The Use of Educational Applications on the Student's Academic Performance

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Abstract: The main objective of the research was to examine the utility of educational applications of student's academic performance from a private senior high school in Marilao, Bulacan during the school year of 2020-2021. The main data gathering tools used in the study was a survey questionnaire under descriptive-correlational quantitative method and on identifying academic performances of senior high students using educational application and respondents were selected using a Total Population Sampling. The collected data were investigated and managed statistically through the use of descriptive statistics and Likert scale. As the surveyed data was gathered, results revealed that EA significantly improved the academic performance of the students, mainly the course subjects. EA is an effective support in doing school works and activities. This actively illustrates that EA have a significant correlation to the academic profile of students. However, results may prove the effectiveness of using EA but it is still lacking for some features. In order to attain the optimal performance of EA, the researchers recommend to use the appropriate and suitable apps for certain categories, have notifications before the deadline and a variety of teaching methods, personalization on the app and library and book search applications. With these innovative features, students can learn with more ease because EA became more interactive and reliable.

Keywords—Educational applications, Students' academic performance, Descriptive-correlational design

1. INTRODUCTION

Technology has become part of people's lives to the point that it even shapes the world and in every edges there's a technology. It can be helpful on every aspect of lives especially in education. Another tool in learning virtually is the educational apps such as google classroom, zoom, google meet, google sheets, photomath, camscanner, google docs, Microsoft word, excel, powerpoint, grammarly and even social media platforms like messenger, facebook, youtube, telegram, viber, etc. are used because social media platforms enables communication between educators and peers. Educational Application (EA) are created for the purpose of teaching and learning electronically or virtually. Frankly, everything an individual do in traditional learning can be now possibly done online through educational applications.

Nowadays, mobile learning really boomed today and almost everyone uses ICT devices and EA as a tool to teach and learn. If ever crisis arrives and took the stage, teachers and students can just rely on EA since it's the only available way to educate students and connect with educators. EA involve a number of styles, prices, and purposes such as systems allow to teach alphabet letters, sounds, and grammar in English as well as other languages to student pre-schoolers; for all grades, other programs incorporate mathematical techniques or are focused at helping to improve better writing abilities; other services, are structured for the use of some grades for teaching or assessment purposes like google classroom throughout the school systems.

However, considering the contributions of EA in mobile learning, researchers have found errors and issues that may still be encountered. First issue may be in terms of technology and apps' system such as (a) Majority of apps required internet; if the user doesn't have internet connection then the app is useless and may affect the academic performance of the peer. [1] (b) The second factor that may affect the usage of EA as cited by a study is the inadequate preparation, skills and experience have been reported; time, uncompromising attitude, and reluctance to use technology are the common challenges among teachers in shaping their use of technology. [2]. (c) The last factor would be the distraction faced by students. And another study cited that on current findings reports, some educators see mobile devices as disruptive instruments which are not helpful and increase diversion from learning. [3]. Upon using EA in ICT devices, at the same time, students may also access gaming apps and social media apps which may lead to distractions.

Some cited studies findings were either EA impacts the students positively, negatively, or in positively and negatively way. Issues in Educational Applications and its influence to the academic performance of students will be further investigated throughout the study.

Anyhow, the purpose of this study is to know the academic performance of students upon using Educational Applications to their schooling even if it may come in good or bad influence towards peers. The researchers would like to know the frequently used apps, recommended apps and how much students rely on educational applications. Adding up, the researchers wants to investigate the effectivity of educational application to the academic achievement of senior high students in private school in Marilao, Bulacan. The data and evidences will be gathered through survey

questionnaires, and be represented either in scales, outcome measures, and/or in graphical method.

