BRAIN. Broad Research in Artificial Intelligence and Neuroscience
ISSN: 2068-0473 | e-ISSN: 2067-3957
Covered in: PubMed.gov; IndexCopernicus; The Linguist List; Google Academic; Ulrichs; getCITED; Genamics JournalSeek; J-Gate; SHERPA/RoMEO; Dayang Journal System; Public Knowledge Project; BIUM; NewJour; ArticleReach Direct; Link+; CSB; CiteSeerX; Socolar; KVK; WorldCat; CrossRef; Ideas RePeC; Econpapers; Socionet.

2020, Volume 11, Issue 1, pages: 121-130 | https://doi.org/10.18662/brain/11.1/18

Google AI Approach and Statistical Results of Using Google Applications in Mobile Learning

Huseyin BİCEN[1],
Ahmet ARNAVUT[2]

[1] Near East University, Faculty of Open and Distance Education, Nicosia, Northern Cyprus, huseyin.bicen@neu.edu.tr

[2] University of Kyrenia, Distance Learning Center, Kyrenia, Northern Cyprus, ahmet.arnavut@kyrenia.edu.tr

Abstract: *The aim of this study is to determine the view of students in the Near East University regarding the use of Google applications on mobile learning. A data collection tool consisting of 20 items developed by the researchers were used in the study. The cronbach's alpha rate of the data collection tool was found to be .942 as a result of the applications. General information is provided in the abstract section of the study. In the methods section the age and gender of the students and faculties in which the students are educated in is shown in tables. The data collected throughout the research is given in the results and discussion section and evaluated by the researcher in the conclusion section. As a result of the research it was concluded that the students have a positive view about the Google Applications in Mobil Education. When the data analyzed statistically it has found that using using Google Applications for students makes the most of the tasks easier to complete. Thus, students saves more time and energy by using this applications. Providing education on using these applications and benefitting from these applications will be good. With the data collected from this study it is aimed to guide other researchers from different universities and countries working on this subject.*

Keywords: *Artificial intelligence; mobile learning; Google applications; technology.*

How to cite: Bicen, H., & Arnavut, A. (2020). Google AI Approach and Statistical Results of Using Google Applications in Mobile Learning. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 11*(1), 121-130. https://doi.org/10.18662/brain/11.1/18

1. Introduction

It is not possible to ignore the changes in education today. However, it is not correct to link this change to only one subject. Even though technology takes the lead, factors such as people's needs, way of communication and priorities in life are also amongst the reasons of these changes (Ciampa, 2013). The developing technologies have changed and is changing not only education but also people's life styles in their houses and their hobbies in a visible way (Baran, 2014).

The area in which these changes are most affected is undoubtedly the field of education (Beldarrain, 2016). Depending on their personal needs, habits and hobbies, people have forcibly changed the methods of training and educational materials (Mtebe & Raisamo, 2014). Paper usage is reduced, digitization is increased, and digital documents are considered to be more reliable (Chen et al., 2015; Chiang et al., 2014). In addition, to bringing other conveniences these digital materials accelerated the exchange of files and documents. These digital documents and applications are headed by Google and Microsoft and other major corporations (Najafabadii et al., 2015; Hwang & Wu, 2014). As a search engine, Google has presented itself to the evolving digital world and to users of certain applications to contribute to education. These applications are similar versions of Microsoft Office applications online.

Google Docs for creating written documents, Google Sheets for creating account spreadsheets, Google Slides for creating presentations, and Google Forms applications for creating surveys for information and feedback are all applications that Google provide to be used in education. These applications can be used in traditional education as well as in distance education, and have a great contribution to distance education (Hobfeld et al., 2012).

As the largest contribution of distance education to applications, all of these applications are fully compatible with mobile technologies that have become a part of education today. This compatibility of these applications with mobile devices means that mobile devices are actively used not only by passive learners but also by those who teach and prepare materials.

