



EFFECTIVENESS OF ONLINE PLATFORMS ON THE COMPREHENSION OF MATHEMATICS LEARNERS

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ABSTRACT

Since the COVID-19 Pandemic started, teachers and students were left with no physical interaction in the classroom setting and relied more on online or other gadgets when it comes to learning. This article review aims to know the effectiveness of online platforms on the comprehension of Mathematics learners, and how well the students are able to grasp the lesson through online learning. In this study, useful strategies using the platforms in online teaching will be discussed as well as some possible hindrances in the learners' comprehension and other factors that might affect the learners. Using online platforms in teaching gives different kinds of outcomes when it comes to learning, some positive while others, the opposite. The overall outcome of this article review whether the comprehension of the students does not necessarily rely on the online platforms alone, but the strategies and other techniques the teacher utilizes to deliver their lesson in Mathematics.

Key Words:

“Effectiveness of the use of Online Platforms”, “Online Platforms”, “Comprehension of Mathematics Learners”

INTRODUCTION

Before COVID-19 pandemic happened, teachers were used to being able to teach inside the classroom and seeing their students. The interaction between teachers and students was engaging and fun most of the time. Now that the pandemic is still ongoing, students are left with the option of staying home while making sure their lives go on. Many countries started to offer online teaching to students by Zoom, Skype, FaceTime, etc. in order to promote online education and restore the normal teaching order (Chen, T., Peng, L., Yin, X., Rong, J., Yang, J., & Cong, G. 2020). The use of these online platforms made it bearable to continue teaching and the interaction between teachers and students. Learning using these online platforms was, and still is, a challenge for both.

Comprehension is the ability to understand something (www.dictionary.cambridge.org). Students ability to understand the lesson in either the classroom setting or any teaching approach that the teacher will utilize. Since the pandemic happened, the level of comprehension of students is a challenge to measure.

Moving instruction online can enable the flexibility of teaching and learning anywhere, anytime, but the speed with which this move to online instruction is expected to happen is unprecedented and staggering. (Hodges C., Moore S., Lockee B., Trust T., & Bond A. 2020). As challenging as it may seem, these online platforms serve as the classroom, virtual ones, that can be used wherever the students are. Teachers are able to present the lesson using strategies they learned and adapt to new ones even with these challenges. Utilizing these techniques and strategies make the lesson more fun and more interesting when games are added to the lesson.

Online learning has been around for quite some time. The strategies used in teaching to ensure learning have changed or evolved to suit the students' needs as well as the teachers. Not all the strategies that were taught apply to the learners, teachers must be able to choose the appropriate strategy for their students. Since the pandemic, different techniques and strategies

have been tried and tested to ensure that students are able to understand the lesson. When teaching, several online platforms are available to be used depending on the type of internet connection the teacher and students have. Zoom, Google Meet, and Facebook Messenger are some of the popular software or applications being used. When it comes to asynchronous activities, Google Classroom and Google Forms, Edmodo, and Facebook Messenger are some of the software or applications used in activities, handouts, modules and other tasks students need for studying.

Teaching online is very tough indeed, but it should not be just teaching. Using the strategies and techniques in teaching, teachers are not just teaching in front of the camera. Activities online can be done while online during classes using Zoom or Google Meet and can also be done using Edmodo or activities posted in Google Classrooms. Students have a tendency to have a short attention span and having an hour long discussion does not guarantee understanding after the online discussion. Utilization of online platforms in an online class should be used alternately to guarantee comprehension of lessons especially in Mathematics. Other software and applications should be used in teaching Mathematics, after discussion, there should be activities during the online discussion then a follow-up activity in Edmodo or other educational website that could make certain that learners understand the lesson. Since Mathematics is perceived as a challenging subject, it is more challenging in teaching the subject in an online environment. Engaging students in an online setting is somewhat challenging and not many students are fond of learning the subject. Implementing different teaching strategies in an online setting is strenuous at times but fun knowing that students understand the lesson.

