

Assessing the Learner's Engagement Through Virtual Classroom and Teaching Pedagogy: The Mediating Role of Technology Usage

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ABSTRACT

In virtual classrooms, the engagement of learners has become a critical challenge. This research aims to answer the question: What is the impact of virtual classroom and teaching pedagogy on learner engagement in film and visual art education? This research addresses a gap to close a loop in literature and knowledge. A sample of 380 students pursuing films and visual arts education was taken to test the hypotheses. The findings of this study are based on empirical data, and a partial least square–structural equation model (PLS-SEM) employed for data analysis. The study reported that virtual classrooms and teaching pedagogy are significant antecedents of learners' engagement. The study asserted that learners' engagement is influenced by teaching pedagogy with the mediating role of the use of technology. This research is significant for its reliable theoretical contribution to the domain. Furthermore, the study has developed practical recommendations to improve learners' engagement with teaching pedagogy and visual classroom. Future directions are also highlighted to conduct further studies on this area of knowledge.

KEYWORDS

Learners' Engagement, Virtual Classroom, Teaching Pedagogy, Use of Technology.

RESUMEN

En las aulas virtuales, la participación de los alumnos se ha convertido en un reto fundamental. Esta investigación pretende responder a la pregunta: ¿Cuál es el impacto del aula virtual y de la pedagogía de la enseñanza en el compromiso del alumno en la enseñanza del cine y las artes visuales? Esta investigación aborda una carencia para cerrar un bucle en la literatura y el conocimiento. Para comprobar las hipótesis se tomó una muestra de 380 estudiantes de cine y artes visuales. Las conclusiones de este estudio se basan en datos empíricos, y para el análisis de los datos se ha empleado un modelo de ecuaciones estructurales de mínimos cuadrados parciales (PLS-SEM). El estudio reveló que las aulas virtuales y la pedagogía de la enseñanza son antecedentes significativos del compromiso de los alumnos. El estudio afirma que el compromiso de los alumnos está influido por la pedagogía de la enseñanza, con el papel mediador del uso de la tecnología. Esta investigación es significativa por su fiable aportación teórica al ámbito. Además, el estudio ha elaborado recomendaciones prácticas para mejorar el compromiso de los alumnos con la pedagogía de la enseñanza y el aula visual. También se señalan futuras direcciones para llevar a cabo nuevos estudios sobre esta área de conocimiento.

PALABRAS CLAVES

Compromiso de Alumnos, Aula Virtual, Pedagogía de la Enseñanza, Uso de Tecnología.

1. Introduction

The current decade can be better known as an era of technological innovation and technological integration in teaching and learning. The entire educational system globally is changing in this decade. Resources such as technology and techniques to use this technology in a learning environment have gained the attention of higher education institutions worldwide. A shift from the traditional to the technological educational system has changed the students' learning performance (Ahshan, 2021). The culture of learning and teaching is changing over time, and it impacts the engagement characteristics of students (Tamah et al., 2020). Some students feel comfortable with the new learning method and consider it appropriate to improve their performance. However, some students are less productive in improving their learning and are supposed to learn the use of technology to improve their performance (Dolighan & Owen, 2021). In such an era, it is required to manage technology and improve the learning and reliability of performance in the classroom.

Visual art education is referred to as the wide and deeper understanding of visual arts and the desire to pursue it as a career in fields like films, paintings, theater and other types of fine arts. It is evident that technological advancements have transformed the trends of visual art education. Creativity has been expanded as new tools have been utilized along with various other mediums of artistic expressions. Furthermore, teaching visual art education is also a challenge for higher education institutions. It is due to the hybrid way of teaching where the interaction between the teachers and the students is based on virtual resources, which have altered drastically, giving teachers several new techniques. The students have also become more motivated to improve their learning performance (Kaup et al., 2020).

The use of technology is a significant factor influencing students to improve their learning for reliable performance in the domain of visual arts. However, when the students focus on technology to improve their learning, they must be motivated to perform their roles better (Ahmed & Opoku, 2022). The teachers are the key drivers who can motivate the students to improve their performance through sustainable learning and mastering the visual arts curriculum. Access to modern technology can also improve the virtual connectivity between students and teachers and help them improve their learning and performance. Learning online has taken educational institutions to implement novel virtual education tools and techniques. Teachers from different countries are facilitating students to improve their learning and performance (Petillion & McNeil, 2020). Reliable opportunities are being offered to students to advance their learning. However, determining the engagement of learning in a visual art classroom is a critical issue (Bradley, 2021).