2. RELATED WORKS

According to the Republic Act No. 10650 Sections 1&2 or the Open Distance Learning Act stated that,

"It is hereby declared the policy of the State to expand and further democratize access to quality tertiary education through the promotion and application of open learning as a philosophy of access to educational services, and the use of distance education as an appropriate, efficient and effective system of delivering quality higher and technical educational services in the country." [4]

Therefore, everyone can benefit from using Educational Applications especially the students and teachers. The apps helps teachers to promote the participation of learners to the classroom activities and to boost their motivation and performance. [5]. These apps will allow them to obtain necessary educational requirements. [6]. Lastly, RA 10650 was about to give access in academic services and it cannot be done without EA because it gives an alternative easiest tool for learning.

Technologies and ideas are constantly improving over time and no wonder that some geeks or builder of EA updates it to more efficient way in order to encourage students to learn in our current careers with the help of cell phones, laptops, tablets, and other gadgets. In addition, modern teaching uses creative tactics to test students' learning, like lesson-integrated games, applications and software, and EA enable teachers to update their lesson plans.

Surprisingly, because of constant innovations, apps for some major subject such as English, Filipino, Mathematics, Social Science and Science were created. In English and Filipino subjects, as identified by the authors: these include the google chrome, google translate, Microsoft apps, Meriam Webster, E-book, Grammarly, Duolingo etc; in Mathematics are apps like Photomath, Long Multiplication, Motion Math Zoom, Splash Math and etc. [7]; for Social Science are apps such as Explain Everything, StickPick, Aurasma, Socrative ClassDojo and etc. [8]; and lastly for Science are, Virtual Hope Box, PTSD Coach[9], eBird, Star Walk, NASA Globe Observer, The Elements, AcceleratAR and etc.

In helping you control your time, improve productivity, and assist you to make your own learning process, there are plenty of educational apps available.

Upon using EA for Science, it was confirmed by one study that the use of mobile applications in science education has been shown to be effective, relevant and important[10] because student's cognitive load decreased as abstract information became concrete in printed books via multimedia materials. [11]. Also, another findings revealed that 74% involved undergraduate students and 54% took place in a formal educational context for language instruction in English subject. Higher education teachers are encouraged to consider enhancing their learning experiences through mobile learning outside the classroom. [12]. Pre-and post-tests supports that the use of math apps also increased the learning of mathematics. The performance gap between failing students and typical students has been minimized and decreased. [13]. In social science research, the use of mobile apps presents that truly new social relationships have evolved between organizations and individuals [14]

EA helps in distance learning and gives opportunities for disable students to learn and connect with their classmates, teachers and friends. However, every coin has two sides, so, there are challenges in using EA such as there are times that it's hardly to connect with the internet. [15]. Educational Apps often lead to informal learning and are out of step with teaching in the classroom because of the limiting variables in the production of educational apps, and low quality and unspecified business model. [16]. Around the time of using EA, users may face some software and hardware issues, distractions, small screen size of many mobile devices and some users misuse it for fun only or having an unfamiliarity about the apps, and some have hidden, evil intentions that are obviously not good and need to be avoided. [17].

3. STATEMENT OF THE PROBLEM

The main goal of the study was to determine the effects of the use of Educational Application on Senior High School student's academic performance. Specifically, the researchers sought answers to the following questions.

1. How may the students' use of Educational apps be described in terms of doing school Assignments and/or activities?

2. What is the profile of the Students' academic performance in the following course subjects:
    2.1 English;
    2.2 Mathematics; and
    2.3 Science?

3. Does using the Educational Applications affects the Senior High school students' Academic performance?

4. What management implications can be drawn from the findings of the study to further improve the use of educational applications for the students of a private SHS?

4. METHODOLOGY

To conduct the study, researchers will be using a descriptive-correlational study quantitative research design. It identifies the causes and the interconnections that come directly between or among them. As cited by a study, it is a correlational study design which requires data collection to assess if there are impacts between two or more independent variables and dependent variable and to what degree. [18].

Quantitative type of research is the process of collecting and analysing numerical data to gather information. It is used to quantify the problem by way of generating data that can be transformed into usable statistics and also to measure attitudes, opinions, behaviours, and other defined variables – and generalize results from a larger sample population.

