EUROPEAN INTERNATIONAL UNIVERSITY

COVER PAGE AND DECLARATION

	Postgraduate Diploma (P.G.D.)
Specialisation:	POSTGRADUATE DIPLOMA IN EDUCATION
Module Title:	EDUC580: EDUCATIONAL RESEARCH: DESIGNS AND PROCEDURES
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Word Count:	5,690
Date of Submission:	20/03/2024

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DATE: 20/03/2024

EDUC580: EDUCATIONAL RESEARCH:

DESIGNS AND PROCEDURES

MODULE ASSIGNMENT: ACTION RESEARCH PAPER/REPORT

1. Research Title:

Investigating the Role of Technology Integration in Class Rooms to Improve Students' Performance and Engagement

2. Abstract

Technology is becoming more and more important in classrooms, and it can positively affect students' attendance rate and learning. This study investigates the effect of technology integration in classrooms on student performance in subjects and grades. Technology can change education, especially in meeting the needs and desires of modern learners. The COVID-19 pandemic has shown the need for technology in distant and hybrid learning contexts, underlining the importance of studying its part in educational improvement.

The inquiry focuses on observing the impact of technology application on student performance, selecting appropriate technological tools for classroom involvement, investigating the impact of teaching staff's technological proficiency in student learning, and comprehending educators' and students' points of view of technology integration.

By adopting a quantitative research methodology, information was gathered through literature reviews and survey questionnaires employing the Likert scales. Participants comprised educators, administrators, students, technology specialists, and community stakeholders with diverse and multidisciplinary educational backgrounds.

The methods in this case explore the use of the latest technological appliances, periodic in-service seminars, and collaborative lesson planning to improve technology integration in classrooms. Data collection tools contained questionnaires, observation protocols, combining rubrics, attitude questionnaires, and course performance assessments.

Through the results of descriptive statistics, correlation, and regression analysis, the influence of technology integration on student results and instructors' views on technology use in education is clear. The implications of this result are not just for educators, policymakers, and educational stakeholders. They also include professional development, equal access to technology, further research, and creating a culture of innovation in learning.

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3. Rationale of Research

The building of technology in a classroom environment is an ongoing trend that lacks no significant role in the educational system. Technology integration is the realization that technology is no mean force but has the power to impact positively on teaching and students' learning. However, the adoption and implementation of technology in the education sector is not about merely imposing the pulse of innovation. It is grounded in a clear perception of pluralistic challenges and aspirations of modern learners and educators (Lasekan, Pachava, Godoy Pena, Golla, & Raje, 2024).

One of the main reasons for this investigation is the fact that the current situation is changing and most of this change is the natural result of overly extra technological development. As students grow up in the digital era, they are now surrounded by many technological devices and online platforms to use almost daily when they are not in the classroom. Henceforth with this increase, the education sector must respond quickly by adapting its teaching methods to target each student individually and accommodate a variety of learning needs. But this can be the case that the classroom must cover students' needs for their future and disconnecting their outside living and inside of the classroom can lead to a lack of engagement and drive to learn (JANNA & LEE, 2018).

Also, the COVID-19 pandemic has revealed the true value of technology in helping keep the learning process still running amidst the worldwide disruption. The instant adoption of virtual and hybrid learning designs to substitution in traditional education has brought many benefits while some of the concentrated problems remain. Whilst technology has made education more accessible to learning resources as well as a channel for communication between teachers and students, it has also caused differences in access to technology and digital skill literacy among children of different economic backgrounds. Therefore, if want to discover technology can be useful in tackling the existing imbalances and enabling all learners to be students in quality education institutions then need to examine the role that technology plays in achieving this (Chick, et al., 2020).

Firstly, this research argues creating education methods in that a student-centered learning environment is more of active involvement, critical thinking, and collaboration. Technology means an abundance of tools and resources that can add more meaning to both teaching and learning as it creates room for interactions, experiences, and personalized learning. Utilizing visual presentations, educational games, virtual simulations, and online collaborations, technology can

provide for any preferred and unique learning style. Increasing the motivation of students and achievement in academics are merely byproducts (Ram Das, 2018).

During technology's integration into the teaching process, one should be careful to assess the challenges and concerns that might accompany this journey. However, more research should be conducted on technology-integrated instruction outcomes regarding teachers' professional ethics, educational practices, and privacies of data and digital behavior (Barbour, 2014).