The biggest limitation of utilizing virtual learning methods on learners' performance is the absence of physical presence, which makes it very difficult for students to get appropriate feedback after evaluation. The field of visual arts need good learning opportunities for a longer period of time, and the learners are required to get full physical support of their teachers (Lestyanawati, 2020). The debate about virtual classroom engagement is open, and little attention is paid to teachers' and learners' engagement. In midst of this debate of virtual art classrooms, the technology integration has also raised challenges in which the balancing of traditional art skills with the digital skills holds greater significance. Since technology has become an important part of visual art education, it provides exciting opportunities and learning possibilities to students.

This research aims to answer the question; what is the impact of virtual classroom and teaching pedagogy on learner engagement in film and visual art education? This research addresses a gap to close a loop in literature and knowledge. The findings of this study are based on empirical data. This research is significant as it makes a reliable theoretical contribution to literature as well as offers practical recommendations to improve learners' engagement with teaching pedagogy and virtual classrooms.

2. Review of Literature

Classroom engagement for visual art learners is possible with a fair use of technology. When students have better learning opportunities, their behaviour towards learning is improved (Shenoy et al., 2020). Technology changes the way of teaching, and now virtual opportunities are available for students to learn. Many teaching institutions have introduced online learning platforms to teach the students, but the

problem is that these students are less motivated to improve their performance in learning (Martin, 2019). The student's awareness regarding their learning can be improved when the teachers have opportunities to teach them using technology. The developed European countries have introduced technology in their learning platform to provide a better experience to learners (Raes et al., 2020). University-level education is also shifted to online platforms where virtual learning tools are used to teach students. Technology is used relatively to ensure the students have a natural working approach. However, the students are motivated to improve their learning performance because, without their fair work, getting an education through online platforms is not reliable.

Virtual classrooms employ a design that helps students to learn in a better way and utilize better opportunities. When the students are motivated for their learning, their performance improves. Students' performance and learning success can become possible when they pay attention to the virtual classrooms for their learning (Hakim, 2020). This approach is also becoming popular within the context of visual art education. The available resources to the students can benefit them to get an education in virtual classrooms, but they must have a positive attitude towards their work as these resources have a great promise to improve their learning performance. Virtual classroom methodology is used in every developed country, and top-ranked universities also use it to teach students (Abou-Khalil et al., 2021). Determining what the students are learning by their methodology is challenging. The monitoring and evaluation of digital Classrooms should be based on regular to determine the impact of classroom performance on students' learning. The online classroom methodology helps the students learn flexibly, and they can show positive behaviour towards this learning (Khatoony & Nezhadmehr, 2020). The students are always motivated to learn when they have support from their teachers. This approach is also found to be effective in improving the visual art education of the students. Based on this, the hypothesis framed is as under:

Hypothesis 1: Virtual Classroom influences learners' engagement.

The teaching pedagogy of instructors matters a lot in the way students must improve their learning performance, as the teachers' style motivates them. The responsibility of teachers is to provide a sustainable and reliable teaching pedagogy for students' learning (Mahmood, 2021). When a teacher uses a reliable and innovative learning methodology, the performance of these teachers increases gradually. Similarly, the performance of the students and their engagement in classroom activities is also influenced by the teaching style (Phillips & O'Flaherty, 2019). Reliable teaching opportunities lead learners to innovative performance and sustainable knowledge. Many teachers are using innovative ways to engage students in their learning. There must be a strong relationship between teachers and students. However, it is the responsibility of the teachers to divide students into different groups and develop innovative strategies to provide knowledge to each group (Yu & Jee, 2020). When the students are motivated to perform well, the teachers must provide them with a better strategic approach to deal with these issues.

The teachers are always motivated to perform their responsibilities, but they must motivate the students as well to improve their learning. The course content should be according to the mindset of teachers, and students should be keenly responsible for working on reliable opportunities to improve their learning (Nambiar, 2020). In virtual classrooms, the teachers can play a critical role in engaging the students in class activities after motivating them for better performance. Students' access to the teacher and their learning performance of students can be improved over time. The productive approach of teachers is learning to use better techniques to support the students (Murphy et al., 2020). Access to virtual classroom services helps students to learn better from their teachers. Yet, many teachers are less introduced to technology; they are required to perform better by getting more awareness about the use of technology. The teaching pedagogy has a psychological impact on student's performance, and when they are motivated, they are supposed to learn better and perform better in every condition (Aguilera-Hermida et al., 2021). Using reliable resources, the teachers can support them to improve their teaching pedagogy, which is critical for the students. Access to the latest technology is also a fair way to improve learners' performance to advance their critical thinking in visual arts classrooms within a virtual setting. Hence, the hypothesis framed is as under:

Hypothesis 2: Teaching pedagogy influences learners' engagement.

