Pedagogical challenges and design of virtual theater performance: an exploratory case study

Budi Tri Santosa [a,1,*], Diana Hardiyanti [a,2]

[a] Department of English Literature, Universitas Muhammadiyah Semarang, Jalan Kedungmundu Raya No.18, Semarang, 50273, Indonesia
[1] btsantosa@unimus.ac.id*; [2]diana@unimus.ac.id;
* corresponding author

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ABSTRACT

Covid-19 impacts universities around the world, changing online teaching and learning activities. These changes occur rapidly, causing teachers to look for creative online learning methods, especially learning theatre performances. Virtual theatre learning looks difficult and gives a challenge for teachers during the Covid-19 pandemic. Hence, it is necessary to change the performance mode of production and virtual theatre teaching with the audience's presence through the gadget screens in their homes. This research evaluates and answers the challenges of acting pedagogy that has existed so far and designs a virtual theatre performance format that is certainly different from conventional performances. This research uses the exploratory case study research design. This design was used as a procedure to identify, analyse, and design pedagogical challenges and design a virtual theatre for University of Muhammadiyah Semarang students by giving them a questionnaire. The result shows that collaboration between art and technology is an effective formula for virtual theatre performances. The zoom application and its accompanying features were chosen to be a virtual stage for staging a work. The transition of theatre performances from the traditional to the digital era also impacts the creative team's duties and work responsibilities. It can be observed in the directors, costume stylists, music stylists, lighting stylists, video stylists, stage directors, and production directors. Virtual theatre performances challenge the creativity of actors and creative teams to produce works of art with the help of digital technology. By analyzing the challenge and designing virtual theatre performances, this research can benefit the art community in the future.

1. Introduction

The Covid-19 outbreak has shaken the educational and performing arts communities. Due to the introduction of health protocols and the request for physical distancing, some art acts involving big audiences have had to be cancelled [1]. For the creative and entertaining process to continue, organizers must immediately invent and design the art performance [2], [3]. Many artists have lost their jobs because of the postponement of the masses' activities, such as theatre performances. It also has an impact on universities around the world, changing online teaching and learning activities [4]. These changes occur rapidly, causing teachers to look for creative online learning methods, especially learning theatre performances. Virtual theatre learning looks difficult and challenging for teachers during the Covid-19 pandemic, so it is necessary to change the performance mode of production and virtual teaching of theatre with the audience's presence through the gadget screens in their homes. Digital and social media were selected as the most effective means to alter and transform the theatrical performing arts and their instruction. Virtual theatre performances during the pandemic are lively and create an atmosphere of passionate theatre production and teaching [3]. Artificially producing visual

(visual sense engagement) and aural (auditory sense engagement) parts of a virtual theatrical performance is a challenging endeavour [5]. It is possible to construct theatrical performances in real-time using audience interactivity and virtual settings. Therefore, organizing theatrical performances, of course, requires the expertise of teachers and students in the arts and is also required to learn technology and digital. This research has the following objectives; (1) evaluate and answer the challenges of acting pedagogy that has existed so far, and (2) formulate an online theatre performance format that is certainly different from conventional performances. The evaluation of the actor's pedagogy is expected to create a more dynamic, innovative actor pedagogy. The researchers formulate the objectives by considering the need of society and the phenomenon faced by theatre teachers and artists.

The use of technology during the pandemic inspires a great deal of creativity. Creativity can be found not only in the performing arts but also in education. The current learning trend is shifting, and society is increasingly turning to the digital world through the use of social media. According to Tjahjawulan, the collaboration of art and technology encourages progress in the field of artistic innovation [6]. The way students learn and process information has now shifted due to their dependence on technology. Based on this, education requires a tool to assess the effectiveness of technology implementation in the classroom [7]. They also conclude that the effectiveness of technology in the classroom depends on the teacher to develop the technology. With a focus on the sustainable use of technology, there is a substantial growth in student learning and increased student attitudes towards learning [7]. They assess the use of technology in education and can analyze, design, develop, implement, and evaluate the learning environment. Another study concluded the same result as the impact of technology on student achievement [8]. Other studies show that students who have used computers or technology in classroom learning scored fourteen per cent higher than students who did not access computers or technology [8]–[10]. According to Kulik and Flectcher, students will more easily understand learning if they use technology [11]. Those previous studies are essential to this research because their finding focuses on motivation and the use of technology in the classroom. This research uses those previous to elaborate on how the effectiveness of technology in theatre class. Students can also argue or communicate better about learning in the classroom when technology is part of teaching [11], [12]. There is also increasing argumentation and student involvement in learning because of the effect of the material they like [13]. Another advantage of using technology is the improvement in communication and collaboration skills demonstrated by students as a result of the availability of technology both inside and outside the classroom [14].