The main data gathering tool to be used for virtual gathering is through online survey questionnaires.

Before doing online surveys, researchers provided a permission letter to conduct the survey for the chosen respondents and shall be submitted to the school admin or grade level head.

When the permission letter was approved by the school admin or grade level head, the researchers then will distribute the survey questionnaires.

For an online survey the researchers made forms through a survey maker app, particularly google forms and then communicate to the respondents through personal message using personal accounts in social media.

As concluded by a study, questionnaires offer a relatively inexpensive, fast and effective way for a large sample of individuals to collect large amounts of data [19]. The researchers used close ended question for gathering quantitative data from the respondents. Closed-ended questions are often good for surveys, because you get higher response rates when users don't have to type so much. [20]. Also, answers to closed-ended questions can be easily analysed statistically. Respondents can answer closed-ended questions with the ff: Strongly Agree, Agree, Disagree, Strongly disagree, and Not sure. Wherein, these answers are under the statistical treatment of a five point Likert Scale.

For measuring the academic performance responses can be Excellent, Very Good, Good, Satisfactory, Acceptable and Unsatisfactory.

The researchers will use the Total Population Sampling in selecting respondents which is a type of Purposeful Method of Sampling. A Total Population Sampling is the choice of authors to select respondents with same qualities or meets certain criteria. Simple terms, the authors decide what are the needs to be considered and sets out to find individuals who, through expertise or experience, can and are able to provide certain data. [21]. The respondents in this study are the Senior High level in a private school in Marilao, Bulacan. Researchers have set a discrete number of respondents to be surveyed. The respondents was supposedly equivalent to the total population of SHS students of academic year 2020-2021 in a private school which is in numerical data is one hundred forty-eight(148), but due to some communication challenges and limited nature, only 70% of students were surveyed through Likert scale.

Likert scale is named after Rensis Likert, the social psychologist who invented the use of scale points in this type of rating system. The Likert scale was developed for the measuring of 'attitude' in an agreed and tested scientifically way in 1932. [22]. It enables the individual to convey how much they agree with a specific statement or disagree with it.

This study used the descriptive statistics to evaluate data that is collected from the survey. Descriptive statistics summarizes and organize the characteristics of the responses. Descriptive Statistics are an essential part of the main data analysis and provide the way to assess inferential statistical tests for variables. [23]. Through descriptive statistics, researchers basically explain narratively what the data indicates or what it shows.

5. RESULTS AND DISCUSSIONS

The Use of Educational Applications

Students naturally learn and explore from their mobile devices nowadays, unlike in a normal classroom set-up, the learnings of a student will only depend on the educator. An educational application is a computer program that is able to work on ICT devices. Also, the advancement of mobile educational apps lets the education system sustain the accessibility of the resources needed academically. [24]. Children may learn from mobile games and therefore, mobile apps may also be considered as EA. In addition to that, social media platforms can become an EA once it was used for student-teacher communication. Simply, any apps that can help an individual learn academically independent are considered as EA.

In this study, usage of educational apps are measured either to be an effective platform for learning or not.

Table 1. The Use of Educational Applications in Education

Indicators	Mean	Interpretation
3. I can reach the course materials when I need.	3.93	Agree
4. The application is rich in terms of materials.	3.82	Agree
6. I can learn through the application independently of time and place.	3.72	Agree
9. It can be used in traditional education as a support for students.	3.87	Agree
10. The application increases the quality of education.	3.62	Agree
11. The application enables the communication between student-teacher.	3.83	Agree
13. Design of application is appropriate for education.	3.88	Agree

15. The application is a good alternative for interaction.	3.72	Agree
17. The application is appropriate for self-development.	3.61	Agree
Average	**3.78**	**Agree**

It was drawn in Table 1 that Educational Applications positively contributed in education and increases the academic experience of students as the table shows an average score of 3.78 with an interpretation of "Agree". From the table above, questionnaire no. 3 obviously had the highest mean score of 3.93 and interpreted that EA helps students in reaching the course material was "Agreed".