The teaching strategy can influence the students to learn and perform better. When the teachers are using innovative technologies, they can motivate the students to go for the best practices. The teaching style should be according to the standards of the students. Many teachers are highly motivated to improve the learning of their students (Scagnoli et al., 2019). Some of them are less motivated because they believe that their students are not utilizing emerging technologies for their learning. The performance of students can be a significant factor when it comes to the engagement of students (Jain et al., 2021). There are students in every higher institution who have less positive attitude towards the use of technology, and it becomes the responsibility of their teachers to motivate these students for the use of technology. However, the relationship between students and teachers is productive, and students are required to have fair working opportunities to use the technology. In the virtual classroom environment, the use of technology is a significant factor, and its importance cannot be neglected (Cevikbas & Kaiser, 2020). The purpose of virtual classrooms is to provide educational services to the students in distance. However, the best virtual classroom is a way forward to improve the understanding of the students for their productive learning and improved performance.

The relationship between students and their teachers must be strong because it helps the teachers to motivate their students. The positive and negative association of students, and their learning approach to them in virtual classroom can be a strategy to improve their performance (Al-Nofaie, 2020). In the meanwhile, the students are required to get appropriate motivation and learning for students. Reliable opportunities for students can become stronger for their working when the teachers are united to work for their betterment. The access of teachers and students to technology improves the practices of learning in the classroom (Miller et al., 2021). The modern technology is fairly used to improve the strategic performance of the students, but the style of teachers plays a critical role in the learning of students. When the students are motivated to improve their learning performance, they must cooperate with their teachers, and ensure that their working strategies are appropriately developed (Joshi et al., 2021). The teaching style influences the performance of the visual art students, and teachers should play a positive role in the learning improvement for the students. A good teacher always motivates his students to perform outstandingly with the use of technology.

Hypothesis 3: Teaching pedagogy influences use of technology.

Technology has changed the way of teaching and innovative performance. The standard use of technology for the purpose of teaching has become common in this decade. However, the students and the teachers are playing a key role in collaboration to maximize the use of technology in learning (Rasmitadila et al., 2020). When the students of any community are motivated to improve their learning from the perspective of technological advancement, they should be motivated to improve their role. Students' access to technological tools for virtual classroom learning can advance their practices to get a better way towards the education (Yates et al., 2021). However, the newly developed technological applications also play a critical role in the learning performance of the students. When students are motivated to get the technology to their work, they can learn better with the help of virtual classrooms. The virtual classrooms are also designed for the easiness of the students (Harris et al., 2020). It is ensured by these classrooms that the students should pay their full attention to work. However, the students who are less motivated to get the education by virtual classrooms, they can be motivated further by their teachers to use technology in their learning to improve their performance.

The access to technology and its usefulness experience can advance the way of learners to improve their performance (Barrot et al., 2021). When technology is introduced for the teachers, they must play a positive role to get better learning opportunities. The fair use of technology is a source for the students that can advance their learning. The reliable working attitude of the students can be a way forward to improve their learning and performance (Nimavat et al., 2021). The access of students to technology and its approach to learning can provide them with better experience. Indeed, the students who are more advanced in the use of technology would have a more productive approach of technology in their learning (Nimavat et al., 2021). The students are required to work hard to learn the use of technology as it can provide them with a better approach to learning.

Hypothesis 4: Use of technology influences learners' engagement.

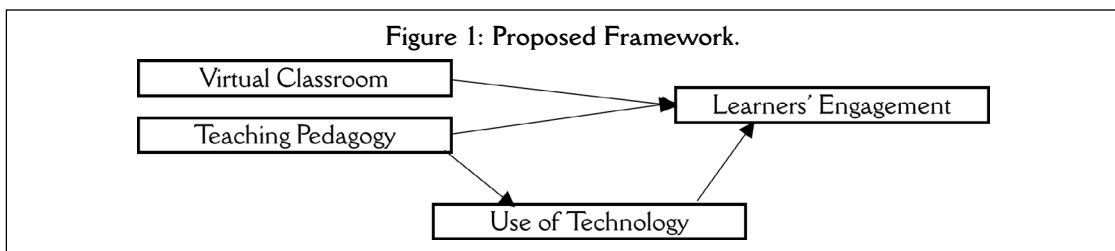
Technology has become a reliable tool in modern times, and it is used in every aspect of life. The fair use of technology can be a significant factor in improving students' learning. Students and teachers' access to technology can be a way forward to improve learning (Salas-Pilco et al., 2022). With the help of modern tools, virtual classroom technology is also a fair way to understand technology better. The awareness of