4. Research Questions and Research Objectives

- What is the effect of technology which is integrated with classrooms on the performance of students, in different subject areas?
- What are the most effective technological tools or platforms that enable students to be actively involved in class activities?
- Does the mastery of and comfort with technology of teachers result in better learning effects of technology or the opposite case?
- What do teachers and students envision as the pros and cons of integrating technology in schools?
- Will technology frequency and quality level integration in classrooms show any correlation with students' critical thinking and problem-solving skills growth?

The main aim of this research is to explore extensively how technology integration can promote the performance and participation of students irrespective of their subjects and grade level. The main objectives of the research are

- To evaluate tech involvement in subject disciplines and grades at various learning grades.
- Identify the embodied and corresponding events of the technology integration process in classroom instruction.
- To analyze the thoughts, perspectives, and stories of educators on technology in teaching and learning.
- To analyze the correlation between teachers' views on technology integration and students' engagement, teaching methods, and academic performance.
- To identify students' opinions on the role of technology in education, including their choices, perceived advantages, and difficulties.

- To analyze the influence of technology adoption on students' participation, excitement, and grades' increase.
- To develop teaching ideas and learning tools that enable active participation, teamwork, and critical thinking in the classroom.

5. Literature Review

At the heart of the research lies a shortcoming in scientific papers that are interested in school students' educational experience in science classrooms using interactive virtual reality technology. IVR science lessons were created and carried out among a group of 6th graders and assessed operations through pretest/posttest assessment tools and engagement surveys. The findings indicated an improvement in academic achievement and engagement scores among students exposed to IVR, and significant differences were observed when compared to the students who received their education via conventional methods. The behavior of the students, however, displayed a high level of technology acceptance as well for the IVR system in the classroom. This study carefully examines the instructional video recorder's potential in science education and presents data on its effectiveness. In addition, this study provides hints to the field regarding the design and implementation of virtual learning labs for formal education (Liu, Wang, Lei, Wang, & Ren, 2020).

Concerning the 21st century, the incorporation of technology in classrooms is recognized as an innovative idea used to boost the quality of learning and at the same time generalize the quality of the teachers. Teacher passion constitutes the core of the whole transformation process, especially when it comes to the first steps of implementing an innovative approach. Nonetheless, the long-term question of teacher motivation stands firm or changes with the implementation of a technology-rich environment, and the extent to which the aforementioned factors influence the effective use of technology is yet to be investigated (Huang, 2019). Generally, most researchers used cross-sectional designs and quality measures in their studies and neglected qualitative measures. Bridging this gap, we've set up a web-based teacher diary vehicle for 18 in-service teachers like this, with each having one-to-one technological equipment. It used a mixed method of observing over six weeks, to study that there is great diversity in teachers' motivation levels and the rate and quality of integration of technology among lessons. The most notable characteristic of integration was determined by the utility beliefs of the teachers regarding technology-related

activities, and the specific contexts in which the teachers were operating. The results obtained once again highlight that teacher motivation and the framework in which innovation occurs are central to the use of technologies in education (Backfisch, Lachner, Stürmer, & Scheiter, 2021).

The utilization of technology as an educational tool is in higher demand and deemed an important aspect of teaching and learning as the health crisis devastated the world. This research aims to deal with technology-based English as a foreign language instruction (TEFL) in Saudi Arabia, where the methodology is based on the combination of the explorative sequential mixed action design. Internet applications are for the students in that matter that on the other hand, equipment limitations and connectivity issues still exist. Led to the surprising fact, the teachers have expressed a positive attitude toward technology use, the educators admit. The data draws attention to the advantages ensued by technological EFL lessons which tend to stimulate metacognitive abilities and engage participants online through the instructor-learner angle. The research results therefore could guide the policymakers and educators in handling some tech and EFL online classroom challenges in the best way possible while tapping into the potential of the technology (Hakim, 2020).

