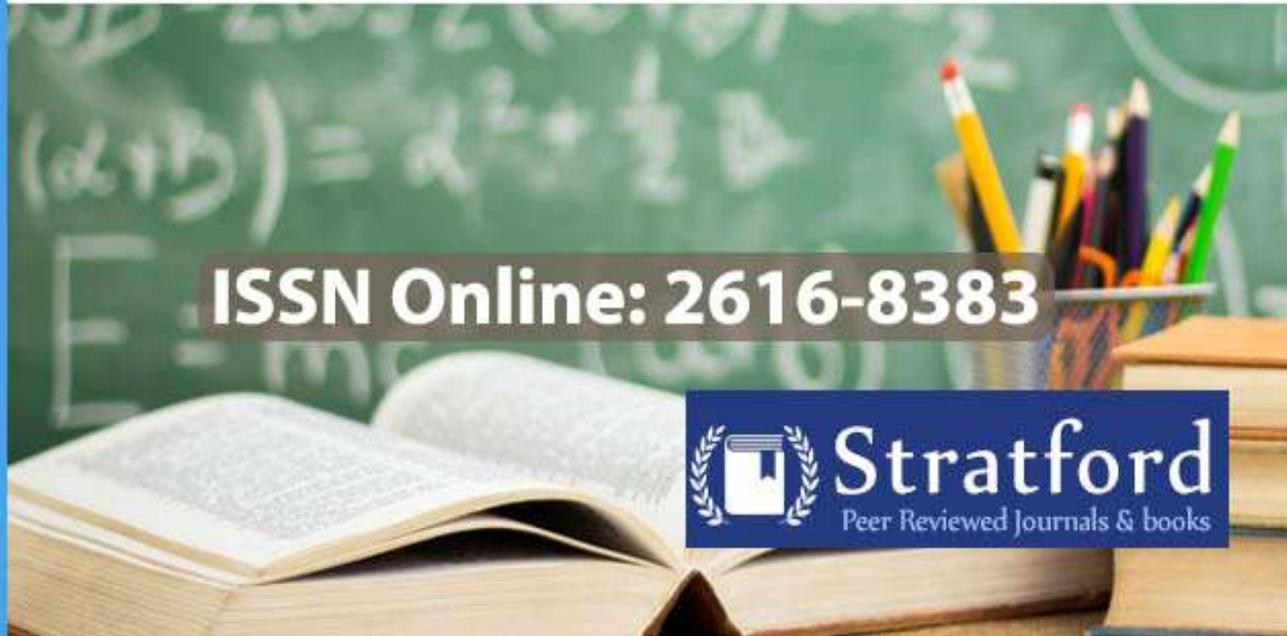


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Effect of Technology Adoption on the Quality of Education among Schools in Switzerland

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Effect of Technology Adoption on the Quality of Education among Schools in Switzerland

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Abstract

The quality of education is core in enhancing the economic development of a nation. A nation cannot be progressive without investing in quality education. The quality of education can be attested based on the absorption rate of the students in the job market. The study looked at the effect of technology adoption on the quality of education among schools in Switzerland. The study was a desktop type of research. The study was carried out by examining the previous studies rather than physical investigations. The research relied upon past literature to make inferences. The study found that technology increases the quality of education in schools. Making good use of ICT in education and learning has been factored to be important in developing the motive of the students. The most important element that supports the use of technology in the educational system is the internet. The presence of the internet makes the students search for information from the internet and this can lead to more understanding and also, they become more innovative. The study found that e-learning boosts the availability of reading products which assists in better education. E-learning includes all kinds of electronically supported knowing as well as training. E-learning involves providing material with electronic media such as the internet, intranet, extranet, LAN, Satellite wide costs as well as audio videos. The study concluded that the advantages of technology advancement are that it enables students to become innovative. The aspect of technology advancement cannot be ignored and all sectors need to incorporate the technology in the production process. Blended learning can be used in schools. This blended learning includes using both online and physical methods while teaching and passing information to students. The study also concluded that intuition needs to adopt modern technology that is effective and reliable in the current situation. The study recommended that the adoption of technology need to be included in all the schools in Switzerland. The aspect of technology needs to start from primary school. Technology must be made appropriate and also beneficial for teachers to anticipate increased inspiration amongst the trainees, specifically those trainees who have unique demands. The study also recommended that schools need to be connected with the internet. The study also recommended that blended learning can be used in schools. It was also recommended that schools need to adopt the most effective technology. Obsolete technology to be avoided at all costs. The government should make it compulsory for all the schools to be using technology while teaching.