learners to use the technology and the instruction method of the teachers is a fair way to highlight the purpose of technology in teaching (de Oliveira Dias et al., 2020). Technology has made classroom performance boundaryless as it can be accessed from anywhere at any time. The availability of technology and training of teachers to use the technology can become a reliable source to introduce technology in fair learning and reliable performance (Chen et al., 2021). The students' performance can be improved when teachers use additional technological tools to improve their learning. The awareness to use technology has become a critical factor, and many students learn better when they are supported to advance their learning practices. The use of technology has a positive and negative impact on learners' performance.

The reliability in learning performance can become a way forward with the help of technology. However, it is challenging for the students to test how technological advancement can support learners' performance (Saiyad et al., 2020). Meanwhile, the learners are encouraged to improve their learning for better performance with the support of technology. Innovation resistance should be eliminated, and technology should be pretty used to improve learning performance (Potts, 2019). The instructors can motivate students to use technology in their learning for their strategic performance. The innovation of new methodologies in learning can provide a better approach to the students, but they must be ready to get an education with the help of virtual classrooms (Li et al., 2021). The access of students to technology and the teaching methodology of instructors can become a significant combination to motivate the learners for their innovative performance in learning. The available resources should be utilized to motivate the students for their learning and improved performance.

Hypothesis 5: The use of technology mediates the influence of teaching pedagogy on learners' engagement.

The developed framework of this research is reported in Figure 1.



3. Methodology

3.1. Scale Items Development

Being quantitative research, this study used a confirmatory approach to test the relationship between variables. However, the data for this research was based on empirical evidence. The Likert scale was used to measure the data. The measurement scale for items of all variables was available in the past literature but not according to the context of this research. Therefore, the study has customized a measurement scale for each construct. The recommended method of Jebb et al. (2021) was used to develop the measurement scale. The extensive literature related to this research was observed very carefully. Furthermore, the operationalization of each construct was made based on the available data. A pool of scale items was developed after the operationalization of the variable to represent each aspect of the construct. Preliminary data was taken from 80 respondents to determine the findings of exploratory factor analysis. Exploratory factor analysis was a reliable way to determine the validity of developed research items. In this stage, the items with lower loadings were deleted; out of 30, 20 items were deleted.

In addition, the data from another 60 respondents was collected to determine the findings of confirmatory factor analysis. The confirmatory factor analysis findings reported that the developed items had reliability and validity. Furthermore, the path relationships were significant. Therefore, the developed items for this research were considered appropriate for collecting the final data. However, the language and content of the items were tested with face validity. The statistical experts and the experts from social sciences were contacted to determine the face validity. The experts' recommendations were considered for finalizing the scale items for this research. In this way, the measurement items for this research are finalized for data collection.

Table 1: Measurement Scale.

Variables	Items	Measurements
Learner Engagement	LE1	I enjoy learning online.
	LE2	I understand teachers' instruction in online classes.
	LE3	I am happy to learn in a virtual classroom.
	LE4	I perform my role in online classes.
	LE5	Virtual learning is flexible and fit for me.
Teaching Pedagogy	TP1	The teaching methods in online classes are reliable.
	TP2	The teacher uses innovative methods to teach.
	TP3	Teachers' assistance improves my understanding.
	TP4	Virtual teaching is improving my learning.
	TP5	I can understand better in virtual teaching.
Use of Technology	UT1	I know the use of technology for virtual learning.
	UT2	Technological acceptance is reliable in virtual teaching.
	UT3	I know how to operate applications for virtual classroom s.
	UT4	I submit my assignment on the online platform in a better way.
	UT5	The use of technology improved my learning.
Virtual classroom	VC1	Virtual classroom is good for teaching.
	VC2	I like to learn in a virtual classroom.
	VC3	The simulation-based method is suitable in virtual classrooms.
	VC4	The knowledge is shared in a virtual classroom.
	VC5	I am happy with virtual classroom learning.