The use of technology in the classroom has also been applied to nursing learning and music concert performances [15], [16]. Liu's paper discusses the introduction of the characteristics of computer music technology, analyzes the advantages of computer music technology in music education, as well as implement actively discusses the practical application of computer music technology in music education. Technology can also help motivate students during learning and preparation for theatrical performing arts. Motivation refers to what a person dream of, while competence is defined as what a person can do [17], [18]. Motivation aims to determine student behaviour and influence future behaviour [18]. In the latest theory, motivation can be used as a model to assess how students respond to learning [17]. One of the keys to increasing students' motivation is to attract their interest. According to research, when students use technology, they thrive and are more likely to stay engaged in their learning [19], [20]. According to Yunjo An, the most significant challenge faced by teachers during the pandemic is the low participation of students in learning; they lack access to technology, so there is no direct face-to-face interaction; as a result, students become estranged from their basic needs, namely a healthy lifestyle balance, and are unfamiliar with new technologies. Conversely, when students use technology in the classroom, they can enhance learning references and increase their exploration and production skills.

Technology is crucial for teaching actors and theatrical performances [21]–[23]. Conventional teaching and performance patterns have been established for a long time, so there have been no breakthroughs. Theatre teaching breakthroughs are needed in the pandemic era to generate innovation, creativity, and student creativity [24]. Students are enthusiastic about learning if they feel the Covid pandemic is a challenge in the learning process of acting. Thus, students' perceptions of the importance of creativity are key factors that influence students' motivation to spur their creative abilities [25]–[27]. According to one study, students were more likely to participate in an activity simply because the technology was used during learning [28]. Technology can also motivate students

because it can make it easier to gain knowledge according to their ability level. In offline classrooms, students with low levels of competence have to struggle more to learn new concepts so that they have the potential to lag behind their peers [29]. However, with online assignments, students can progress at their own pace.

The stage and the actors have always been the mainstays of traditional theatre. When the performance is done outdoors and in front of an audience, actors are at the centre, using their voice and body as the main elements, then adding some elements to help convey the message, such as musical instruments [29]. The stage is the main element where all theatrical activities are expressed by actors and the media of closeness between actors and the audience. Virtual stages were formed due to the development of theatre and pandemics to enhance closeness between the audience and actors without being constrained by distance or time [30]. Technology is becoming very effective in theatrical productions and creating virtual stages. The new theatrical production formula has blurred the lines between actor and audience, bringing them together in one space and experience. Occasionally, interactive multimedia on a virtual stage transforms the spectators into actors [31]. Many studies suggest that drama, performing arts, education, and technology must be interdependent and interrelated. Technology should complement or enhance the drama class, but technology should not replace the entire process of drama pedagogy [32]. In Indonesia, teachers and students have adapted to digital teaching. This also impacts theatre teaching, so understanding participation or attendance in classrooms is no longer applicable. The reality of pedagogy without the presence of a body requires teachers to innovate in teaching and drama performance so that it can be applied to students. The challenge, then, for drama teachers is how to build closeness with students in virtual conditions. Although not physically meeting in the classroom, virtual technology still provides a sense of closeness [33], [34]. His concept of 'digital liveness' suggests that technology can give the audience a feeling of 'life' through uniformity, immediacy, and a desire for instant communication. Susan Davis argues that closeness in the digital world cannot be achieved by relying on technology platforms alone [35].