Keywords: *Technology, quality, education, Switzerland*

1.0 INTRODUCTION

The quality of education is core in enhancing the economic development of a nation (Akomolafe, Ogunmakin, & Fasooto, 2019). A nation cannot be progressive without investing in quality education. The quality of education can be attested based on the absorption rate of the students in the job market (Heflin, Shewmaker & Nguyen, 2017). A higher absorption rate in the job market signifies that the quality of education is good. In contrast, a higher unemployment rate with many graduates signifies that the quality of education is dismal and there is an unmatching between skill obtained and job specifications (Kopcha & Alger, 2018). Technology has been considered as one of the factors that are influencing the quality of excavation among the students (Bouck, Okolo & Courtad, 2017). Investing in knowledge acquisition facilitates maximum exploitation of the resources. In most of the developed nations, they have maximized the investment in the provision of quality education (Shieh, 2019).

The rate of technological advancement is rapid and schools are integrating the concept of technology in their courses (MacLaughlin, Supemaw & Howard, 2018). MacLaughlin, Supemaw and Howard (2021) reported that a combination of computers in schools provides instant access to the electronic resources provided by various resource providers. Information and communication technology is one of the most essential driving forces promoting economic development in the economy and thus it is important to be provided as early as possible (Vigdor, Ladd & Martinez, 2021). Indeed, making use of ICT in education and learning has been factored to be important in developing the motive of the students. ICT has a significant influence on the education sector. The role of technology in the field of education is that it facilitates to move from passive and responsive to interactive classrooms.

Education is essential in corporate and academic settings. The importance of quality education or training is to make good use of any available opportunities around (Ajibade, 2018). The integration of technology in the education system has facilitated higher learning capacity. In an academic context, ICT can enhance access to education as well as enhance its relevance and top quality. Tawafak, Romli and Almaroof (2018) reported that ICT has an incredible impact on education and learning in terms of acquisition and also absorption of understanding to both instructors and students through the promotion of interactions. The function of technology in education and learning has been ever before changing. Schools and other learning institutions are supposed to move with modern technology. An effective technology adopted today maybe not be applicable tomorrow. It is the mandate of the entire management of the schools to be innovative and introduce modern technology to avoid the possibilities of mismatching of the skills and the market demand (Carrillo, Onofa & Ponce, 2018). In the current world, technology enables students to achieve as well as master ways that can enhance performance. The computer system as well as modern technology, if made use of appropriately, can conjure up the desire psychological of enthusiast instructors who saw the countless potential for altering traditional ideas of teaching and learning.

Technology enhancement in schools is the only way that can lead to high performance and maximize full transition from schools to the labor force. The most important element that supports the use of technology in the educational system is the Internet. E-learning has become one of the fastest-moving trends in education and poses a promising alternative to traditional learning (Cavanagh, Bower, Moloney & Sweller, 2017). The advantages of technology advancement are that it enables students to become independent thinkers and also become more innovative. The aspect of technology advancement cannot be ignored and all sectors need to incorporate the

technology in the production process. Thus, institutions of learning also need to incorporate the aspect of modern technology in the learning process. Blended learning can be used in schools. This blended learning includes using both online and physical methods while teaching. Enabling students to be well conversant with modern technology can enable the creation of an innovation culture. Utilizing modern technology would certainly support the active discovering of students in an academic atmosphere and aid students accomplish meaningful understanding which, subsequently, could result in positive and progressive gains in solving challenges (Toland, 2017). Online direction, as well as methods, have ended up being more famous in education, permitting trainees with a selection of disabilities to engage in online understanding (Irving, 2019). It was against this background that the study sought to examine the impact of technology on quality of education among schools in Switzerland.

2.0 LITERATURE REVIEW

2.1 Empirical Review

A study conducted by Akomolafe, Ogunmakin and Fasooto (2019) to examine the impact of technology on student behavior. The study showed that technology in the universities has led to the cheating of the students. With the rise of technology in the World, it is possible for the development of technological developments like graphical calculators, high tech watches, mini cameras and similar equipment have become great sources to cheat in exams. Moreover, the study showed that it becomes very easier for students to write formulas and notes on graphing calculators, with the least chances of being caught. Thus, the advancement of technology and especially within the institutions of higher learning has led to the rise of unethical characters such as exam cheating.