3.2. Sampling and Data Collection

Based on the research aims and objectives, the target population was selected. Since the study aimed to evaluate learner's engagement through virtual classroom and assess whether the teaching pedagogy could establish a relationship between learner engagement and teaching pedagogy with the mediating role of technology, the sample needed to be respondents pursuing a suitable course. The respondents comprised students pursuing the bachelor's degrees program in a film and visual education course in Chinese universities. These respondents were approached through a survey-based approach. A total of 620 questionnaires were prepared and distributed to the respondents to collect the data. However, 398 responses were collected back, out of which 18 responses were rejected due to missing information and the actual sample size of this research was 380 respondents. The data was measured with the help of a partial least square–structural equation model (PLS-SEM) to determine the findings. However, the findings of measurement model assessment and structural model assessment were used to reach the findings of paths and test the model.

4. Data Analysis and Findings

4.1. Normality of Distribution

The normality of distribution was checked in research data to identify the missing values, mean and standard deviation. The findings of skewness and kurtosis were also checked at this stage to determine the study's convergent and discriminant validity. The findings of skewness and kurtosis should be between -2 and +2 for significant normality (Royston, 1992). The data reported in Table 2 confirmed that the normality of distribution was achieved.

Table 2: Skewness and Kurtosis.

Items	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
VC1	1	0	3.277	3	1	7	1.504	-0.448	0.098
VC2	2	0	3.237	3	1	7	1.776	-0.564	0.442
VC3	3	0	3.527	3	1	7	1.851	-0.768	0.306
VC4	4	0	3.487	3	1	7	1.894	-0.797	0.386
VC5	5	0	3.527	3	1	7	1.682	-0.423	0.296
TP1	6	0	3.496	4	1	7	1.793	-0.708	0.232
TP2	7	0	3.455	4	1	7	1.8	-0.92	0.112
TP3	8	0	3.67	4	1	7	1.863	-0.798	0.202
TP4	9	0	3.71	3	1	7	1.845	-0.738	0.316
TP5	10	0	3.634	3	1	7	1.904	-0.721	0.378
UT1	11	0	3.558	3	1	7	1.877	-0.728	0.372
UT2	12	0	3.562	3	1	7	1.814	-0.563	0.366
UT3	13	0	3.594	3	1	7	1.887	-0.786	0.307
UT4	14	0	3.482	3	1	7	1.75	-0.414	0.455
UT5	15	0	3.531	4	1	7	1.901	-0.925	0.201
LE1	16	0	3.473	3	1	7	1.788	-0.594	0.318
LE2	17	0	3.656	4	1	7	1.779	-0.648	0.256
LE3	18	0	3.085	3	1	7	1.478	-0.111	0.588
LE4	19	0	3.17	3	1	7	1.508	0.446	0.888
LE5	20	0	3.223	3	1	7	1.447	0.786	0.923

4.2. Convergent Validity

Convergent validity was tested to determine the individual item's reliability and internal collinearity between the research data. The findings of factor loadings were tested for individual item's reliability. The reliability of individual items becomes significant when the factor loadings for each item is more than 0.60 (Shevlin & Miles, 1998). However, the items loaded below this threshold were deleted. Furthermore, the composite reliability and Cronbach alpha findings were tested to check the internal collinearity in the research data. The significant threshold for composite reliability and Cronbach alpha is > 0.70 (Alarcón et al., 2015). Accordingly, the findings of average variance extracted were also checked to determine the variance of each factor loaded on a construct. The threshold for significant average variance extracted is > 0.50 (Alarcón et al., 2015). The data reported in Table 3 confirmed that convergent validity was achieved.

Variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Learner Engagement	LE1	0.853	0.897	0.923	0.706
	LE2	0.841			
	LE3	0.817			
	LE4	0.856			
	LE5	0.832			
Teaching Pedagogy	TP1	0.924	0.949	0.961	0.83
	TP2	0.91			
	TP3	0.896			
	TP4	0.907			
	TP5	0.919			
Use of Technology	UT1	0.914	0.945	0.958	0.819
	UT2	0.888			
	UT3	0.922			
	UT4	0.904			
	UT5	0.896			
Virtual Classroom	VC1	0.902	0.945	0.958	0.82
	VC2	0.914			
	VC3	0.924			
	VC4	0.901			
	VC5	0.886			

4.3 Discriminant Validity

The discriminant validity was tested to determine the multicollinearity issues in the research data. The recommended method of Heteritrait-Monotrait (HTMT) tested the multicollinearity issues among research data. The findings of the HTMT matrix must not be more than 0.85 for significant discriminant validity (Gold et al., 2001). The findings reported in Table 4 confirmed that HTHT was significantly achieved.