During online classes there are times when a student or the teacher experience difficulty, it can be with the presentation of lesson, technical issues, and internet connection. These are some of the struggles of being in an online class. Teachers are expected to have additional resources in case technical issues appear to continue with the delivery of the lesson especially in Mathematics. There are many factors that might prevent a student from learning Mathematics. First would be perception of the subject. Second, would be how the lesson is presented. Third would be internet connectivity, application or software issues, and other technical concerns. Most of the students experience these uncontrollable issues online. With the use of other online platforms, students are able to follow the lesson and do the activity with the guide of the recorded discussion from the online class. Measuring the level of understanding is also a

challenge for teachers since the interaction between teachers and students only happens during the online classes. There are many other factors that might prevent students from comprehending the whole lesson in Mathematics, however, teachers can definitely make adjustments to make sure the lesson is presented well and that students are able to understand the lesson.

This COVID-19 pandemic has been an eye-opener for everyone. In Education, the students are the ones struggling to the “new normal”. Learning has to be continuous, even the pandemic cannot stop the students from learning however difficult it is. No matter how difficult the situation will be, learning should still continue especially for the young ones to prepare them for their future.

LITERATURE REVIEW

Helpful Strategies using Online Platforms

One of the advantages claimed by online courses is that students’ performance is not just assessed in terms of grades or learning outcomes, but can be evaluated in terms of learning curves and social adaptability (Van Dijck, J. & T. Poell 2018), and innovative methods can change the paradigm of teaching mathematics and inspire teachers to espouse new ideas and gain new experiences (Cevikbas, M., Kaiser, G. 2020). The strategies being utilized in the physical classroom does not necessarily apply to the online classroom, teachers have to create new strategies, new techniques that can help the students in understanding the lesson during the online class and even in online activities. With the help of the other online platforms, teachers and students can interact similar to how it was before. Students can accomplish the task with the help from their teacher be it thru online chat or the recorded discussion, that definitely is a huge relief in answering Mathematics activity and the students learn from it as well.

In the current online learning environment (also known as e-learning), keeping students' thoughtfully engaged and motivated while dispensing the required course content necessitates faculty enabling a safe, nonjudgmental environment whereby views, perspectives, and personal and professional experiences are encouraged. The educator must exhibit an educator-facilitated active, student-centered learning process, whereby students are held accountable for their active

participation and self-directed learning while balancing a facilitator role to further enhance the learning process (Sharoff, L. 2019). Catching the attention of the students is very crucial in an online class and learning and understanding will be gone if it is not caught during the discussion. It is really essential to have educators that are not afraid of changes, not afraid to try new things or create new things to ensure that the students' attention is caught and comprehension of the lesson is attained. That is the most important thing in teaching, knowing that the students learned something and that they had fun doing it as well. Learning is easy if the students are having fun during the discussion. Strategies and techniques should be interchanged to fit the students' needs and be able to learn. Making sure that the students are liable for their actions during the discussion since it's all online.

The virtual classroom-based learning process needs a combination of learning processes intending to reduce boredom, and most importantly, of course, the lecturer knows the needs of students related to the difficulties they face in building knowledge. Lecturers need to pay attention to the platform used can be operated well by students. Student personality factors become very important, one of which is students' prior knowledge of the material to be studied has an important role in the success of their knowledge formation process. Student's initial knowledge is an important factor in the formation of self-regulated self-learning. self-regulated learning makes students have a responsibility in the learning process, able to manage their emotions into motivation to gain meaningful knowledge when following the virtual classroom-based learning process (Jatisunda, M.G., Nahdi, D.S., & Suciawati, V. 2020). Understanding happens when the strategies and techniques executed are effective and the students are able to comprehend the lesson well. It is also important if students were able to read about the topic before the discussion to help them better in learning and be active in the discussion. Students should be able to read their lesson prior to the online class to be well prepared. With the help of the parents, learners should have a scheduled routine every class. This will make them understand that during this time, they should be studying and listening to the teacher similar to their physical classroom. If routine is not set, learning might be disrupted during online class and students' understanding might only be minimal or none.