This state-of-the-art pedagogy encourages virtual actor pedagogical innovation due to the Covid-19 pandemic. This can also give actors, educators, and students less time to formulate the ideal level of teaching and theatre performances so that restoration steps are needed. Given the novelty of this research between the technological and pedagogical paradigms, this research can be a basis for considering new pedagogies, practices, and modalities that educators can use to provide students and actors with a learning and performance environment without physical spaces. The evaluation of the actor's pedagogy is expected to create a more dynamic, innovative actor pedagogy. The findings of online theatre performance formats that are undoubtedly different from conventional performances are expected to help teachers and even artists become active in theatrical performing arts. The research urgency is to create an offer for the broader community regarding solutions that can be taken due to the pandemic. It is hoped that the contribution of this research to the community, especially theatre teachers and art workers, is that this research describes a solution for how virtual theatre performances can be held by utilizing zoom technology as a stage. The public can also learn about using studio effects to replace costumes for actors. Not only that, but the use of audio software is also a solution to problems that arise from sound management.

2. Method

The research design used is a case study research design. The design selection follows Yin's view, which reveals that a case study is a study of empirical inquiry about contemporary phenomena [36]. Cases can be categorized in three ways: (1) exploratory case studies where exploration of the phenomena is of interest to the researcher and needs to be discovered; (2) descriptive case studies that lead to the development of a narrative of the phenomena with reference to extant literature; and (3) explanatory case studies that ask the "why" questions about the observed phenomena which may lead to the establishment of theories [37]. In this research, the researchers use exploratory case studies in which the researchers explore the phenomenon in society and discover what society needs. Such characteristics cause case study research design is very appropriate to analyze the change in a circumstance. The case study method as one type of descriptive approach is research that is carried out intensively, in detail and in-depth on a narrow research subject [38]. Case study research is intended to intensively study the problem's background, the situation and position of an event that is currently taking place, as well as limited interactions. Case study research provides a broad and in-

depth overview of the subject under study. This design is used as a procedure for identity, analysis, and design of pedagogical challenges and design of virtual theatre for University of Muhammadiyah Semarang students [39].

English Literature students at the University of Muhammadiyah Semarang are the topic of this study. Determination of the sample unit using the approach of proportional quota random sampling (quota proportional stratified random sampling techniques). The number of individuals sampled using this method is 34. Amount The sample is obtained by taking the students of each class randomly. The first stage of analysis is to communicate about new methods of acting for teachers and students. The importance of communicating is the need for change and the support needed to implement new methods in classroom learning [40], [41]. In practice, students are informed about using virtual acting teaching to understand their experience and their technology. It is referred to as "building a picture" [42]. The second technique is the virtual implementation of the actor's pedagogy. During virtual teaching, the Zoom app is used so that students can learn acting techniques. Weekly practice of acting is applied by giving instructions on acting. Observation and analysis focused on the process of student's acting. Qualitative data collection techniques include field notes, observations, and interviews. Field notes, note sheets, observations, written notes, personal notes, text messages, emails, questionnaires, surveys, and interviews are all possible information-gathering strategies [43]. The last data collection technique is evaluating data related to the virtual pedagogy of actors and its impact on students' abilities. This process leads to the analysis of the quantitative and qualitative data mentioned above. Evaluating data requires criteria and standards to generate validity in virtual pedagogical situations [43]. The selection of data is intended to build triangulation. Triangulation is a stage of reflection. The focus of the reflection stage is to unpack the data, ask appropriate questions about the reasons why change occurs, and reflect on the concepts of "how" and "why" pedagogical change occurs [42]. Three data collection techniques can thoroughly evaluate virtual actor pedagogy's impact on student performance and attitudes. It could also emphasize pedagogy, learning and motivational strategies, and the possibility of adding virtual learning to acting and theatrical performing arts. The research phase can be seen in Figure 1.

