The Relationship Between Using Technology In Education

Teachers in classrooms are expected to use technology like computers in order to enhance teaching and learning. (Saal, Ryneveld & Graham, 2019) In South Africa, one of the many strategies to improve performance in a classroom included integrating technology into a teaching environment in which kids could use any technology as need be. Although the teachers in South Africa had ICT? a majority of them did not fully utilised the (ICT) technology in their classroom. Petronella Eliza Saal is one of the people who observed what was happening in these schools in South Africa. What was found was that 73.9% of the students there were being taught didn't have computers in their classroom. The other 26.1% of students had computers in their classroom and were being taught using technology. These computers in South African classrooms were not being used to help teach students, in fact, they were being used by teachers to complete administrative tasks.

The purpose of this paper is to examine the findings of Saal and his team of researchers. In their study, they came up with three research questions. (Saal, 2019) One, how do South African students and their teachers use (ICT). Two, do teachers support and use (ICT) to its full extent? Three is there a relationship between using (ICT) in a classroom and can a student learn from using technology, and show progress in their school work. One of the hypotheses they came up with was that there is no relationship between technology and in-class learning using that technology. The other hypothesis they came up with was that there is a relationship between the use of technology in the classroom and how students perform when being taught with technology. They predicted that they would see a significant association in each class where educational technology was used. These hypotheses were then tested by comparing p-values. The P-value is a calculated probability against the hypotheses when the null hypothesis (H0) of the study question is true. In their study, the researchers found that their hypothesis was correct. By looking at the p-value they could see that their hypotheses were supported.

The researchers set up and conducted a study in order to see the relationship between technology and learning in a classroom. In this study a total of 48 countries participated, observing grade 5 and grade 9 students. In total 10,932 students who went to a variety of different schools were observed and studied. Data was collected from these schools from October to December. An assignment booklet was given to each student, inside were fourteen mathematics questions and fourteen science questions. Students involved in the study had 36 minutes to complete the test, with a break in between sections. All technology was tracked so the researchers knew the school, student, teacher, and class in which the student was in. Some of the technology used in the study included computers and tablets.

The results showed that 38.61% of schools had a lack of technology, affecting the results of the study negatively. On the other hand 29.65% of schools were not affected by the lack of technology. The findings showed that 89.78% of students didn't have technology available for them during use for mathematics lessons. 10.21% of students had access to technology available for them in their classrooms and schools. Students who had the technology available to them during lessons achieved a higher score, while those who didn't have technology available for them during lessons achieved a much lower score.

After reading this paper there are a couple of things that jump out at me and make me question whether or not their study could have been conducted better. I think they should have conducted their study in a place where education standards and school standards were higher. They could have also conducted this study in different colleges, specifically D-1 colleges. Doing this might show a greater gap in technology and their grades and education. Another thing that jumps out at me is the age range in which they choose to observe the students and how they followed them. I think they should have chosen older students, choosing older students is better I believe because their brain is more developed and they can understand and solve issues better than younger students. I understand that it would be hard to get approval from colleges to have a study done, where some teachers would teach their classes without technology and some would teach their classes with technology. I believe if these measures were taken and the tests were given to the students who had technology in classes and those without technology, there would be a greater difference in scores. Then you could visible see that technology does make a difference in classrooms, because if a D-1 college student doesn't do as well on a test and they didn't have technology in the classroom and another college student had technology in their classroom and they did better on the same test then you can surely say that technology does make a difference in the classroom. The data which was collected was only collected from October to December. I don't think this is enough time to accurately say that technology has an impact in the classroom. The researchers only looked at the impact over a three-month period. Expanding this limitation to over a year could show much more significant results that support their hypothesis.

In conclusion, educational technology in South Africa was investigated. It was found that the use of educational technology is related to the mathematics achievement of the students in South Africa. Although there was only one study done to find this, I think they could have increased the time of the study and the age of participants of the study. I also think they could have repeated the study and compare the results.

Abstract

The “White Paper on e-Education” expects teachers to use computers in their classrooms in order to enhance teaching and learning (Department of Education [DoE], 2004). Despite all the efforts, which include, for example, the Teacher Laptop initiative, the Gauteng Online initiative and the Khanya project, initiated by the DoE, it seems that South African mathematics teachers do not fully utilise ICT technology in their classrooms (Mofokeng & Mji, 2010; Ndlovu & Lawrence, 2012; Stols et al., 2015). Additionally, Saal (2017) found that 73.9% of South African students were taught by teachers who were not using computers in mathematics instruction. The rationale of this study was twofold. Firstly, very few South African mathematics teachers use computers in mathematics instruction. For instance, the Second Information Technology in Education Study (SITES) 2006 found that merely 17.95% of these teachers integrated computers in mathematics instruction (Law, Pelgrum & Plomp, 2008). Howie and Blignaut (2009) and Saal (2017) also found that South African mathematics teachers mostly used computers for administrative tasks. On the other hand, SITES 2006 found that more than 80% of Norwegian mathematics teachers implemented computers in their Saal, van Ryneveld & Graham 407 International Journal of Instruction, July 2019 ? Vol.12, No.3 classroom instruction. Additionally, more than 80% of the Singaporean mathematics teachers reportedly used computer applications as a supplement in mathematics instruction (Mullis et al., 2012). Secondly, relating to the rationale of this study, the poor Grade 5 mathematics achievement, in

South Africa (see the TIMSS 2015 results), was also one of the reasons this study was conducted. As a result thereof, a quantitative study was conducted in order to investigate how educational technology was used in mathematics teaching and learning. Additionally, the relationship between educational technology and mathematics achievement, in South Africa, was explored.

References

1. Saal., Ryneveld., Graham. (2019). The Relationship Between Using Information and Communication Technology In Education and The Mathematics Achievement Of Students. Retrieved from https://eds-a-ebscohost-com.northernvermont.idm.oclc.org/eds/pdfviewer/pdfviewer?vid=10&sid=292f7e0d-8254-4374-ac82-c718853e6014%40sessionmgr4008