Research Proposal

Alex Alexandre

Doctorate in Educational Technology Leadership

EDTC 809 Assessment and Evaluation

New Jersey City University

Dr. Christopher D. Carnahan

November 25, 2021

Title of the Study:

Technology Application in Grammar, Middle, and High School Classrooms Should Be Apportioned in Terms of Time

Brief Description of the Study

This study will seek to demonstrate that technology application should be measured in a classroom in terms of time. The framework model will be TPACK, technology, pedagogy, and content knowledge, "developed and published by Mishra and Koehler (2006 as cited by Hill et al., 2020). According to TPACK, teachers should know their content material, pedagogy, "the teacher's knowledge about the methods, practices, and processes for teaching and learning," that they should use to facilitate the transmission of knowledge, and technology to be able to enrich a classroom experience (Hill et al., 2020). There has been research done on percent of technology and pedagogy that should be allocated in a classroom. This research would like to demonstrate that technology also should be timed in a classroom so that technology can have its full effect and success. Timed meaning that students are practicing a task, or an activity within a percentage of a class time using a technology tool. For instance, the teacher introduces a lesson during 20% of the time. The students discuss the lesson and demonstrate their understanding for 25% of the time. Then, the students practice the learned skills on an integrated technology tool for 40% of the time. Finally, the students present a summary of the lesson in the remaining 15% of the time.

Technology time, in this case, refers to time on task developing a skill whether solving equations, writing an English composition, and/or developing a science or social study project.

The emphasis is on an independent practice that is timed to produce a result, a score. The use of technology tools such as Google Slide, Nearpod, and Kahoot, for instance, will be accounted as pedagogy in a classroom. These will be identified as passive cases of using technology. These passive cases will be incorporated as part of pedagogy. It is the same as watching a video, which is a passive use of technology, which is pedagogy. However, when children are creating and editing a video, that would be active use of technology, which may be counted towards the percentage of constructive technology use.

It is documented that technology all by itself is insufficient to produce great success in education (Hill et al., 2020). The problem is that technology has been used mostly in the passive manner such as watching a video, playing a Kahoot game, and taking a Quizizz quiz. Technology should be redirected more towards the stages of the SAMR model. For example, for substitution and augmentation, a student uses Google Docs to write and edit an answer. For modification, a student creates a video with a Google slide presentation. Still with the same topic and prompt, a student creates a movie for redefinition.

This research will focus on setting a path that will ensure that technology is used for productivity. Technology should be used not simply to keep students emotionally engaged, but also intellectually engaged in a classroom setting. Interactivity will have to go beyond clicking a, b, c, or d on a remote or wireless device. It will mean sitting on a device, for a substantial amount of synchronized time, critically thinking through a subject. Meanwhile, the teacher may have access to the work, providing feedback as part of pedagogy. This research will revolutionize technology approaches to teaching and learning.

Participants

The participants will be teachers and students. The teachers will be used for interviews as part of the qualitative phase and for surveys as part of the quantitative phase. The students will be used simply for surveys. There will be a greater pool of teachers for the surveys, which will be as many as they are “available” and willing to complete the survey. The plan is to have five times as many surveys as there are interviews.

Selection of the Participants

To select teachers for the interviews, I will talk to some of them and ask them to volunteer their time for an interview. With the permission of some school principals, I will also attend some staff meetings, make an exposition of the research and its need, and ask for volunteers who are willing to be interviewed. I will need at least 30 to 50 volunteers. The plan is also to go to surrounding school districts and follow the same process until I have a minimum of 50 volunteers and at least 250 survey respondents. The expectation is to have a five-to-one qualitative-quantitative scale.

To select students, I will send consent forms to parents to ask them permission so that their children may be able to complete the questionnaires. The consent forms will explain the research, its purpose, and its need. I will try to include surrounding schools in this part of the process by visiting them, writing them, and acquiring permission. I will try to have a gatekeeper contact person in each school. Middle and high school students will be eligible to take the surveys.

Means to Contact the Participants

To contact the interviewees, gatekeepers, and principals, I will establish an email and phone list. Participants will be contacted based on their preferred means of communication through email, text, or phone. Interviewees will be provided with a short questionnaire that includes name, phone number, email address, and preferred means of communication. Contacting students will be made through school visitation and the assistance of gatekeepers.