The government, companies or individuals are constantly collecting data for further use (Atalay & Çelik,2017). These useful data are stored in electronic media today. Larger storage areas are needed as a result of mobile devices being used by larger masses and the increased coverage of the media created by these mobile devices (Millard, 2019). These mobile devices have

turned into smart mobile devices over time and their usage areas have increased. Mobile devices, which were previously used only for communication purposes, have become smart mobile devices and have turned into small computers that people take with them. The fact that these small computers make people's life easier and that they are constantly connected to the internet and provide access to social media has gradually increased their popularity (Liu & Bakici, 2019). Media and shared media that can be uploaded directly and easily to the social media environment with smart mobile devices, increase the data capacity in the digital environment with each passing second (Domoff et al., 2019). Therefore, the methods used to analyze this previously digital data have become increasingly unavailable (Ferguson, 2019; Ghani et al., 2019).

"Data never sleeps 7.0" shows how much activity happened on the internet in just one minute (Domo, 2019). The large number of activities reveals how large the resulting data can be analyzed. New methods are needed to analyze so much data accurately and conveniently; that is, "big data analysis" and "artificial intelligence". It is known that Google previously added artificial intelligence applications to its products, increasing the usability of the products and collecting data with this method (AI Multiple, 2019). Google also provides its users with applications to store data and analyze the collected data. Google's BigQuery application is a storage and analysis application with an artificial intelligence application (Cloud Google, 2020). By explaining the artificial intelligence and data collection approaches of Google, this study examines how much Google applications are used by students on mobile devices. The data obtained were analyzed and interpreted by taking Google's artificial intelligence and data analysis approaches into account.

2. Methods

The study took place in the Nar East University located in North Cyprus. The data was collected through a survey developed by the researcher.

2.1. Participants

The sample of the research consists of 123 students studying at Near East University.

Gender

The gender distributions of the students participating in the survey are as shown in the table below.

Table 1. Distribution of students by sex

Gender	**f**	**%**
Female	66	53.7
Male	57	46.3
Total	123	100

As shown in Table 1, 53.7% (66 people) of female students and 46.3% of male students contributed to the survey.

Age

The age distributions of the students participating in the survey are as shown in the table below.

Table 2. Distribution of students by age

Age	**f**	**%**
18	12	9.8
19	26	21.1
20	31	25.2
21	17	13.8
22	13	10.6
23	10	8.1
24	5	4.1
25	6	4.9
29	1	.8
31	1	.8
39	1	.8
Total	**123**	**100.0**

As shown in Table 2, most of the sample is composed of students aged 18 to 23 years. According to the table, we can say that the average age of the students who contributed to the survey is 22.

Faculties and Schools

The faculties and vocational schools in which the students participating in the research are educated in are given in the table below

Table 3. Faculties and Schools of the students

Faculties and Schools	**f**	**%**
Faculty of Education	19	15.4
School of Physical Education and Sports	5	4.1
Faculty of Dentistry	2	1.6
Faculty of Pharmacy	5	4.1
Faculty of Arts and Sciences	24	19.5
Faculty of Fine Arts and Design	3	2.4
Faculty of Nursing	5	4.1
Faculty of Law	5	4.1
Faculty of Economics and Administrative Sciences	4	3.3
Faculty of Communication	3	2.4
Vocational Schools	1	0.8
Faculty of Engineering	4	3.3
Faculty of Health Sciences	27	22.0
Faculty of Medicine	8	6.5
School of Tourism and Hotel Management	8	6.5
Total	**123**	**100.0**

As shown in Table 3, the students contributed to the research from 15 different faculties and schools in Near East University. The number of students contributing to the research from the faculties of education, faculty of arts and sciences and faculty of health and sciences, which have a high number of students, is higher than the other faculties and colleges.

2.2. Instruments

As data gathering tool in the study, students perspectives on the Students' Perspectives on the Use of Google Applications in Mobile Learning questionnaire developed by the researchers has been used. It

consists of 20 positive statements. According to the answers to be given for the statements 5 points for "Completely Agree" and 1 point to "Completely Disagree". The Cronbach Alpha rate of the questionnaire has been determined as very reliable (.942).

2.3. Data Analysis

The research data were analyzed by the SPSS and the frequency has been analyzed as percentage and average and interpreted.

3. Results and Discussion

This section includes average and standard deviation findings related to the use of Google applications in mobile learning.

3.1. Students' Perspectives on the Use of Google Applications in Mobile Learning

On Table 4, there are average and standard deviation results of Students' Perspectives on the Use of Google Applications in Mobile Learning.

