students. Pinterest, another social media site in which participants can share and “pin” quips, recipes, and other information Pinterest, (2017), was replaced in the 2016 dataset by the newly popular GroupMe app. GroupMe (purchased by Skype in 2011) is a free social media app that allows users to chat with anyone, due to its high compatibility with almost all phone technologies and carriers GroupMe, (2017).

Researchers were also interested to see the absence of Yik Yak, a once popular social media app that allowed users to remain anonymous Straumsheim, (2016). The social media app was controversial due to the anonymous harassment and threats prevalent on its site. While Yik Yak made the 2014 list of top ten apps for personal use (17%), its popularity with participants in this study dropped to 5% by 2015. This drop is most likely due to 2015 policy changes by Yik Yak, in which user name and location required mandatory posting and participant anonymity was lost Straumsheim, (2016).

Apps that provide easy access to classroom or campus materials appear to be favorites for school-related use with the social media app GroupMe, and are again emerging in the last year. Students use GroupMe to collaborate with course projects and remind each other of their upcoming deadlines for tests and assignments. From 2018 to 2019, there has been an evolution in smartphone use, suggesting that in previous years the iPad was normally used for tasks that were dropped on a computer (i.e. Keynote, Pages, iBooks, iMovie), with a focus on fast information retrieval in later years. and rollback (SmartCampus, Socrative, Safari, GroupMe). Blackboard, the Learning Management System used for this university, was among the top five school-related apps for four years, and its popularity consistently ranks between 30-40% of the participants. SmartCampus, an application designed for A-State student use, was at the top of the list for 2018-2019. SmartCampus provides students with quick access to personal enrollments, campus maps, and various campus policies.

iPad Integration: Analysis of the smartphone's integration into general education courses showed a disappointing lack of campus-wide participation in the smartphone initiative. Music Department Connect courses are likely to include smartphone technology in the classroom. Also, the textbook for the music course is only available in iBooks, and the faculty is provided with PowerPoints to match text in both Keynote and Microsoft Office PowerPoint formats. While smartphone education and digital books are available in all campus faculties, it is not clear that non-smartphone faculty benefited from this training or technology DuBose, C., Amienyi, S., & DuBose, B. (2017).

Researchers noticed a decline in smartphone use between 2018 and 2019 for music education courses. These courses are required for most special aptitude test students preparing for the music department. It is not known whether there is a faculty change or another reason for this decreased smartphone use. When asked why smartphone technology was not integrated into various general education courses, some students responded in a predictably funny way. “Technologically challenged,” “he's not a great tech guy; likes to keep the old way” and “may not know how; he always writes everything on the board”. The answers that completely refute the purpose of the smartphone initiative were less funny: “The instructor does not want the use of technology to move away from learning”, “the instructor does not want us to use mobile phones, computers and smartphones he wants us not to use it” and “the trainers teach us; smartphones are not allowed” were some of the more disappointing reviews, but they were not surprising comments. These results show that, despite a year of implementation and use, not all faculty members are fully invested in the smartphone initiative.

Limitations: Survey data were collected. Data were manually entered into Qualtrics survey software or SPSS software by researchers and licensing assistants. Errors may have been made at the entrance. Attempts to minimize errors were made through random selection and review of keyed data. It is also possible that some surveys have not been entered into the system. Coded data and available statistics were reviewed to ensure that the survey results were reported correctly. Responses to this survey were self-reported. It is possible that some students shared false information through survey apathy or in an effort to provide answers they believed the researchers wanted to hear. There is some

question as to whether or not those completing the electronic survey did the same, which could affect overall survey accuracy.

Although research on technology use by faculty has been published, future research should include a questionnaire provided to students and faculty members at the same institution regarding the use of smartphones (m-learning). It would be interesting to see if faculty perception and use matches student perception and use. Are faculty willing to try if they aren't using a smartphone in the classroom? Do they believe that adequate training on how to use and apply this new technology is available to them? Are time constraints a factor for lack of use? Answering these questions and addressing the responses that arise can help the faculty move smoothly towards the inclusion of m-learning technology.