Teachers' and Students' Obstacles during Online Learning

Teachers felt that even though online classes were convenient, could be taken from the comfort of their homes, saving travel time, it did not seem to be effective when compared to classroom methods. Teacher- student disconnect, lack of interaction, inability to engage the group, technical issues were found to be the main issues. Some of the other negative aspects of online teaching reported by teachers were: some of them found online teaching more time consuming as it required them to prepare ppt and extra materials for the classes, some reported that the online mode seemed too formal and lacked personal touch and did not seem lively. Difficulty in assessing concept clarity by students and to know if they are understanding what is being taught was another issue experienced (Nambiar, D. 2020). When the pandemic happened, nobody was prepared for what was about to happen and as the days went by, everyone started to look for ways to cope up with what was happening. That is also the same for Education, the people in charge had to start thinking of ways to make sure that all students and staff are continuing the learning. They were able to start the process, however, there were many struggles for them as well. It was not easy for them to embrace the change when some have been teaching for more than 20 years. Being asked to teach online and creating PowerPoint presentations for each class is overwhelming for them. Same goes with the students, they were used to going to school and listening to the teacher in school then going home. Now, it's going online and attending classes online and doing activities online without any interactions with other students. In some countries, the internet is one of the major concerns during online classes and using other online platforms for learning. The intermittent connection makes the online classes difficult and accessing their online activities with a slow internet connection does not make it even bearable for the students.

Most scholars have studied the impact of social media as tools, assessing their immediate impact on learning. While some predict they may potentially revolutionize education, others see them as potential minefields (Van Dijck, J. & T. Poell 2018), and Liu, Z.Y., Lomovtseva, N. & Korobeynikova, E. (2020) said that online learning platforms play an important role in modern education. However, they may not be sufficiently represented in educational institutions. As long as the online platform is being utilized properly, it is a very useful tool in learning. If people do not use it properly, then learning can be delayed and worse, it can be stopped. If teachers and students do not have training or at least have someone teach them how to use the online

platforms correctly, then learning continues. There will not be teachers being frustrated because the screen froze or the presentation is not showing or the students cannot hear anything.

A model relying on national online education platforms that were recently established in many countries, to address challenges associated with the shortage of qualified instructors and growing demand for higher education (Chirikov, I., Semenova, T., Maloshonok, N., Bettinger, E., & Kizilcec, R. F. 2020), and the challenges faced by lecturers in implementing online learning include: limitations in presenting material, especially when courses have many mathematical equations and programming languages. Besides, the lecturers are not good at video editing or animation using various animation maker software. They are limited to presenting material using PowerPoint and text (Irfan, M., Kusumaningrum, B., Yulia, Y., & Widodo, S. A. 2020). These were a few struggles they had to face and they had to overcome fast to be able to continue the students' learning. In every change, there is always a struggle to make it work and once it is overcome the journey continues. Same things happened with the teachers and students, they both encountered big changes during the pandemic and they had to do something to continue with the learning. These online platforms are very helpful when it comes to learning, but the users need to be taught how to navigate it. If not, they will not be able to understand the discussion.

The use of fully online mathematics teaching has been increasing worldwide. Mathematics is more challenging to teach fully online than face-to-face. Trenholm, S., & Peschke, J. (2020). Online learning mathematics activities have significant mean differences in clustering. The reason for these differences could be due to prospective teachers' attitudes towards the use of technology in learning mathematics. Mulenga, E. M., & Marbán, J. M. (2020). Online teaching and learning are an unprecedented experience for most teachers and students; consequently, they have a limited experience with it. Mailizar, M., Almanthari, A., Maulina, S., & Bruce, S. (2020). The current study enriches academic literature in understanding the condition of distance learning during school closure due to pandemics, important guidance for future studies. Sukendro, S (2020)

Mathematics teacher educators face a challenge of preparing teachers to use technology that is rapidly changing and easily available. Teachers have access to thousands of digital tools to use with students and need guidance about how to critically choose and use tools to support students' mathematics learning. Hollebrands, K. F. (2017). They choose carefully the resources

and especially in which ways to utilize them in mathematics teaching. However, teachers seem to expect that the curriculum material provides augmenting facilities and the use of the material is worth the effort Krzywacki, H., Hemmi, K., Remillard, J., & Van Steenbrugge, H. (2018). Everything is challenging when it all started, the new environment, new material to prepare, new strategies to apply. Same with students, “new normal” for them is having a virtual classroom with limited to no interactions with other classmates, and navigation of the online platform.

SYNTHESIS

The articles reviewed showed that there are several online factors affecting the comprehension of Mathematics learners using online platforms. However, the literature reviewed shows insufficiency of studies on other factors that could affect comprehension in students. The willingness to learn of the students is a very important subject matter of the study. Thus, it is recommended to conduct further studies on the other factors affecting comprehension of Mathematics learners.

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