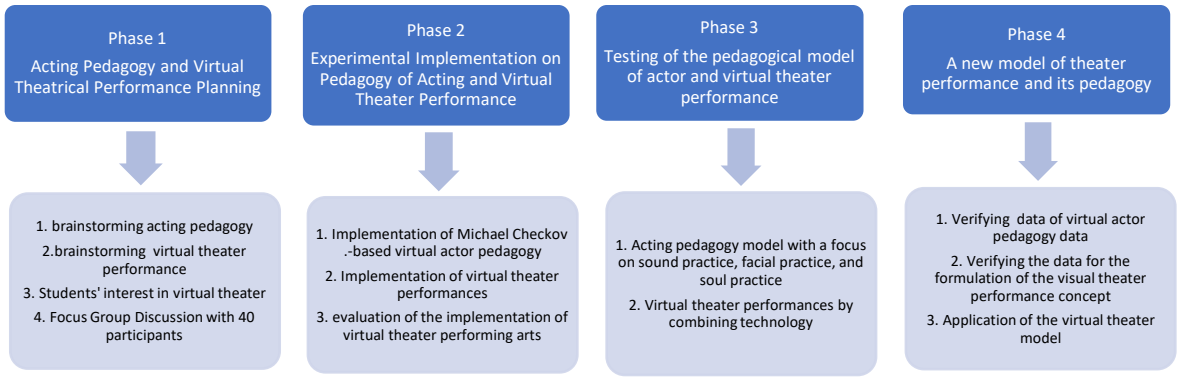


Fig. 1. Phase of Research

In analyzing qualitative data, interviews, observations, and analysis of student responses were carried out. The analysis procedure allows students to give their opinions about teaching theatre virtually at the beginning and end of the semester. Labelling is a technique for a standardized open-ended interview [44]. The open interview mechanism is a pre-prepared question, asked sequentially with a specific purpose for all students. Through the analysis, researchers discovered the benefits of virtual teaching during the pandemic. This mechanism is a step of descriptive interpretivism [44].

3. Results and Discussion

3.1. Pedagogical Challenges in Virtual Theater Performance

Changes in virtual theatre pedagogy require students and lecturers to use mobile phones, laptops or computers to participate in the learning process. Not only that, students and lecturers also need a room and a strong internet connection to support effective learning. All face-to-face meetings have

turned into virtual meetings as a strategy to deal with the Covid-19 pandemic period. The virtual meeting model also positively impacts operational activities such as no travel and saving on staging costs. Although there was an increase in the performance of each student and lecturer during the learning process and theatre production, there was no significant change in the production burden of theatre performances as a group. The pattern and distribution of learning and theatre production become flexible according to the needs of each student. Some students explained that digital theatre learning and production changes affect the performances themselves, but these changes also affect students' creativity in producing virtual theatre performances without delays because there are no physical meetings. The data below shows that students prefer to use technology in theatre performances. It can be seen in Figure 2.

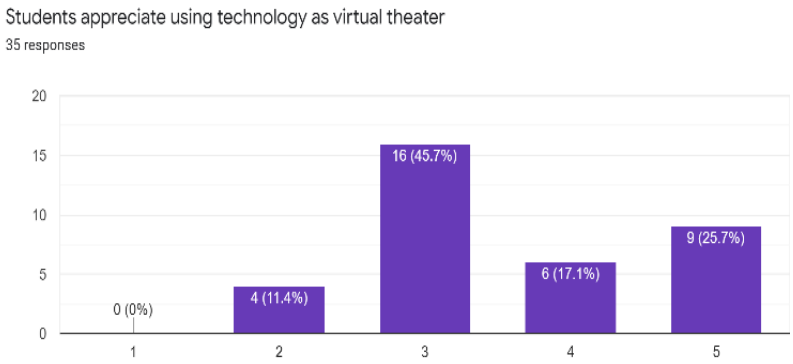


Fig. 2. Students' Preference for Technology

Online pedagogy also makes it easier for lecturers to monitor students' learning processes and theatre productions. Students who turn off their webcams and microphones during the discussion process to prepare digital theatre performances allow lecturers to assess the seriousness of students in the theatre learning process. Moreover, lecturers can also help solve student problems if problems occur during the preparation and production process for digital theatre. The sense of closeness between actors and lecturers is the key to actor and theatre production pedagogy. Through this sense of closeness, students adapt to different ways of learning and lecturers can know their feelings and motivate students in the learning process during pandemic or lockdown conditions. Online performances facilitate lecturers to greet the audience before and after, introduce theatrical performances, and open and close digital theatre performances. Knowing the audience's enthusiasm is essential for the following digital theatre performance process for lecturers and actors. It was also conveyed by Indra Ainun Dirgantara, one of the actors in digital theatre performances.