5. Conclusion

Research questions included which smartphone apps are most frequently used, how students use the smartphone, and whether students are satisfied with the current level of smartphone integration in the curriculum. The researchers were not surprised to find that the five most popular apps and the five best apps for personal use are mostly the same. At the same time, it was not surprising to see a distinct difference listed between the five most liked apps and the five best apps for school-related use, but it was interesting to note the further transition from study or classroom-related functionality to a tool for quick information retrieval or social media networking.

Study data shows that smartphone use is not prevalent on campus, and only a small percentage of courses are found to include this mobile technology. Possible reasons for the lack of integration are: technology is distracting, students are uneducated about the potential of the smartphone, lack of faculty education, reluctant professors, perceived subject incompatibility and software compatibility issues. The overall results showed that while the vast majority of students enjoyed using smartphones in the classroom and wanted to see more smartphone use, surprisingly 38% were unsure or dislike to use the smartphone and 49% were unsure or unwilling to use it. See other smartphone related activities.

Educators interested in the successful inclusion of smartphones or other m-learning technologies should consider how students choose to use these devices. Uploading course information to an accessible platform (eg Blackboard), encouraging classroom use through quizzes or games (eg Socrative, Kahoot!), And providing collaborative activities (eg GroupMe) enable students to use mobile technology in an effective and fun way.

References

- Ajzen, I. (1985). From intentions to actions: a theory of planned behavior. In Kuhl, J., & Beckman, J. (Eds.), *Action-control: from cognition to behavior*. Heidelberg: Springer. https://doi.org/10.1007/978-3-642-69746-3_2
- Alyahya, S., & Gall, J. E. (2012). iPads in education: A qualitative study of students' attitudes and experiences. *Ed-Media -Proceedings*, 3, 1266-1279.
- Arkansas State University. (2014, Nov 18). *News article: Arkansas State's first year experience program earns recognition as an Apple Distinguished Program*. Retrieved from <http://www.astate.edu/news/Arkansasstate-s-first-year-experience-program-earns-recognition-as-an-apple-distinguished-program>.
- Bostic, K. (2013, March 1). Arkansas State's 'iPad Initiative' will require all incoming students to have Apple's tablet. *Apple Insider*. Retrieved from <http://appleinsider.com/articles/13/03/01/arkansasstates-ipad-initiative-will-require-all-incoming-students-to-have-apples-tablet>
- Clark, W., & Luckin, R. (2013). What the research says: iPads in the classroom. *London Knowledge Lab, Institute of Education, University of London*. 1-31. Retrieved from <https://digitalteachingandlearning.files.wordpress.com/2013/03/ipads-in-the-classroom-report-lkl.pdf>
- Diemer, T. T., Fernandez, E., & Streepey, J. W. (2012). Student perceptions of classroom engagement and learning using the iPads. *Journal of Teaching and Learning with Technology*, 1(2), 13-25.
- Divall, M., & Zgarrick, D. (2014). Perceptions and use of iPad technology by pharmacy practice faculty members. *American Journal of Pharmaceutical Education*, 78, 1-7. <https://doi.org/10.5688/ajpe78352>
- Dorman, J. (2007). Engaging digital natives: Examining 21st century literacies and their implications for teaching in the digital age [PowerPoint Slides]. Retrieved from <http://www.slideshare.net/cliotech/engaging-digital-natives>
- Drew, J. (2011, October 1). The iPad decision: What CPAs should consider when weighing a purchase of Apple's