Potential Issues

Getting participants for the interviews, scheduling the interviews, finding locations for the interviews will be a complicated task. The plan is to be as flexible as possible and to make it up to the participants. If there is no convenient site for an interview, we will schedule it in Zoom. Also, this topic requires a depth of understanding of the knowledge and correlation between pedagogy and technology. Available candidates may be minimal to debate this issue. In addition, the statistical factor, getting a vast number of participants to fill out the survey questionnaire, is another cause for concern.

Research Questions

1. What is the percentage of time that should be allocated for technology in a classroom setting that students may experience full success learning through technology?
2. How does technology contribute to the development of high achievement at the grammar, middle, and high school level for all students?
3. How do the responses of “the qualitative interviews” combine with the questionnaires from the quantitative phase to demonstrate the necessary amount of time that should be dedicated to active learning through technology?

Need of the Study

This study is important. Its significance is to find the accompaniments that technology needs to be the provider of high achievement and success in the domain of education. Research has shown that technology all alone is not enough to deliver the high level of success that is expected among students. The TPACK framework model explains that technology should be combined with pedagogy and content knowledge. TPACK has been exhaustively researched, but the problems remain. There has been integration of curriculum and technology with application tools such as Nearpod and Edpuzzle. Still, the lack of success has persisted. It means that there is a need for more research to determine what should be done to assist technology to be a greater, better provider of knowledge. A study of how the use of technology can be defined in terms of being passive and/or active, that passive use should be defined as passive use, and active use should be defined as active use, and active use of technology should be documented as the means that will produce the highest quality of success, is a needed study. If students spend a fair amount of quality time constructing knowledge through technology, their improvement will be highly meaningful. This is the primary goal of this research.

Methodology

This study will follow the convergent and concurrent mixed methods design. It means that the qualitative and the quantitative studies will occur at the same time. It is designed as qualitative-quantitative so that there may be a comparison of the perception of a few individuals to a larger population. It is a means of triangulation, validity, and reliability. This methodology is intended to study and evaluate, if any, gaps of knowledge, conceptualization,

and understanding among diverse groups. Mixed methods is selected so that there is at the end "a better understanding of the research problem" (Creswell et al., 2019).

To analyze the qualitative perspective of the research, "grounded theory" will be used. Codes, themes, and theories will be formulated as a result of the interviews. "Word transcription" will be prepared through "a computer document analysis" (Creswell et al., 2019) before the coding process. At the same time, the questionnaires will be scored, graphed, and "interpreted." From the quantitative data, there will be analyses of "trends and general tendencies" (Creswell et al., 2019). At the end, the qualitative and quantitative data will be reviewed to identify whether the information "converges" in support of each other or "diverges" in the rejection of each other. A discussion of the results will reveal the findings.

Types of Questions

1. What does it mean to measure time spent, in technology, in a classroom?
2. What is a passive use of technology?
3. What are examples of passive use of technology?
4. What is an active use of technology?
5. What are examples of active use of technology?
6. What makes TPACK an insufficient model to resolve the problem of learning through technology?
7. What percent of a class period in technology would be qualified as sufficient to generate meaningful growth?
8. What role can the SAMR play in producing?

9. What part of technology is pedagogy?

Brief Description of the Types of Questions

Technology has been used widely, in the last decade, in classrooms, across the world. If it was up to technology, based on its use, a large number of students would be writers, scientists, technologists, mathematicians, and engineers. Some students spend their whole day in front of a computer or a digital device, but their scores show minimal to no growth. Therefore, the types of questions will seek to investigate why those children are failing. The questions will work to find solutions on how to remedy this tragedy. Students watch countless videos; students play a great deal of interactive games, and students are exposed to a substantial amount of slides whether from Google Slides, Nearpod, Pear Deck, Edpuzzle, and others. What have students benefited from all these exposures? This is one type of question that will be asked. At times, instructors use technology in a classroom for the purpose of pedagogy. Can the use of technology for teaching be accounted for by the use of technology, for learning, for the purpose of growth and development? These are questions that this research project will attempt to find answers for. The answers to these questions will help to better understand how technology may be properly used in a classroom to benefit children fully.

Reference List

Creswell et al. (2019). *Educational research: planning, conducting, and evaluating quantitative and qualitative research.* Pearson. New York, NY.

Hill et al. (2020). Understanding secondary school teachers' TPACK and technology implementation in mathematics classrooms. International Journal of Technology in Education (IJTE), 3(1), 1-13. https://files.eric.ed.gov/fulltext/EJ1264156.pdf.