The modern education system can achieve quantum progress in reform by helping students to get engaged, bringing individuality into the learning process, making possible distance education, making assessments more reliable, conducting communication between teachers and students, and adding new capabilities for teachers. The research aims to establish whether attaining academic outcomes correlates with the integration of EdTech in schools through the use of Random Forest Regression on 479 data sets of high school students. Findings suggest that managed Tech integration plays a big role in academic advancement, and the involvement, the teacher-student ratio, and a healthy lifestyle are the primary factors. That family income occupies the least ranked position underscores to tension of academic success. This research is evidence of the effectiveness of technology integration with the curriculum and instructional methods to educate students (Tzenios, 2020).

Teachers' lack of undermining education with classroom technologies is a setback to students who have high expectations from technology. Therefore, in addition to looking at such an integrated professional development system of providing teachers with skills needed in the performance of their functions, forging ahead to explore this can be done as a means of ensuring that teacher's self-efficacy is boosted and This is essential for successful implementation of the technology integration. Based on interviews with teachers working at six middle school math and science

classrooms, analyzed the technology self-confidence and the nature of their professional training. It appears that a comprehensive learning system furthers one's source of self-efficacy approach (verbal persuasion, vicarious experience, mastery) and renders reflection, which may lead to self-efficacy belief updates. Therefore, educational leaders may apply these insights to create places that allow technology integration, and policymakers recommend additional research to further the comprehension of this phenomenon (Barton & Dexter, 2020).

These hybrid virtual classrooms focusing on synchronous learning activities are targeting to provide a platform to bring all the learners together who are multidimensional yet such empirical investigations into their effectiveness are in the scarcity. This research is based on the comparison between learning environments (about relatedness, autonomy, and achievement) with a special focus on Self-Determination theory. With experimental designs, the study compares attendance in a real-life or mixed mode using either a physical or online method. Results pointed out the challenges of the virtual environment, as humaneness and intrinsic motivation were not as high as in the brick-and-mortar format. As opposed to that, employing quizzes is supposed to improve students' motivation. More research is wanted to see quizzes' effectiveness and increase the relatedness between students on remote and on-campus through such educational interventions for instructors (Deci & Ryan, 2012).

6. Methodology

6.1 Description of Participants of Study

In quantitative research, this study used interventions and data collection programs to collect thorough information about the contribution of Technology integration to classrooms (Watson, 2015). A detailed literature review was conducted as a basis of theory building, and to determine the factors which are relevant to technology integration. Besides that, an inquiry questionnaire has been constructed and given to educators and students. In the questionnaire, we utilized a Likert Scale which was utilized to assess respondents' perceptions, attitudes, and experiences concerning technology integration. Using the findings of the literature review coupled with surveying responses as sources, this study was intended to bring to the forefront the different considerations that impact the integration of technology and its effects on student performance and engagement in a variety of learning environments (Nardi, 2018).

In conducting this research, a diverse range of participants were involved to gain more precise and accurate results. A few of them are as follows:

Educators: Significantly among the participants was the batch of educators covering all the strata of education namely, elementary, secondary, and tertiary education. Among the professors, there were specialists in various subject areas like mathematics and science, language arts, social studies, and technology. They were not only from public but also private universities and so their integrated technology in education had increased the variety in education standards (Story & Tait, 2019).

Administrators: Additionally, among the subsets of the respondents was an indispensable group of decision-makers in education which included principals, vice principals, curriculum coordinators, and technology coordinators. Those individuals took a crucial part in the making of the decisions related to technology incorporation, financial resources allocation, professional training starting up, and the formulation of the policy within their entities. General Managers provided essential insights concerning the establishment of the overarching targets, advantages, and challenges for the educational institution concerning technology integration (Miriam, 2022).

Students: Students made up the core participant group, forming a vital component of the study and serving as a major beneficiary of appropriate technology integration in the classroom. It took students of various grades from the lower to the higher levels of education, ranging from elementary school to university. Students represent a lot of diversity as mentioned, in terms of age, background, academic ability, and also the level of technology.

Technology Specialists: The group comprised some education experts or instructional technologists characterized as agents who are the facilitators of educators as they incorporate technology meaningfully into their teaching approaches. The people made up of these staff possessed skills in educational technology tools, instructional design principles, and pedagogy approaches that fit into the overall aim of learning outcomes enhancement thanks to technology. Technology fellows came on board with thorough guidance, training, and technical support for teachers hoping to utilize technology in their classrooms (LSU, 2018).