Heflin Shewmaker and Nguyen (2017) conducted a study to examine the impact of technology on the quality of education among students in Turkey. The results of the study showed that high technology advancement has led to some of the students have a declining writing skill. Students use computers and phones for writing purposes and this has lowered the thinking capacity of the students. The computers can do most of the work after this promotes some of the students to be lazy. Despite some limitations to the study, it was noted that Indeed, making use of ICT in education and learning has been factored to be important in developing the motive of the students. ICT has a significant influence on the education sector. The role of technology in the field of education is that it facilitates to move from passive and responsive to interactive classrooms. An effective technology adopted today maybe not be applicable tomorrow. It is the mandate of the entire management of the schools to be innovative and introduce modern technology to avoid the possibilities of mismatching of the skills and the market demand (Carrillo, Onofa & Ponce, 2018).

A study conducted by Kopcha and Alger (2018) showed that technology has led to improvement in the performance of the study. The importance of using technology in the learning process is that it enables an extensive conducting of further research. Students can do their academic research when they are free. The most important element that supports the use of technology in the educational system is the Internet. The presence of the internet makes the students google a lot of information from the internet and this can lead to more understanding and also, they become more innovative. E-learning has become one of the fastest-moving trends in education and poses a promising alternative to traditional learning. The advantages of technology in education are that it facilitates the students to become independent thinkers.

An investigation was conducted by MacLaughlin, Supemaw and Howard (2021) to examine the impact of technology on the performance of students in the case of higher learning institutions in Malaysia. The study adopted the descriptive research design. The results of the study showed that technology is important in enhancing collaboration and cooperation within education. The study showed that ICT encourages interaction and cooperation among students, teachers regardless of the distance which is between them. Communication can take place at a far distance and this has stimulated the exchange of ideas which has led to better performance of the students. The study concluded that utilization of ICT is positively and significantly related to student performance.

The study by Cavanagh, Bower, Moloney and Sweller (2017) showed that technology use in schools increases the competency of students significantly. When innovation is used suitably, it can affect academic motivation. Modern technology encourages students offering them an opportunity to shape their very own knowledge. Nevertheless, Jacobs (2019) claims that innovation itself does not demand academic inspiration. Research study reveals that teachers should employ technical opportunities that supply accessibility to a bigger community or goal to boost a trainee's. Technology must be made relevant and also beneficial for teachers to anticipate increased inspiration amongst the trainees, specifically those trainees who have unique demands.

Kuimova, Kiyanytsyna and Truntyagin (2016) sought to take a look at just how e-learning has become an important part of boosting education top quality in secondary schools in Russia. The study took on a cross-sectional study design. The target population included 37 secondary schools in Moscow. The results of the research study kept in mind that e-learning improves the top quality of education and learning via the growth of pedagogical sources, motivation, educational networking as well as the growth of ICT facilities. The findings likewise noted that e-learning boosts the availability of reading products which assists in better education. The research wrapped up that e-learning is favorably about the top quality of education and learning.

Kalaivani (2014) sought to analyze the duty of e-learning in improving the quality of education in India. The results of the research found that e-learning includes all kinds of electronically supported knowing as well as training. E-learning involves providing material with electronic media such as the internet, intranet, extranet, LAN, Satellite wide costs as well as audio videos. The study showed that e-learning could be separated right into web-supplemented courses, web-dependent courses in blended mode courses and so on. E-learning approaches are computer-based learning, computer-based training, computer-supported collaborative learning, technology-enhanced discovering, and so on. Fast adjustments in innovations are indicating that the role of e-learning in the future will certainly expand enormously in education and learning. The research wrapped up that promoting e-learning in institutions in India has actually increased the high quality of education and learning favorably. The research suggested that schools need to support for e-learning to boost the high quality of education considering that innovation is inevitable.

Samsuri and Nadzri (2018) sought to determine student's points of view on the effectiveness of using e-learning in boosting the quality of education. The research study took on a mixed-method layout. Information was accumulated from 3 institutions in Shah Alam, Selangor. The data were examined using SPSS version 19.0. The results of the study suggested that the net is widely used as a research study as well as an academic device, supplying simple accessibility to worldwide info and instant interaction. E-Learning is one of the instructional educations and learning programmes that help trainees in their researches to boost the quality of education and learning. A lot of trainees are exposed to E-learning as well as among the reasons they choose to learn through

e-learning is that it offers them better flexibility to pick either instructor-led or self-study programs as well as additionally enable them to be adaptable to discover at any kind of location as well as time. However, the research located that of the downsides of using e-Learning is that it reduces the need for in-person communication with their friends. The study wrapped up that e-learning is critical in boosting the top quality of education among colleges.