Table 4. Students' Perspectives on the Use of Google Applications in Mobile Learning

Items	Mean	SD
I create surveys with Google forms	2.65	1.09
I can easily download the results of surveys created via Google forms	3.01	1.15
I prefer participating in surveys created via Google forms	3.25	1.12
I do not hesitate to provide personal information in Google forms.	2.72	1.16
It is easy to Access Google documents applications via my mobile phone	3.36	1.13
I can easily do my homework via Google documents	3.46	1.11
I can develop cooperative projects via Google documents	3.15	1.12
I can easily share written information via Google documents	3.38	1.08
I can easily create slide shows via Google slides on my smart phone	3.37	1.05
I can create cooperative slides trough Google Slides	3.21	1.03
I can share high-volume files with friends via Google Drive	3.40	1.10

I can Access my folders at any time and at any place via Google Drive	3.43	1.18
I find it safe to save my folders on Google Drive	3.19	1.12
I can understand contexts published in different languages via Google Translate	3.32	1.27
I can access scientific contexts about my courses via Google Scholar	3.51	1.16
I can easily create my own web page with Google sites	3.31	.98
I can easily remember important dates like assignments via Google Calender	3.35	1.11
I use Google apps for educational purposes	3.54	1.02
I can download my presentation from anywhere via Google Slides	2.81	1.08
I can easily navigate to places I want to reach via Google Maps	3.08	1.04

When we look at the average and standard deviations of the items in Table 4, it is seen that there are some similarities between the students' viewpoints of using Google applications for mobile learning apart from some materials.

In the survey consisting of 20items the responds of the students are as below; "I can easily do my homework via Google documents" (M=3.46, SD=1.11), "I can share high-volume files with friends via Google Drive" (M=3.40, SD=1.10), "I can Access my folders at any time and at any place via Google Drive" (M=3.43, SD=1.18), "I can access scientific contexts about my courses via Google Scholar" (M=3.51, SD=1.16) and "I use Google apps for educational purposes" (M=3.54, SD=1.02), for these items the respond of "I agree" was in the range of (M=3.40-4.19). These materials show us that students use Google applications to share or do their homework. Students responded to the rest of the questionnaire in the range of "Not sure" (M = 2.60-3.39).

A similar study titled "A Study of Student Use of Cloud Computing Applications" completed by Taylor and Hunsinger in 2011 show that at the university level, students' intentions to use Google Docs are positively and significantly correlated with the constructs from the Theory of Planned Behavior [11]. To reach better results about this topics, studies in the area can be merged by researchers who studies on mobile technologies.

4. Conclusion

Looking at the statistical results, it was seen that students' views on using Google applications in education were not negative. Students who responded to the questionnaire at most moderate levels indicated in their responses that they also participated in assignments and some of the materials related to the lessons. As a result of the study, it was decided that some studies could be done to make the students' views on the use of Google applications in mobile education even more positive. It has been concluded that informative trainings should be conducted for informing and making students use these technologies. In the direction of the statistical data obtained from the study, it has been decided that students should be educated about the contents such as questionnaire creation, document creation, form creation and sharing, and students should be informed more.

In the present age, the level of data produced with the development of technology is increasing day by day. From these data, the results that cannot be obtained with manpower can be obtained with machines. But it is also important to be able to use them correctly rather than obtaining data. People who take advantage of these technologies can sometimes be afraid of being reached in terms of their locations, their search histories in search engines, or their searches in different applications However, providers generally aim to provide the user with speed and convenience in their next searches by accessing this information. Using mobile devices correctly and consciously will ensure that we do not have any fear in us, and that we get more efficiency from the devices and applications we use.

5. Future Studies

In future studies, it is planned to measure how much information students have about the privacy policies of the devices and applications they use. In line with the data obtained, it is aimed to inform students about the privacy policies of large companies and to enable students to benefit from the mobile technologies they use more consciously. In order to achieve this goal, not only students but also the society of today should be informed about concepts such as artificial intelligence, machine teaching and big data analysis.

References

AI Multiple, (2019). Google is AI first: 12 AI projects powering Google products. Retrieved on 15.02.2020 from https://blog.aimultiple.com/ai-is-already-at-the-heart-of-google/

Atalay, M. & Çelik, E. (2017). Büyük veri analzinde yapay zeka ve makine öğrenmesi uygulamaları. Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 9(22), 155-172.