> *In offline shows, even if I am backstage before the performance and only hear the audience's applause before the theatrical performance, it can excite the actors. If the theatre show is digital, I can see their expressions and appreciation before, after, and even during the theatrical performance* (Indra Ainun Dirgantara-Actor)

Knowing the audience and seeing the audience's response to digital performances can be a reference for the success of theatre performances and increase the motivation of actors and creative teams to continue digital theatre performances. Not only that, but audience appreciation can also be a way to get more digital theatre viewers. For creative teams, online theatre preparation has increased flexibility and can also develop and enhance performance creativity. The creative team does not need to travel to prepare for theatrical performances so that the creative team can focus on managing preparations effectively. Another advantage is that the creative team can also do other household activities as a responsibility to parents. Even though they have flexible time, lecturers must carefully supervise the creative team.

> "*Because of the home environment, I have a more flexible time preparing for theatre performances and do not forget to consider homework. There are many positives to digital actor pedagogy. I do not have to fly to Semarang for discussions with other creative teams. We can manage all creativity in the Zoom application, and discussions can run effectively*." (Umera-Actress)

The biggest challenge in changing the pedagogy of actor and theatre performance is balancing homework and preparing digital theatre performances. The transition to virtual theatre performances also impacts changing the composition of the creative team and their work responsibilities. It can be

observed in the directors, costume, music, lighting, video, stage, and production directors. Changes in costume management are the most visible changes. If the performance is conventional, the costume manager is in charge of arranging and preparing all the costumes for the actors. In virtual performances, the costume manager guides the actors in choosing their costumes by paying attention to the suitability of the scene and aesthetics. It can be seen in Figure 3.

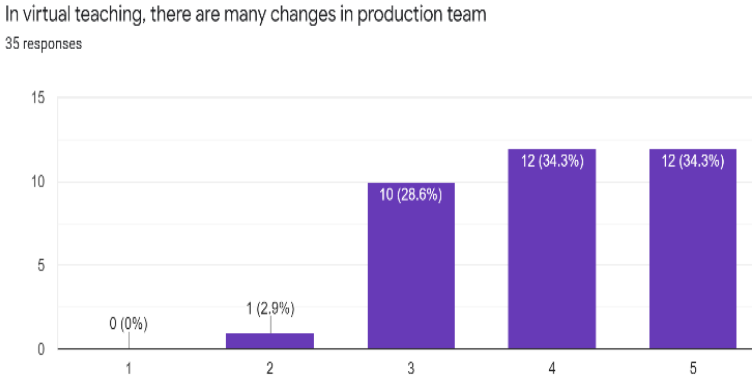


Fig. 3. Changes in the production team

Changes also occurred in stage division. In the absence of a natural stage setting, stage divisions are responsible for providing direction for the virtual background. This virtual background is a tool to create a drama staging background. It can be seen when virtual shows are at street vendors or ordering *pecel lele*. The stage division prepares a virtual background for *pecel lele*. It can be seen in Figure 4.

Fig. 4. Virtual Background for Stage

The role of the production director is shifting significantly. The production director is responsible for allocating and overseeing the budget, but the production director takes over some of the roles of the stage division, setting up the virtual stage. For virtual performance, the role of the production director becomes much more technical. Amara, as production director, explained her work on zoom staging, making sure all virtual equipment was financially adequate.

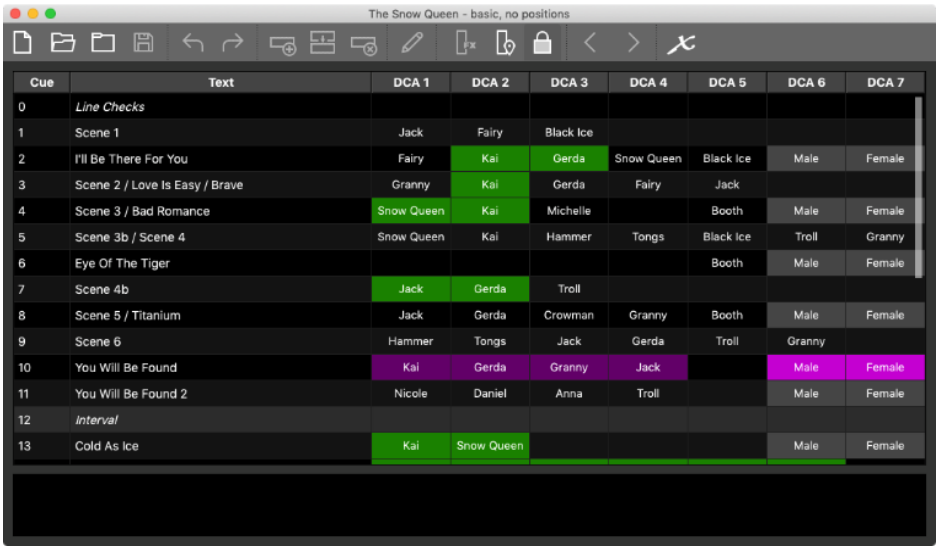
> *"In theory, the production team monitors and makes sure everything is going well, especially financially. However, virtual theatre performances can no longer just ensure and monitor. Need to help in other teams or divisions so that the work becomes lighter."*

