



**IMPACT OF VIRTUAL LEARNING IN ACADEMIC PERFORMANCE OF GRADE
11 STUDENTS SPECIFICALLY IN MATHEMATICS:
A LITERATURE REVIEW**

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ABSTRACT

This exploratory paper aimed to review various articles that explain the different impacts of virtual learning on the academic performance of grade 11 students, specifically in Mathematics. This aims to identify the research gap about the impact of virtual learning in grade 11 students. It reviewed articles published in online international journals from 2000 to 2021. The review focuses on the ideas and conclusions of the articles reviewed. The paper shows that the impact of a student's use of a virtual learning environment (VLE) on their academic performance has not been the subject of the many research, it is more on to be of interest to both learners and the educators who develop materials for a VLE (Demian and Morrice, 2015). That several factors were affecting the academic performance of grade 11 students in Mathematics during virtual learning. However, the literature reviewed showed that there were insufficient findings on the resiliency of the students on the impact of virtual learning in their performance in Mathematics. This was more on the academic performance in all subjects.

Keywords: Virtual Learning, impact, the academic performance of Grade 11 students

INTRODUCTION

Technology arises. Different modalities are being developed. Giving importance to the students was still the priority of education. That is the reason why this paper was being developed. Students in the context of this paper are exclusively from a public school. Students play an active role in education. While learning they involve each other and interact with fellow students and teachers in the classroom. They participate in discussions and act as receivers of information (Rhodes, Esha 2021). As time passes by, educators' role in education has destabilized from a facilitator to a task monitor. Being distant from the classroom or traditional learning, the world of education and learning is changing rapidly(crunchgrade.com/). From traditional learning to online/virtual learning. However, many students still get bewildered about which type of learning they should adopt (crunchgrade.com/). No matter which method of learning they should adopt, they are subject to embrace it due to some factors like the Covid-19 pandemic.

Virtual learning is a learning experience that is strengthened using computers and/or the internet, both inside and outside the premises of the educational organization. The instruction often takes place in online learning. The learning activities are carried out online wherein the teacher and learners are physically separated (in terms of place, time, or both) (Racheva, 2017).

Virtual learning has many forms. You may notice it is similar but represents different forms of learning. Some of them are as follows: E-learning, web-based learning, online learning, distance learning and blended learning. These forms of virtual learning are delivered to the learners differently with considerations to the lifestyles they have. Also, to the places they are located.

Aiding our learners' mathematical anxiety, and to promote their mathematics self-efficacy, learning motivation, and learning achievement has been a challenging and important issue to the Department of Education (Peters, 2013; Tapia and Marsh, 2004). Educators have tried to solve this problem by suggesting effective teaching strategies or tools in traditional and online instructional settings. Researchers however, found that mathematics remains a forbidding course for many students, and being learned that students do not try to find the answers when encountering difficulties during the learning activities, this seriously affects their learning outcomes of the students.

Literature review, in essence, expands the researchers' understanding of the studies they opt to conduct. Reviewing various articles will help to identify the gaps in existing literature related to the impact of virtual learning in academic performance of grade 11 students in the said schools. Another reason is, conducting this study will provide backbone for other studies that deal with similar topics.

DISCUSSIONS

IMPACT OF VIRTUAL LEARNING IN ACADEMIC PERFORMANCE

Virtual learning environments (VLE) have newly emerged as an important topic in education theory and practice ([Weller, 2007](#)). Only that most of them want to study only about virtual learning. They focus on different virtual learning optics they can use in teaching. The following studies were reviewed to determine the gap of the existing related literature.

The rise and popularity of computers and multimedia technologies have encouraged teachers and researchers to develop digital content and systems for mathematics courses. Examples of these are, (Morales ,2005) provided mathematical lessons on a website for encouraging students to do self-learning and have time for remedial instruction to be reduced. According to (Damian and Duguid, 2004) the application of multimedia and enjoyable activities to mathematical concepts could help students in mathematical learning and let them apply the concepts to daily lives. Based on (Nguyen et al. 2006), web-based learning allowed students to enhance and improve their mathematical learning attitude and promote motivation to their learning activities, as the interactive and instantly responsive instructions could help students construct and develop their knowledge (Steen et al., 2006; Moyer et al., 2008).