- popular tablet as a business tool. *Journal of Accountancy*. Retrieved from <http://www.journalofaccountancy.com/issues/2011/oct/20114361.html>
- DuBose, C. (2013). Faculty perception and use of social media in the radiologic sciences. *Radiologic Science and Education*, 18, 15-22.
- DuBose, C., Amienyi, S., & DuBose, B. (2017). Analysis of an iPad Initiative: Are Students Using the Technology? *Journal of Interdisciplinary Studies in Education*, 6(1), 15-27.
- Gong, Z., & Wallace, J.D. (2012). A comparative analysis of iPad and other m-learning technologies: Exploring students' view of adoption, potentials, and challenges. *Journal of Literacy and Technology*, 13, 2-29. GroupMe. About GroupMe. Retrieved 5 January, 2017 from <https://groupme.com/en-US/about>
- Hahn, J., & Bussell, H. (2012). Curricular use of the iPad 2 by a first-year undergraduate learning community. *Library Technology Reports*, 48(8), 42.
- Kastrenakes, J. (2015, April 3). *The iPad's 5th anniversary: A timeline of Apple's category-defining tablet*. Retrieved from <http://www.theverge.com/2015/4/3/8339599/apple-ipad-five-years-old-timeline-photos-videos>.
- Kinash, S., Brand, J., Matthew, T., & Kordyban, R. (2011). Uncoupling mobility and learning: When one does not guarantee the other. *Communications in Computer and Information Science*, 177, 342-350. https://doi.org/10.1007/978-3-642-22383-9_28
- Kinash, S., Brand, J., & Mathew, T. (2012). Challenging mobile learning discourse through research: Student perceptions of blackboard mobile learn and iPads. *Australasian Journal of Educational Technology*, 28(4), 639-655. <https://doi.org/10.14742/ajet.832>
- Krueger, C. W. (1992). Software reuse. *ACM Computing Surveys (CSUR)*, 24(2), 131-183. <https://doi.org/10.1145/130844.130856>
- Lahmers, A., Tressler, C., Yulish, T., Clinchot, D. M., Groden J. L., & Parvin, J. (2015, October 12). iPad enabled curriculum in a graduate program. *EDUCAUSE Review*. Retrieved from <http://er.educause.edu/articles/2015/10/ipad-enabled-curriculum-in-a-graduate-program>
- Mango, O. (2015). iPad use and student engagement in the classroom. *Turkish Online Journal of Educational Technology*, 14(1), 53-57.
- Nations, D. (2016a, February 16). The difference between the iPad air and the iPad mini 2. *Lifewire*. Retrieved from <https://www.lifewire.com/ipad-air-vs-ipad-mini-2-1994224>
- Nations, D. (2016b, December 21). What is the newest version of the iPad? *Lifewire*. Retrieved from <https://www.lifewire.com/what-is-newest-version-of-ipad-1994324>
- Nguyen, L., Barton, S., & Nguyen, L.T. (2015). iPads in higher education: Hype and hope. *British Journal of Educational Technology*, 46, 190-203. <https://doi.org/10.1111/bjet.12137>
- Pappas, C. (2012). Chapter 4: Medical librarian rounding with an iPad. *Library Technology Reports*, 48(8), 22-27. Retrieved from <https://journals.ala.org/index.php/ltr/article/view/4284/4912>
- Pinterest. What is Pinterest? Retrieved from <https://about.pinterest.com/en>
- Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The future of higher education? Student perceptions on learning with mobile tablets. *Journal of the Scholarship of Teaching and Learning*, 12(2), 1-26.
- Straumsheim, C. (2016, Dec 19). A lack of Yakking. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/news/2016/12/19/students-lose-interest-yik-yak-relief-administrators?>
- Wagner, K. (2016, March 30). Are young people leaving Facebook? Not even close. Retrieved from <http://www.recode.net/2016/3/30/11587380/are-young-people-leaving-facebook-not-even-close-chart>
- Wakefield, J., & Smith, D. (2012). From Socrates to satellites: iPad learning in an undergraduate course. *Creative Education*, 3(5), 643-648. <https://doi.org/10.4236/ce.2012.35094>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).