Table 2. The Use of Educational Applications in terms of doing school Assignments and/or activities

1. The application is appropriate for me to follow the lecture.	4.07	Agree
2. Following the lectures do not motivate me.	2.45	Disagree
5. It is easy to watch the video materials.	3.74	Agree
7. The application facilitates the learning of lecture contents.	3.88	Agree
8. It is a suitable method for me to share the course contents.	3.84	Agree
12. The application increased my interest towards lectures.	3.47	Not Sure
14. Flicking through the pages is easy.	3.62	Agree
16. I would like to use such applications to future lectures.	3.72	Agree
Average	**3.60**	**Agree**

Table 2 illustrated the average of using EA was effective in terms of doing Assignments and/or activities as of its 3.60 score to be interpreted as "Agree". Nonetheless, the mean score in questionnaire no.2 shows a disagreement that lectures do not motivate the students. However, it was seen in questionnaire no. 12 that EA was neither increases nor decreases the interest of students because of its interpretation of "Not Sure" with a mean score of 3.47.

Assignments and activities' purpose is to enhance the academic ability of the students. This is an established scientific fact, and it also is the idea behind giving students enormously productive and engaging assignments. [25]. Students gain knowledge more when they read or do something on their own and this was also proven by the tables above. Simple and logical, assignments and activities done online or with the help of EA offers timely explanations and helps enhance self – efficacy of students.

Relatively, a study conducted an investigation about the measure of difficulty in using the app and the results showed that it was easy to practice [26]. These kind of apps can improve the communication, problem-solving skills, reasoning skills, and student perceptions towards tasks. [27]

Student's Academic Performance

Academic performance is an indicator of student's achievement in a number of academic subjects. Educators and school administrators usually assess success by academic achievements, general grade average, test scores and the outcomes of examinations. Anything and any circumstances may unconsciously affect the student's academic performance. The academic performance depends on the environment a learner was in.

Table 3. The Profile of Student's Academic Performance in English, Science and Mathematics course subjects

18. Apps connected for English subject, enables me to improve my reading comprehension and grammar.	4.01	Agree
19. Apps for Science subject gives me more knowledge about sciences. (Formulas, chemicals, biology, physics, earth science, chemistry and etc.)	3.82	Agree
20. Apps for mathematics subject gives me more convenient solutions and formulas.	3.64	Agree
Average	**3.82**	**Agree**

Data gathered from Table 3 indicated the presence of EA in course subject to be at good outcome. It was presented above that EA helps the student improve their academic performances. Since English was not only a subject but also a universal language, the directions and services were encoded or translated in English. Frankly, it was observed by the researchers that EA had the highest benefaction in English subject with a mean score of 4.01 and was under the interpretation of "Agree". Overall, the Profile of Student's Academic Performance in course subject while using EA was transparently considered a success in accordance to the Average of 3.82, "Agree", on Table 3.

Table 4. The Profile of Students' Academic Performance in English

Indicators	Frequen	Percentag

	cy	e
Excellent (95-100)	23	37.1
Very good (90-94)	32	51.61
Good (85-89)	5	8.06
Satisfactory (80-84)	2	3.23
Acceptable (75-79)	0	0.0
Unsatisfactory (74 & below)	0	0.0
Total	**62**	**100%**

Frequency Distribution was used in interpreting the Table 4. It was shown that the academic performance of students in English subject with the help of EA were mostly in "Very Good" or with an average of 90 to 94. It was also observed that 0 students had an acceptable and unsatisfactory grade which means students have worked hard for it and comfortable with using EA.