Costa, Cardoso, Lima, Ferreira as well as Abrantes (2015) identified whether learner interaction affects academic success and also performance. A measurable study was performed, involving a depictive example of 1986 students attending Second Education and learning Institutions located in the central region of Portugal. Questionnaires were used to gather the information. The outcomes of the research found that the learner interaction consisted of learner-to-learner communication, student-to-instructor interaction and also learner-to-content interaction. The research concluded that student communications was positively on academic achievement and also performance. The study suggested that institutions require to stress more on the learner interactions so to increase the success and performance of the pupils.

Tawafak, Romli and Almaroof (2018) reported that ICT has an incredible impact on education and learning in terms of acquisition and also absorption of understanding to both instructors and students through the promotion of interactions. The function of technology in education and learning has been ever before changing. Schools and other learning institutions are supposed to move with modern technology. An effective technology adopted today maybe not be applicable tomorrow. It is the mandate of the entire management of the schools to be innovative and introduce modern technology to avoid the possibilities of mismatching of the skills and the market demand (Carrillo, Onofa & Ponce, 2018). In the current world, technology enables students to achieve as well as master ways that can enhance performance. The computer system as well as modern technology, if made use of appropriately, can conjure up the desire psychological of enthusiast instructors who saw the countless potential for altering traditional ideas of teaching and learning.

The rate of technological advancement is rapid and schools are integrating the concept of technology in their courses (MacLaughlin, Supemaw & Howard, 2018). MacLaughlin, Supemaw and Howard (2021) reported that a combination of computers in schools provides instant access to the electronic resources provided by various resource providers. Information and communication technology is one of the most essential driving forces promoting economic development in the economy and thus it is important to be provided as early as possible (Vigdor, Ladd & Martinez, 2021). Indeed, making use of ICT in education and learning has been factored to be important in developing the motive of the students. ICT has a significant influence on the education sector. The role of technology in the field of education is that it facilitates to move from passive and responsive to interactive classrooms. Palao, Hastie, Cruz and Ortega (2015) Conducted a study to examine the impact of technology on the quality of education. The results of the investigation indicated that technology advancement enables learners to have accessibility to computer systems and this strengthens the capability of doing the research. Through technology, different principles associated with discovering can be shared conveniently. The combination of IT in finding out process requires functional abilities as well as access to technical tools for teachers. As a result of technology, establishments have significantly bought the acquisition of equipment.

2.2 Theoretical Framework

The study was guided by information systems success theory. The information systems success theory was developed by William DeLone and Ephraim McLean in 1992. The theory shows that

information and communication technology is essential and enhances understanding among each other. The theory further indicates that the crucial aspect of having an effective communication system is to minimize the misunderstanding of some employees not to feel like they have been left out. According to the theory, an organization needs to establish an effective communication channel that ensures every person gets the information on time. The theory further establishes that the channels of communication should be reliable, cost-effectively and further designed in a way that will reach out to the intended people at the specified time. The theory also shows an efficient introduction of a sound communication system enhances efficiency and saves time from moving from one place to another. Besides, the theory stipulates than an effective communication system minimizes the embezzlements of the funds. Nevertheless, the theory faces some weaknesses. For instance, the theory did not consider the expense related to the application and installments of the channels of communication. Also, the theory sidelined the effects of outsiders accessing the information of an organization that may have some secrets on the factors of production. Also, another weakness of the argument is that some channels of communication may be costly to be maintained by the organization, thus lower the profitability. Besides, the theory did not establish the effect of training since some communication systems need training on how to handle them. Besides, the theory is relevant to the current study.