Variables	Learner Engagement	Teaching Pedagogy	Use of Technology	Virtual Classroom
Learner Engagement				
Teaching Pedagogy	0.794			
Use of Technology	0.775	0.741		
Virtual Classroom	0.711	0.689	0.678	

4.4 Path Findings

The findings of paths are tested with the bootstrapping method. The measurement model assessment findings are taken to check the t-statistics. The t-value > 1.96 is reliable for significance when the hypothesis is non-directional (Ramayah et al., 2018). The first hypothesis was accepted and confirmed that virtual classroom positively influenced the learners' engagement. Furthermore, the second hypothesis was also accepted, and it was confirmed that teaching pedagogy significantly and positively influenced

the learners' engagement. The third hypothesis was accepted as the results confirmed that teaching pedagogy influenced the use of technology. Similarly, the fourth hypothesis findings revealed that use of technology significantly influenced learner engagement. Finally, the mediation of the use of technological tools was accepted positively between teaching pedagogy and learners' engagement. The path findings were reported in Table 5.

Table 5: Path Findings.

Path	Relationship	Original Sample	Standard Deviation	T Statistics	P Values
Direct	Virtual Classroom -> Learner Engagement	0.5	0.116	4.316	0
Direct	Teaching Pedagogy -> Learner Engagement	0.274	0.121	2.254	0.025
Direct	Teaching Pedagogy -> Use of Technology	0.117	0.026	4.500	0
Direct	Use of Technology -> Learner Engagement	0.219	0.035	6.257	0
Indirect	Teaching Pedagogy -> Use of Technology -> Learner Engagement	0.239	0.026	9.192	0

5. Discussion

The analyzed data showed that the findings of this research were significantly achieved and that the set objectives of this research were achieved. It is evident from the findings that the first hypothesis was accepted, which means that the impact of virtual classrooms is significant on learner engagement of film and visual art students. This relationship is newly developed in literature as it has theoretical support from existing studies' findings. In this aspect, a virtual educational environment is a design that aids the students in learning more effectively by using more significant opportunities. According to Kaup et al. (2020), students' performance improves when they are eager to learn over time. When students pay attention to the virtual classrooms for their learning, the success of their performance and their learning is much easier. According to Ahshan (2021), the materials available to students can help them receive education through virtual classrooms, but they must have a good attitude towards their work. The best strategy to progress learning is to provide students with the resources they need to increase their learning performance. According to Pettillion and McNeil (2020), with reasonable technology utilization, engaging students in the classroom is possible. Students' attitudes towards learning are improved when they have greater learning chances.

Abou-Khalil et al. (2021) asserted that how we teach has changed due to technology use, and students now can access virtual learning options. Many visual art educational institutions have implemented learning platforms to help students learn. However, the issue is that these students lack the motivation to enhance their academic performance. According to Nambiar (2020), when teachers can employ technology to educate their classes, the student's awareness of their learning can improve. Technology has been incorporated into learning platforms in developed European nations to improve the experience for students. According to Tamah et al. (2020), every industrialized nation employs the virtual classroom methodology, and top universities also use it to instruct their pupils. It can be difficult to tell whether students are learning based on their methods and to determine the effect of the teaching environment on students' learning by regularly monitoring and evaluating the digital classroom.

Khatoony and Nezhadmehr (2020) also observed that the flexible learning environment provided by the online classroom style allows students to demonstrate their enthusiasm for learning. When their teachers are there to help them, pupils are constantly motivated to learn. The delivery of higher education is also moving to online platforms, where students are taught through virtual learning tools. This is a fair use of technology to guarantee that the pupils have a practical working methodology. The students are encouraged to enhance their academic performance, though, because, without their hard effort, online learning platforms are not credible sources of knowledge. Teachers must inspire their charges to learn somewhat and perform consistently.

Furthermore, the second hypothesis was accepted, and the impact of teaching pedagogy was found significant on learner engagement. This relationship is also newly developed in literature but has theoretical support from the findings of existing studies. For instance, Ahmed and Opoku (2022) found that teachers and students enter into a trustworthy instructional relationship, which guides learners towards creative performance and sustainable working. Several teachers are employing creative working methods to get

their students interested in studying. The bond between teachers and learners needs to be strong. Salas Pilco et al. (2022) also suggested that the teachers must separate the class into several groups and devise creative ways to impart knowledge to each one. Teachers must give their students a more effective strategy for resolving these problems when driven to achieve well. Kaup et al. (2020) said that although teachers are constantly driven to carry out their duties, they must also drive pupils to learn more effectively. The curriculum should reflect the teaching philosophy, and the students must pursue opportunities to advance their learning actively. Dolighan and Owen (2021) argued that teachers in virtual classrooms have a crucial role in getting students involved in class activities and inspiring them to perform better. Both student engagement with the teacher and learning outcomes can be enhanced over time.