Community Stakeholders: Aside from the educators, administrators, students, and tech specialists that were part of the study, the research also engages the other community stakeholders who usually have experience in tech integrations in education. These stakeholders might include parents, supervisors, school board members, decision-makers, industry partners, and persons who are from community-based organizations (Indeed, 2023).

6.2 Interventions and Data Collection Tools/Materials

Interventions

This study focusing on technology integration in classrooms reports on the implementation (the main treatment) of strategies that aimed at enhancing the integration of technology into instructional practices. These strategies include the implementation of innovative technological tools, software applications, and web resources that meet the needs of different subject areas and various grade levels. Furthermore, ongoing professional development seminars and training classes were held to make the teachers familiar with updated ways of teaching and the most efficient methods of learning with the help of technology. The activities were crafted to achieve a proportion of interactive engagement, collaboration, and personalized learning approach, through technology integration (Sheryl, 2023).

Joint sessions were organized whereby the participants were provided an opportunity for peer governance, knowledge sharing, and co-creation of technology-enhanced lesson plans. Teachers, in reality, started lessons that were technology-strengthened in their rooms as a result of sessions during the collaborative lesson planning. To accomplish this, a rich set of technological tools and resources were employed, including interactive whiteboards, and educational apps (Comcast, 2022). Constant reflection and feedback platforms, for the teachers to reflect on their technology integration experiences, exchange comments, and describe the outcomes of intervention implementation were applied (Connect, 2023).

Data Collection Tools/Materials

Before and after the workshop surveys were given out to analyze teachers' level of background knowledge, skills, attitudes, and confidence in using technology before and after the course was finished. Observation protocols were created which constituted the guidelines observed by the researchers in maintaining the system observation of teachers' in-class practices during technology-inclined classes. Researchers studied teachers to determine the tools of technology, the learning strategies, the level of student engagement, and the dynamics of a classroom (Sadan, 2017).

Integration rubrics with technology were employed to determine if the quality and effectiveness of teachers' technology-correlated lesson plans and instruction also corresponded. Attitude surveys and course assessment tests were conducted to uncover students' thoughts about the adjusted approach to technology in the classroom, its impact on their outcomes, and reasons why they preferred some kind of technology in the class. These surveys consisted of these ratings, agreeing or disagreeing scales, and an area for comments. Researchers collected artifacts generated by technology integration into pedagogy, including, e.g., lesson plans, student tasks, multimedia compositions, and digital portfolios (Mohamed, 2021).

6.3Descriptive Data Collection Procedure

The initial step in the data acquisition procedure entailed the making of survey-paired tools that would capture both quantitative data and qualitative data. The research instruments were designed following the objectives set, after reviewing the research literature and by getting experts' opinions in the area of educational technology and research methods (Gómez-Morales, Coon, Joseph, & Pipe, 2023).

Before putting the survey instruments into full-scale use, during the pilot test section, clarity, comprehension, and relevance were assessed. A panel of the minimum among the subjects in which the population can well be described was asked to complete the survey instruments and provide feedback on the reliability and effectiveness respectively. In light of the comments of respondents during the pilot testing stage, additional improvements were made to the survey instruments.

Collecting data required finalizing that I would operate a group of participants who represented different educational environments, such as schools, colleges, and universities. Educators, administrators, students, tech specialists, and community stakeholders are the key individuals. In light of this drive, all efforts were made to contract teachers who already had the exposure and

experience of integrating technology in class. The effectiveness of the strategy is demonstrated mainly through combining email invitations, online texts, and contacts with institutions and organizations (Almusharraf & Khahro, 2020).

Data collection was scientific by resorting to different approaches (internet surveys, focus groups, and observation) as the nature of the data required them while participants' preferences were also taken into consideration. The instructions and guidelines for the data collection were brought to the participants who took the activities seriously. For online surveys, participants were directed to safe survey platforms which provided an opportunity to fill in the questions at their convenience. Scheduled interviews and focus groups were designed to provide flexibility in terms of time and communication medium so that respondents could quickly respond and express their opinions during face-to-face discussions or online meetings (Hewson, Vogel, & Laurent, 2015).

In the end, all data collection sessions were safely locked up and kept in an orderly fashion to ensure that the data analyses could go swiftly and smoothly. The data entered from surveys was collected in statistical software for analysis purposes, while the qualitative data from interviews, focus groups, and observations went through the process of transcription and subsequent content analysis (Maison, Jaworska, Adamczyk, & Affeltowicz, 2021).