The theory shows that establishing a sound information system increases efficiency and saves time to move from one place to another. Besides, the theory reports that effective communication systems reduce misunderstanding of the employees, which is a critical factor in the working environment. The aspect of technology advancement cannot be ignored and all sectors need to incorporate the technology in the production process. E-learning approaches are computer-based learning, computer-based training, computer-supported collaborative learning, technology-enhanced discovering, and so on. Fast adjustments in innovations are indicating that the role of e-learning in the future will certainly expand enormously in education and learning. Thus, the theory was relevant to the study,

3.0 RESEARCH METHODOLOGY

The study was a desktop type of research. The study was carried out purely by examining the previous studies rather than physical investigations. The research relied upon past literature to make inferences. This type of study's importance is that secondary data is easily accessible and saves time and cost. The desktop research helped the researcher understand the research problem and conclusions were based on the prior researchers' opinions.

4.0 RESEARCH FINDINGS & CONCLUSIONS

The study found that technology increases the quality of education in schools. Making good use of ICT in education and learning has been factored to be important in developing the motive of the students. The role of technology in the field of education is that it facilitates learning to move from passive and responsive to interactive classrooms. The most important element that supports the use of technology in the educational system is the Internet. The presence of the internet makes the students google a lot of information from the internet and this can lead to more understanding and also, they become more innovative. The advantages of technology in education are that it facilitates the students to become independent thinkers. It was found that ICT encourages interaction and cooperation among students, teachers regardless of the distance which is between them. Communication can take place at a far distance and this has stimulated the exchange of ideas which has led to better performance of the students.

The study found that e-learning boosts the availability of reading products which assists in better education. E-learning includes all kinds of electronically supported knowing as well as training. E-learning involves providing material with electronic media such as the internet, intranet, extranet, LAN, Satellite wide costs as well as audio videos. The study showed that e-learning could be separated right into web-supplemented courses, web-dependent courses in blended mode courses and so on. E-learning approaches are computer-based learning, computer-based training, computer-supported collaborative learning, technology-enhanced discovering, and so on. Fast adjustments in innovations are indicating that the role of e-learning in the future will certainly expand enormously in education and learning.

E-Learning is one of the instructional educations and learnings programs that help trainees in their researches to boost the quality of education and learning. The study found that student communications are positively related to academic achievement and performance. ICT has an incredible impact on education and learning in terms of acquisition and also absorption of understanding to both instructors and students through the promotion of interactions. The function of technology in education and learning has been ever before changing. Enabling students to be well conversant with modern technology can enable the creation of an innovation culture. Utilizing modern technology would certainly support. the active discovering of students in an academic atmosphere and aid students accomplish meaningful understanding which, subsequently, could result in positive and progressive gains in solving challenges. Online direction, as well as methods, have ended up being more famous in education, permitting trainees with a selection of disabilities to engage in online understanding.

The study concluded that the advantages of technology advancement are that it enables students to become innovative. The aspect of technology advancement cannot be ignored and all sectors need to incorporate the technology in the production process. Blended learning can be used in schools. This blended learning includes using both online and physical methods while teaching and passing information to students. The study also concluded that intuition needs to adopt modern technology that is effective and reliable in the current situation. It is the mandate of the entire management of the schools to be innovative and introduce modern technology to avoid the possibilities of mismatching of the skills and the market demand.

5.0 RECOMMENDATIONS

The study recommended that the adoption of technology need to be included in all the schools in Switzerland. The aspect of technology needs to start from primary school. Technology must be made appropriate and also beneficial for teachers to anticipate increased inspiration amongst the trainees, specifically those trainees who have unique demands. The integration of technology in the education system is expected to facilitate higher learning capacity. Schools and other learning institutions are supposed to move with modern technology. It is the mandate of the entire management of the schools to be innovative and introduce advanced technology to avoid the possibilities of mismatching of the skills and the market demand. The study also recommended that schools need to be connected with the internet. Computers should be made available and accessible to all. The study also recommended that blended learning can be used in schools. It was also recommended that schools need to adopt the most effective technology. Obsolete technology to be avoided at all costs. The government should make it compulsory for all the schools to be using technology while teaching. This will expedite an expansive education with modern technology utilization.