Murphy et al. (2020) also asserted that teachers effectively engage their students by learning improved methods to support pupils. Students with access to virtual classroom services benefit from their teachers' improved instruction. According to de Oliveira Dias et al. (2020), educators have to offer a dependable and sustainable method of instruction to support students' learning. The effectiveness of teachers who apply proven and cutting-edge teaching methods improves over time. Likewise, Aguilera-Hermida et al. (2021), student performance and participation in class activities are determined by how well they learn. However, despite many teachers being less tech-savvy, they must do better work by becoming more tech-savvy. Potts (2019) reiterated that students' performance is psychologically impacted by the teaching method, and when students are motivated, they should learn more and perform better overall. The instructors' instructional methods greatly influence their learning. When teachers motivate their students, they are expected to increase their learning performance. Li et al. (2021) also asserted that teachers can be helped to improve their teaching style, which is essential for the pupils, using trustworthy materials. To promote students' critical thinking in online classrooms, it is also reasonable to increase their performance by giving them access to the most recent technologies.

The third hypothesis was also accepted, and findings reported that teaching pedagogy influences use of technology. Similarly, the findings of this research have been theoretically supported by the existing studies. Miller et al. (2021) emphasized that students must acquire the necessary learning and drive for themselves and teachers should get together to work for the student's improvement, reliable opportunities for the student's work can become more robust. Likewise, Joshi et al. (2021) found that teachers and students having access to technology improve classroom learning practices. The teaching strategy influences the student's learning and performance. Teachers who employ cutting-edge tools can inspire their students to pursue best practices. Harris et al. (2020) also asserted that the teaching approach should align with the pupils' expectations. Many teachers have a strong desire to help their students learn more. According to research, some of them lack motivation because they think their students are not using emerging technology for learning. According to Barrot et al. (2021), when it comes to student engagement, student performance can play a huge role. Some students in all higher educational institutions have a less favorable attitude towards using technology, and it falls on their lecturers to inspire these students to embrace technology. According to Nimavat et al. (2021), the interaction between professors and students is beneficial, and fair access to technology is necessary for all pupils.

Haleem et al. (2022) believed that technology use is a critical component of the virtual classroom setting, and its significance cannot be understated. The virtual classroom's primary function is to offer distant learners educational services. However, the finest virtual classroom is a step in the right direction because it may help students learn more effectively and perform better. According to Junus et al. (2021), today's technology is primarily employed to enhance students' strategic performance, but teachers' teaching methods are as critical in helping students learn. When students want to enhance their academic performance, they must engage with their professors to ensure that their working strategies are created suitably. Students' performance is influenced by how teachers teach. Thus, educators should help students learn more effectively. A competent teacher always inspires his pupils to excel in their technological tasks.

The fourth hypothesis was also accepted as the findings confirmed the use of technology influences the learner' engagement. These findings are also in line with the findings of those in existing studies. It is consistent with the belief established empirically that the access to technology and knowledge of its value can help students advance in their quest to perform better. Teachers must adopt a positive attitude when technology is brought to the classroom to improve learning opportunities. Al-Nofaie (2020) trusted that students' ability to progress their learning can be increased through the responsible use of technology. The students' dependable work

ethics may be a step toward enhancing their performance and learning. Cevikbas and Kaiser (2020) also asserted that students may benefit from having access to technology and use it more effectively while learning. The ease of the pupils is another consideration in the construction of virtual classrooms. Yates et al. (2021) also believed that these classrooms ensured pupils give their work their complete attention. However, learners who are less motivated to learn in virtual classrooms can be further inspired by their teachers to incorporate technology into their learning to enhance performance. According to Rasmitadila et al. (2020), students who are more adept at using technology will approach it in their study more successfully. The students must put much effort into understanding how to use technology because it can help them learn more effectively.

According to Jain et al. (2021), any community's students should be encouraged to enhance their role when driven to enhance their learning from the technological advancement standpoint. Students who have access to technological resources for virtual classroom instruction may improve their educational practices. According to Scagnoli et al. (2019), the recently created technology apps also significantly influence how well pupils learn. A virtual classroom can help students learn more effectively when motivated to use technology in their studies. Teaching methods and creative performance have evolved because of technology. This decade has seen a rise in the standard use of technology in the classroom. Teachers and students are working closely together to make the most of the use of technology in learning.