There are plenty of EA to practice language, grammar, comprehension and reading skills of students. A study discovered solutions to improve the performance of students in English. Such solutions were by exercising language skills accurately within and outside the classroom, using modern social media to interact in English and to share the thoughts and needs of students may improve one's performance. [28]. In relation to the latter study, using mobile apps to tutor foreign language skills or literacy is effective and affects learners' understanding of vocabulary and sentence construction rules. [29]

Table 5. The Profile of Students' Academic Performance in Science

Indicators	Frequency	Percentage
Excellent (95-100)	19	30.65
Very good (90-94)	33	53.23
Good (85-89)	7	11.29
Satisfactory (80-84)	2	3.22
Acceptable (75-79)	0	0.0
Unsatisfactory (74 & below)	1	1.61
Total	**62**	**100%**

It may be gleaned in Table 5 that majority of distributed frequency of student's academic performance in Science performed "Very Good". Students was able to get 90 to 94 average because of the help of EA. Somehow, there is one among them who had unsatisfactory grade. But none of the students had achieved "Acceptable" average.

Science education is one of the major subjects for all students because in science, an individual were taught about the real world. Also, it is an important part in building foundation to educate children. Science can also be learned and taught electronically, the system is called mobile learning or distance education. However, to execute this system, ICT and Educational apps were used. As the utilization of distance education continue to increase, more research into the use of wearable applications in all fields and levels of learning science can enable science educators to develop their capacity to accept these apps. [30]. Therefore once the educators started to explore these app, there is a possibility that it will share the knowledge to students.

Table 6. The Profile of Students' Academic Performance in Mathematics

Indicators	Frequency	Percentage
Excellent (95-100)	20	31.25
Very good (90-94)	32	50
Good (85-89)	8	12.5
Satisfactory (80-84)	3	4.69
Acceptable (75-79)	0	0.0
Unsatisfactory (74 & below)	1	1.56
Total	**64**	**100%**

Data Analysis from Table 6 revealed the frequency distribution of the profile of students' academic performance in Mathematics. It was interesting to see that more students are "Very Good" in Mathematics and none of them performed "Acceptable." But also, there is one who still have a difficulty in performing to the subject even with the use of EA

Overall, based from the results above "Very Good", "Excellent", and "Good" have more distributed frequency among others. Thus, academic performance of the students with the usage of EA are admirable. In addition, a study concluded that the electronic training platforms of mathematics are practical and easy for use in learning mathematics [31].

6. CONCLUSIONS

Researchers have drawn the following conclusions based on the findings of the research: first; the use of educational application in education were classified as "Agree" which had been proven that the student's academic performance positively improves ; second, the use of educational application in terms of doing school assignments and/or activities defined as "Agree" which manifest the effectiveness of doing school works and boost the productivity of student's academic performance in English, Science and Mathematics course; third, Data analysis revealed that the educational applications significantly affect students' academic performance as evidenced by 0.97 correlation coefficients. This means to say that EA have a positive correlation with the student's academic performance;

and fourth, significant management implications were drawn from the findings of the study: (1) EA should reduce its data consumption to provide a more accessible educational app for the students, (2) EA should provide personalization that is suitable and much more refreshing and can make the student's working process much smoother, (3) Students need an EA that can be use as library and book search applications that is very accessible [32] [33] [34].

7. RECOMMENDATIONS

Based from the conclusions of the study, the following are hereby recommended:

1. Educational Apps can become more obliging and useful to students by considering EA as a regular tool to excel more with their education. In addition, for the improvement of EA, most students are accidentally becoming forgetful because of bunch of activities, by putting and providing notification on EA's before the deadline can serve as their reminder and lastly is by providing personalization to EA's that is suitable and much more refreshing and can make the student's working process much smoother.

2. The use of EA to their school activities may really improve and be more useful by using EA that are available for different types of skill levels and will essentially encourage learning as a variety of teaching methods like Q and A's, video tutorials and even educational games. Interactive EA are great for stimulating a student's mind. This will become more fresh and innovative way to learn by becoming more interested to what the student is trying learn.

3. Profile of student's academic performance in relation with their English, Science, and Mathematics course subject may further be improved by using EA such as library and book search applications. These applications make it easy for the students to search their appropriate study material in the mobile application thus, will give advantage and improvement to their desired course subject.

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