REFERENCES

- Ajibade, P. (2018). Technology Acceptance Model Limitations and Criticisms: Exploring the Practical Applications and Use in Technology-related Studies, Mixed-method, and Qualitative Researches. *International Journal of Science and Technology*, 3(2), 173-181
- Akomolafe, M. J., Ogunmakin, A. O., & Fasooto, G. M. (2019). The Role of Academic Self-Efficacy, Academic Motivation and Academic Self-Concept in Predicting Secondary School Students' Academic Performance. *Journal of Educational and Social Research*, 3(2), 335-342.
- Bouck, E. C., Okolo, C. M., & Courtad, C. A. (2017). Technology at Home: Implications for Children with Disabilities. *Journal of Special Education Technology*, 22(3), 43-56.
- Carrillo, P. E., Onofa, M., & Ponce, J. (2018). Information technology and student achievement: Evidence from a randomized experiment in Ecuador. *Journal of Education*, 4(1), 18-32
- Cavanagh, M., Bower, M., Moloney, R., & Sweller, N. (2017). The effect over time of a video-based reflection system on preservice teachers' oral presentations. *Australian Journal of Teacher Education (Online)*, 39(6), 1.
- Chan, T. C. (2019). How Do Technology Application and Equity Impact Student Achievement? *International Journal of Cyber Ethics in Education (IJCEE)*, 1(2), 1-14.
- Costa, C., Cardoso, A. P., Lima, M. P., Ferreira, M., & Abrantes, J. L. (2015). Pedagogical interaction and learning performance as determinants of academic achievement. *Procedia-Social and Behavioral Sciences*, 171(12) 874-881.
- Heflin, H., Shewmaker, J., & Nguyen, J. (2017). Impact of mobile technology on student attitudes, engagement, and learning. *Computers & Education*, 107, 91-99
- Hu, P. J., Chau, P. Y., Sheng, O. R. L., & Tam, K. Y. (1999). Examining the technology acceptance model using physician acceptance of telemedicine technology. *Journal of management information systems*, 16(2), 91-112.
- Irving, K. E. (2019). The Impact of Educational Technology on Student Achievement: Assessment. *Science Educator*, 15(1), 13-20.
- Kalaivani, A. (2014). Role of E-Learning in the Quality Improvement of Higher Education. *Journal of Humanities and Social Science*, 19(11), 15-17.
- Kopcha, T. J., & Alger, C. (2018). The impact of technology-enhanced student teacher supervision on student teacher knowledge, performance, and self-efficacy during the field experience. *Journal of Educational Computing Research*, 45(1), 49-73.
- Kuimova, M. V., Kiyaniitsyna, A., & Truntyagin, A. (2016). E-learning as a means to improve the quality of higher education. *Journal of Education and Communication*, 17(3), 65-72
- Lin, M. H., Chen, H. C., & Liu, K. S. (2017). A Study of the Effects of Digital Learning on Learning Motivation and Learning Outcome. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(7), 3553-3564.
- MacLaughlin, E. J., Supemaw, R. B., & Howard, K. A. (2018). Impact of distance learning using videoconferencing technology on student performance. *American Journal of Pharmaceutical Education*, 68(3).

- MacLaughlin, E. J., Supemaw, R. B., & Howard, K. A. (2021). Impact of distance learning using videoconferencing technology on student performance. *American Journal of Pharmaceutical Education*, 68(3).
- Palao, J. M., Hastie, P. A., Cruz, P. G., & Ortega, E. (2015). The impact of video technology on student performance in physical education. *Technology, Pedagogy and Education*, 24(1), 51-63.
- Reisdorf, B. C., Triwibowo, W., & Yankelevich, A. (2020). Laptop or Bust: How Lack of Technology Affects Student Achievement. *American Behavioral Scientist*, 64(7), 927-949.
- Samsuri, N. N., Nadzri, F. A., & Rom, K. B. M. (2014). A study on the student's perspective on the effectiveness of using e-learning. *Procedia-Social and Behavioral Sciences*, 123, 139-144.
- Shieh, R. S. (2019). The impact of Technology-Enabled Active Learning (TEAL) implementation on student learning and teachers' teaching in a high school context. *Computers & Education*, 59(2), 206-214.
- Sun, H., & Zhang, P. (2016). The role of moderating factors in user technology acceptance. *International journal of human-computer studies*, 64(2), 53-78
- Tawafak, R. M., Romli, A. B., bin Abdullah Arshah, R., & Almarroof, R. A. S. (2018). Assessing the impact of technology learning and assessment method on academic performance. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(6), 2241-2254.
- Toland, C. S. (2017). *A comparative research study on the effects of technology on student achievement in teaching English to students of other languages* (pp. 1-73). The University of Mississippi.
- Vigdor, J. L., Ladd, H. F., & Martinez, E. (2021). Scaling the digital divide: Home computer technology and student achievement. *Economic Inquiry*, 52(3), 1103-1119.