Finally, the fifth hypothesis was also accepted as the findings of this study confirmed that the use of technological tools mediated the relationship between teaching pedagogy and learners' engagement. This relationship too was a newly developed one and it enjoyed full theoretical support from the findings of existing studies. For instance, Chen et al. (2021) observed that, due to its accessibility from anywhere at any time, technology has removed geographical boundaries from the performance in the classroom. Technology availability and teacher training in its utilization can serve as a trustworthy foundation for introducing technology to ensure fair instruction and consistent results. Saiyad et al. (2020), too, explained that when teachers use additional technological tools to enhance student's learning, the performance of the pupils can be improved. Many children learn better when they are helped to progress in their learning practices, and the usage of technology has become a crucial aspect.

Hakim (2020) asserted that both sound and adverse effects of technology use on student achievements are evident. With the use of technology, improving learning performance reliability can become a viable option. With the aid of contemporary tools, online education technology is also a fair way to gain a deeper understanding of technology. Shenoy et al. (2020) showed a reasonable way to emphasize the use of technology in teaching through students' understanding of its use and teachers' methods of instruction. Testing how technological advancement can support learner achievement is difficult for students. Mahmood (2021), when using technology to help their study, urged that students should enhance their education for improved performance. Technology should be appropriately used to enhance learning performance, and the strategy of innovation rejection should be abandoned. Phillips and O'Flaherty (2019) found that technology access by teachers and students may be a step in the right direction towards improving education. For better strategic performance, instructors might encourage their pupils to employ technology in their studies. Raes et al. (2020) showed how students can benefit from developing new learning approaches but must be prepared to get their education in virtual classrooms. The combination of instructors' innovative teaching methods and students' access to technology can inspire them to excel academically. Last, but not the least, Martin (2019) argued that technology has developed into a trustworthy tool in all facets of daily life and only fair use of technology has the potential to enhance student learning significantly. The pupils should be inspired to learn and perform better using the resources that are accessible.

6. Conclusion and Implications

This study produced empirical evidence to support all the proposed hypotheses within the research framework. This is the evidence of the fact that in order to improve learners' engagement in film and visual art classes, there is a need to integrate virtual learning appropriately. Furthermore, the study established that teachers must use innovative methods during learning to improve the learning performance of their students. The teachers can motivate the students for their productive performance, but this is possible only when teachers are themselves highly motivated to support their students. Art teachers particularly should utilize the available resources to learn the use of technology to advance learners' performance.

This study developed solid theoretical contributions to literature with the help of empirical evidence. The findings of the study confirmed that virtual classrooms impact the learners' engagement because they are engaged in it. The study established that when learners encounter virtual classrooms, their performance can be measured significantly to improve their performance. Therefore, a loop in the literature is closed as the study developed that the learners' engagement can be improved positively when virtual classroom access in film and visual art education occurs. Similarly, the study closed another loop in the literature, demonstrating that teaching pedagogy significantly influences learners. The study empirically reported that teaching pedagogy could be improved to influence the learners' engagement in classroom performance. This research's findings are significant as learners' engagement is reported in the context of teaching pedagogy. Furthermore, this study introduced the use of technology as a mediator between teaching pedagogy and learners' engagement. This mediation is reported in the literature that both can correlate when technology is advanced between learners' engagement and teaching pedagogy.

The findings of this research have practical implications for film and visual arts teachers. The study recommended that the practice of virtual classroom is reliable to improve learners' engagement because it motivates the students to improve their learning performance. Furthermore, the study emphasized that the improvement in virtual classrooms should be increased over time to ensure that the students perform better. Accordingly, this research highlighted the importance of teaching pedagogy for learners' engagement. The study emphasized that teaching pedagogy should be improved over time to influence the learners' engagement. The teachers are required to work innovatively to make sure that their teaching style in influencing the engagement of learners. Furthermore, for the students of films and visual arts education, it is necessary to have access to technology to improve their performance. The performance of these students is reliable to improve when they are motivated to get experience in technology. Therefore, the study highlighted that technology should be used relatively for films and visual arts students to improve their learning.

This research faced some limitations as well which future studies must address. The study has tested the impact of teaching pedagogy and virtual classroom, but it has not tested the impact of the use of technology directly on learners' engagement. Therefore, this limitation must be addressed in future studies. Moreover, the study collected data from the students only, that is, students' perspectives. However, future studies are required to collect data from the teachers to understand their perspective on learners' engagement in films and visual arts learning. Accordingly, this study has used measurement model assessment and structural model assessment for findings. Future studies must use mixed study methods to determine the findings. The work in these directions will contribute significant findings to the body of knowledge.

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