For the morning the credibility as well as the trustworthiness of the finding, data triangulation techniques were called upon. Comparison along with linkage of the data coming from different sources was central in triangulation; as such, divergent data were compared and cross-checked through different methods to avoid doubt and reach approbation. Similarly, member checking was also used where participants were encouraged to review the findings and ensure that they were agreed upon from the available evidence and their perspectives (Olsen, 2011).

In the last phase of the study, the outcomes of the research were spread by reporting and communicating them to the stakeholders, including the participants, educational sector, policymakers, and research circle. However, the recommendations were left as appendices, and proposed plans were covered as they related to the practice and policy frame. On the other hand, the data were displayed in a summarized and well-presented manner (Cooper, MacGregor, & Shewchuk, 2020).

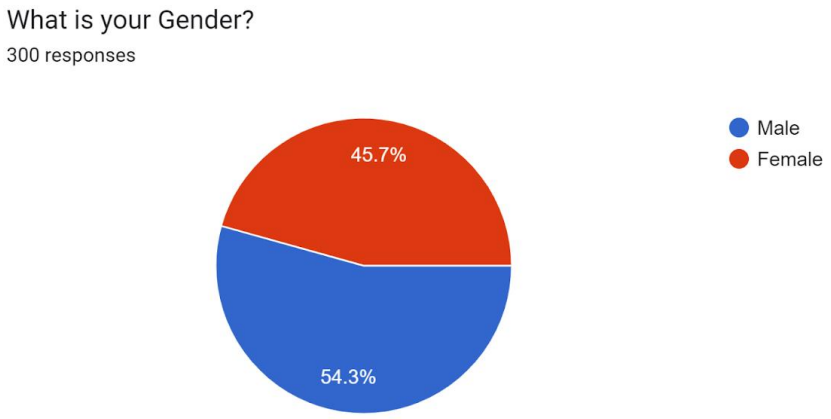
7. Data Analysis and Presentation of Result of Findings

7.1 Introduction

The specific segment is dedicated to the analysis of the data gathered from the research questionnaires and other means of exploration which aims to examine if a mix of technology in class can improve student output and commitment. This part is to analyze the genetic data discover the patterns, examples, and connections, and propose the right solutions. This analysis is intended to analyze the effectiveness of the innovation mix methods, their effect on results, and teachers' perceptions about the use of technology in teaching and learning using a qualitative approach. This section likewise offers a discussion for top-to-bottom examination and examination of the outcomes, working with a superior understanding of the association between scholastic achievement and mechanical reconciliation, as well as the ramifications for strategy and practice in schooling.

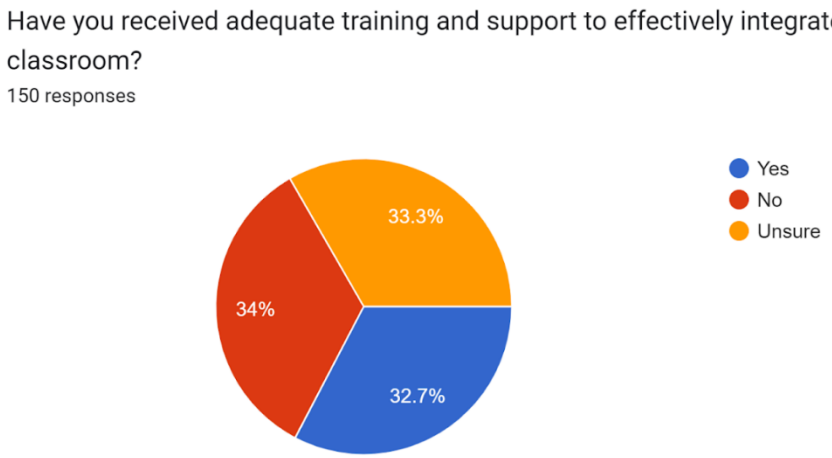
7.2 Descriptive Statistics:

The orientation conveyance information gathered from the respondents shows a critical segment portrayal in the examination. Of the people included, 45.7% recognized as female and 54.3% as male.