The Internet has increased over the world so as the different networking sites (Coronado-Hernandez et.al, 2016). One of the trending sites is Facebook wherein people can interact with each other far or near, share photos and the like. Brought by these clear images of the use of social networks, also identifying students' personal learning environments helps us to organize different activities that they will spend effectively (Coronado-Hernandez et.al, 2016). With this, educators should search all kinds of interventions to help students to participate in more academic activities related to their activities.

A lot of factors affect the academic improvements of the students. This trend was not different with face-to-face learning wherein the teachers instruct and teach the students about academics just the same thing happens in the virtual learning. The only difference is that in traditional learning, the students are limited with the classroom resources while the

teacher/instructor are discussing. While in virtual learning, students can access different resources online while the teachers are discussing. With so many required resources available on the internet allows the students to work independently and meet solely to “touch base” and assist each other as required. This flexibility of working is supported by other synchronous and asynchronous communication media such as email, social networking sites, mobile phones etc. (Demian and Morrice, 2015). Moreover, the use of the internet also connects to many other networks for exchanges of messages, file sharing and transfers. (Emeka and Nyeche).

We must accept that the internet has a great influence on our students especially in this time of pandemic wherein virtual learning is being implemented. This becomes their very first tool to learn on their own while the teachers are on the other side of the screen. Consequently, it is salient that the end user must be responsible to the awareness of the varied information available on the internet and well-educated in the criteria by which the information content should be accessed (Chapman, 2002). It is a great responsibility to every user on how to use the internet.

Positive Impact of Virtual Learning to the Learners

According to (Maqableh et al. 2015) on their published research on The Impact of Social Media Networks Websites Usage on Student's Academic Performance found out that there was a significant impact of SNS use per week on the student's academic performance. This indicates that there are no differences found in the impact of use of SNSs on academic performance due to age, academic achievement, and use per day to most used sites.

This venture that leads the educators and learners to utilize the virtual learning process leads to the opportunities in the new technologies to seek more interventions to support classroom materials and of course to create 100% virtual classes (Coronado-Hernandez et.al, 2016). This proposed that the subjects should be planned distinctly with a heart to the learners, so that the student can digest the contents with a practical and creative use of them (Ovallos-Gazabón et.al., 2016).

According to (Weller, 2009) a Virtual Learning Environment is a software system being designed to support education by providing different assessment tools, communication, content loading, student work performance, student group management, questionnaires, tools Tracking, wikis, blogs, chats, forums, etc. via Internet. According to (Muñoz and Towner, 2009) Facebook affects positively in the student's life because they can easily contact each other about assignments, projects, and some useful links with regards to their lessons.

CONCLUSION AND RECOMMENDATION

As an educator, I need to know the positive impact of this virtual learning specially in our learners in public schools. I have this eagerness to study the positive impact of this virtual learning in public school specially in the Philippines where I belong. It is because, as far as I remember only this pandemic, virtual learning was forcibly implemented in public schools here in the Philippines. It is hard during the asynchronous time since you cannot see the true learning scenario of the students.

Based on (Hung et. Al., 2014) on their study about effects of digital game -based learning on students' self-efficacy, motivation, anxiety, and achievements to learning mathematics, their experimental results and the students' interview feedback, proves that learning with digital games on e-books is able to attract attention to students and engage them in mathematical

practices, and it could be the reason why the students had significantly better mathematical achievements than other students

Only a few studies on the impact of online learning in mathematics were seen. A lot of reviewed literature generally focuses on all aspects not solely to the impact of online learning in mathematics. As a mathematics teacher, I'd like to see a review if this online platform really has a positive impact on the learners with regards to the mathematics subject.

I would like to recommend a study solely focusing on the impact of online learning in mathematics.

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