Baran, E. (2014). A review of research on mobile learning in teacher education. *Journal of Educational Technology & Society*, *17*(4), 14-17. Retrieved from https://pdfs.semanticscholar.org/f8cd/7b9a7e60e5724b694b1377991565ec0f891a.pdf

Beldarrain, Y. (2006). Distance education trends: Integrating new technologies to foster student interaction and collaboration. *Distance education*, *27*(2), 139-153. https://doi.org/10.1080/01587910600789498

Chen, B., Seilhamer, R., Bennett, L., Bauer, S. (2015). Students' mobile learning practices in higher education: A multi-year study. *Educause review*, 7. Retrieved from https://er.educause.edu/articles/2018/4/changing-mobile-learning-practices-a-multiyear-study-2012-2016

Chiang, T. H., Yang, S. J., Hwang, G. J. (2014). An augmented reality-based mobile learning system to improve students' learning achievements and motivations in natural science inquiry activities. *Journal of Educational Technology & Society*, 17(4), 352-365. Retrieved from https://www.researchgate.net/publication/287529242_An_Augmented_Reality-based_Mobile_Learning_System_to_Improve_Students'_Learning_Achievements_and_Motivations_in_Natural_Science_Inquiry_Activities

Ciampa, K. (2013). Learning in a mobile age: An investigation of student motivation. *Journal of Computer Assisted Learning, 30*(1), 82-96. https://doi.org/10.1111/jcal.12036

Cloud Google, (2020). Google Cloud Platform. Retrieved on 10.02.2020 from https://cloud.google.com/products

Domo, (2019). Data Never Sleeps 7.0. Retrieved on 20.02.2020 from https://www.domo.com/learn/data-never-sleeps-7

Domoff, S. E., Borgen, A. L., Foley, R. P., & Maffett, A. (2019). Excessive use of mobile devices and children's physical health. *Human Behavior and Emerging Technologies, 1*(2), 169-175. https://doi.org/10.1002/hbe2.145

Ferguson, A. G. (2019). The rise of big data policing: Surveillance, race, and the future of law enforcement. New York, U.S.A.:NYU Press.

Ghani, N. A., Hamid, S., Hashem, I. A. T., & Ahmed, E. (2019). Social media big data analytics: A survey. *Computers in Human Behavior, 101*, 417-428. https://doi.org/10.1016/j.chb.2018.08.039

Hobfeld, T., Schatz, R., Varela, M., & Timmerer, C. (2012). Challenges of QoE management for cloud applications. *IEEE Communications Magazine, 50*(4), 28-36. https://doi.org/10.1109/mcom.2012.6178831

Hwang, G. J., & Wu, P. H. (2014). Applications, impacts and trends of mobile technology-enhanced learning: a review of 2008–2012 publications in selected SSCI journals. *International Journal of Mobile Learning and Organisation, 8*(2), 83-95. https://doi.org/10.1504/ijmlo.2014.062346

Liu, Y., & Bakici, T. (2019). Enterprise social media usage: The motives and the moderating role of public social media experience. *Computers in Human Behavior, 101*, 163-172. Retrieved from https://instituteforpr.org/enterprise-social-media-use-the-motives-and-role-of-public-social-media-experience/

Millard, C. (2014). Data Privacy in the Clouds. In M. Graham and W. H. Dutton (Eds.), *Society and the Internet: How Networks of Information and Communication are Changing Our Lives* (p. 146). Oxford Scholarship Online. Retrieved from https://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199661992.001.0001/acprof-9780199661992-chapter-22

Mtebe, J. S., & Raisamo, R. (2014). Investigating students' behavioural intention to adopt and use mobile learning in higher education in East Africa. *International Journal of Education and Development using Information and Communication Technology, 10*(3), 4-20. Retrieved from https://files.eric.ed.gov/fulltext/EJ1059061.pdf

Najafabadi, M. M., Villanustre, F., Khoshgoftaar, T. M., Seliya, N., Wald, R., & Muharemagic, E. (2015). Deep learning applications and challenges in big data analytics. *Journal of Big Data*, *2*(1), 1. https://doi.org/10.1186/s40537-014-0007-7

Taylor, C. W., & Hunsinger, D. S. (2011). A study of student use of cloud computing applications. *Journal of Information Technology Management*, *22*(3), 36-50. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.473.1926&rep=rep1&type=pdf