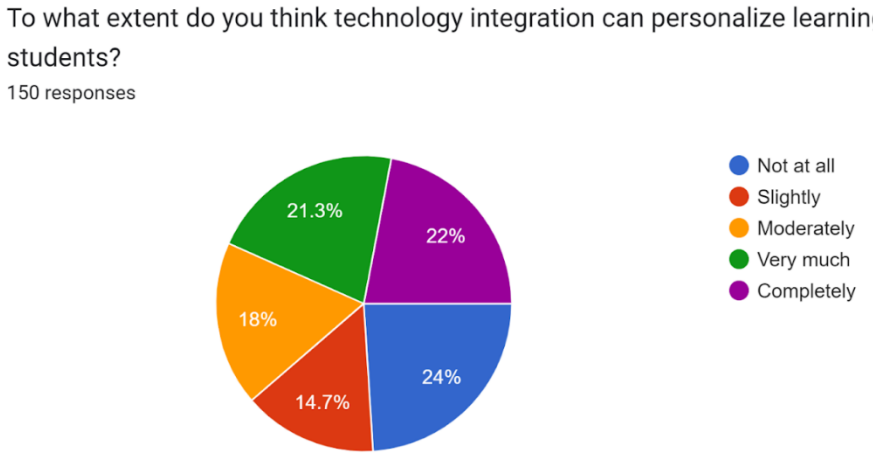


This dissemination gives data about the cosmetics of the example gathering and fills in as an establishment for fathoming potential perspectives relating to an orientation that might be related to the capability of innovation mix in the homeroom. We might research any orientation-based contrasts or examples in the answers through additional examination, which could prompt a more exhaustive understanding of the review's subject. Targeted strategies to improve student

engagement and performance across a range of student demographics may be informed by an understanding of gender disparities in attitudes and experiences with technology integration.



An examination of 150 respondents' opinions on technology integration training shows conflicting opinions. 34% express unhappiness, while 32.7% feel sufficiently supported. Remarkably, 33.3% are still uncertain. The aforementioned results underscore the need for customized professional development and strong support networks to cater to the varied requirements of educators. Through efficient technology integration techniques, future research looked at the implications for educational policy and practice to improve teacher readiness and, eventually, student engagement and performance.



There were differences in respondents' perspectives in the 150-person study on how much technology integration can help students have more individualized learning experiences. A noteworthy 24% voiced pessimism, contending that integrating technology into the classroom had no personalizing effect at all. On the other hand, 18. % said it had a moderate effect, while 14.7% said it had a little influence. Notably, 22% supported the idea that technology integration can fully customize learning, while 21.3% said it could tailor learning experiences to a very high degree. These varied viewpoints highlight how complex technology's place in tailored education is. The elements affecting these views and their consequences for instructional practice was investigated further.

Correlation Analysis:

Interesting links between many factors about technology integration and educators' viewpoints are shown by the correlation study. Interestingly, respondents' views about the value of keeping up with technological developments for successful classroom integration, the alignment of technology integration with learning objectives, and the improvement of student understanding through technology integration do not seem to significantly correlate with respondents' gender.

Table 1 Correlation Analysis

Correlations

		What is your Gender?	How important do you think it is for educators to stay updated with the latest technological advancements for effective classroom integration?	How well do you think technology integration aligns with the learning objectives of your lessons?	Do you believe that technology integration enhances student understanding of subject matter?
What is your Gender?	Pearson Correlation	1	.010	.031	.001
	Sig. (2-tailed)		.904	.710	.993

	N	150	150	150	150
How important do you think it is for educators to stay updated with the latest technological advancements for effective classroom integration?	Pearson Correlation	.010	1	-.039	.051
	Sig. (2-tailed)	.904		.639	.535
	N	150	150	150	150
How well do you think technology integration aligns with the learning objectives of your lessons?	Pearson Correlation	.031	-.039	1	-.071
	Sig. (2-tailed)	.710	.639		.391
	N	150	150	150	150
Do you believe that technology integration enhances student understanding of subject matter?	Pearson Correlation	.001	.051	-.071	1
	Sig. (2-tailed)	.993	.535	.391	
	N	150	150	150	150

Likewise, no statistically significant association has been seen between the other characteristics analyzed and the perceived significance of remaining current with technical innovations. Though not statistically significant, there is a small positive link between the view that technology improves student knowledge and the alignment of technology integration with learning goals. These results point to a complicated web of interrelated elements that shape teachers' views on technology integration and how it affects instruction, which calls for further research and thought to be included in educational practices and policies.

Regression Analysis:

The results of regression analysis are shown in the model summary, which provides information about the connection between predictors and the dependent variable. The conviction in the worth of innovation mix in further developing understudies' topic learning is the reliant variable in this example. The variables remember the recurrence of innovation utilization for the study hall, orientation, and the view of how significant it is for teachers to stay current with mechanical changes.

Table 2 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.056[a]	.003	-.017	.783

The outline shows a low coefficient of assurance (R-squared) of 0.003, demonstrating that the factors in the model just record a tiny level of variety in the conviction about what innovation means for understudies' understanding. The way that the changed R-squared is negative proposes that either the indicators are not enough to catch the changeability in the reliant variable or the model might be overfitting. Besides, the gauge's standard blunder, at 0.783, is extremely enormous, proposing a huge level of change around the relapse line. Taking everything into account, these outcomes infer that the model's indicators may not be awesome proportions of perspectives on what innovation means for understudies' cognizance.

In summary, the results of the relapse examination demonstrate that the orientation of the indicator, the apparent benefit of staying aware of mechanical turns of events, and the recurrence of involving innovation in the homeroom have little capacity to make sense of educators' perspectives about how well innovation mix works on understudies' comprehension. The model doesn't adequately catch the fluctuation in the reliant variable, as shown by its low coefficient of assurance and negative adjusted R-squared esteem. As well as featuring the requirement for future review to find more solid indicators of perspectives about the impact of innovation on understudy learning results, these outcomes likewise accentuate the intricacy of factors influencing teachers' view of innovation combination.

8. Conclusion, Implications, and Recommendations

Summing up, this research illustrates the core function of technology in modern education, to different learning styles as well as better engagement of students. The research has demonstrated how technology can be an empowering factor in designing student-directed learning platforms, stimulating active engagement, critical thinking, and a collaborative ethos. The researched evidence suggests that technology can enhance education and through that improve academic achievements and students' motivation at the levels of different educational attainment. Yet, one

can see the importance of taking these issues into account and at the same time finding ways to address the inequalities in technology access and digital literacy competencies for both students and teachers. Furthermore, the need to invest in professional development, fair access to technology devices, and continuous research to exploit the advantages of technology integration into classrooms and, at the same time, give each student an opportunity for successful digital age development is now being pointed out.

The implications of such a study can hardly be overestimated when it comes to the educators, the policymakers, and the educational stakeholders. Firstly, the findings indicate the need for allocating professional development programs specifically designed to facilitate teachers with the necessary skills and motivation to smartly use technology for learning purposes in their teaching. In particular, legislators must act upon the digital divide by making communication equitable and access to technology assets as well as the infrastructure for students from so-called underprivileged backgrounds. In addition, this research reminds us of the significance of continued academic discussions and communications to resolve the ethical and privacy concerns that occur in the integration of technology into education. Taking these implications into account, the stakeholders can then focus on setting up inclusive, technologically dynamic education ambiances that can meet the diverse students' needs and prepare them for the world, that has already adopted digital technologies.

This research can suggest several recommendations that was used to improve classroom technology integration. Primary, educational institutions should invest heavily in programs of professional development, that ensure continued training and mentorship of teachers preparing for more effective technology integration into teaching and learning processes. Special attention needs to be given to digital literacy, pedagogical concepts, and educator confidence level in using technology as an effective instructional tool. Furthermore, the policymakers should allot finances to improve the situation where pupils from disadvantaged regions receive equal opportunities to use technological sources and infrastructures. This constitutes offering finance for the acquisition of gadgets, internet connection, and digital literacy training courses. Moreover, the research should be in progress for shedding light on the long-term effects of technology integration on student outcomes and to identify optimal ways of confronting challenges and realizing positive outcomes of technology in the process of education. The interaction of teachers, researchers, and technology

specialists is vital to making further innovations and necessary changes according to the developing educational technology foundations. In addition, learning institutions should encourage the development of a culture of continuous innovation and experimentation, allowing educators to test new technological tools and instructional methods that might help to overcome the issue of student disengagement and ineffectiveness of learning.

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