The production director is also responsible for sending performance logistics such as shipping costumes, props and additional accessories to the actors' homes and managing the mechanism for returning property. The financial strategy is the task of the production director to adjust the production budget to the players' needs for the equipment loan. Another division that has changed is the stage director. The stage director is the role that experienced the most significant shift. All physical aspects of the role are removed and replaced with roles such as television broadcasting regulators. Change brings opportunities to work in groups and great opportunities to improve skills due to working online. Stage directors should practice various technical skills on using the Zoom platform, try different software, and experiment to determine the platform's compatibility with other types of software that can strengthen zoom capabilities and adapt them for performances.

Much of the stage director's work on zoom involves blending live vision, using Zoom's built-in "spotlight" function to choose which screen to show the audience. When all players are appointed as "co-hosts" for their turn, they are automatically displayed at the top of the cast, making it easier for stage directors to find and spotlight. The stage director is also in charge of the sound effects for the show. Zoom prioritizes the human voice over other voices because it was designed as a conferencing platform. It presents a challenge for stage directors to combine the human voice and sound effects to be practical. In this context, the stage director asked the cast to make small noises to spotlight Zoom. That way, platforms get their screens highlighted without the need for help from a stage manager. The stage director is responsible for turning off the incoming sounds to avoid disturbing the audience. In virtual theatre performances, stage directors use Zoom and Vision Mixing compatible sound mixes such as *Manycam* app. The use of the two software allows stage directors and performers to switch between the different cameras of each camera. It can be seen in Figure 5.

Fig. 5. Students Use Manycam

For sound, the stage director chooses a *Qlab* operated from a smartphone via an IP address, allowing the stage director to highlight the actors on the zoom screen while signalling the sound via the *Qlab Remote*. The stage director uses *Adobe Auditon* for sound editing, which allows the stage director to insert sound effects during rehearsals. It can be seen in Figure 6.



Cue	Text	DCA 1	DCA 2	DCA 3	DCA 4	DCA 5	DCA 6	DCA 7
0	*Line Checks*							
1	Scene 1	Jack	Fairy	Black Ice				
2	I'll Be There For You	Fairy	Kai	Gerda	Snow Queen	Black Ice	Male	Female
3	Scene 2 / Love Is Easy / Brave	Granny	Kai	Gerda	Fairy	Jack		
4	Scene 3 / Bad Romance	Snow Queen	Kai	Michelle		Booth	Male	Female
5	Scene 3b / Scene 4	Snow Queen	Kai	Hammer	Tongs	Black Ice	Troll	Granny
6	Eye Of The Tiger					Booth	Male	Female
7	Scene 4b	Jack	Gerda	Troll				
8	Scene 5 / Titanium	Jack	Gerda	Crowman	Granny	Booth	Male	Female
9	Scene 6	Hammer	Tongs	Jack	Gerda	Troll	Granny	
10	You Will Be Found	Kai	Gerda	Granny	Jack		Male	Female
11	You Will Be Found 2	Nicole	Daniel	Anna	Troll		Male	Female
12	*Interval*							
13	Cold As Ice	Kai	Snow Queen				Male	Female

Fig. 6. Qlab as Audio Management

The last team to be affected were theatre performers. The players had to adapt to the changing method of acting. With the guidance of a production director and stage director, performers must convert a portion of their home into a studio space, learning new technical and cognitive skills to operate their equipment during rehearsals and performances. It can be seen in Figure 7.

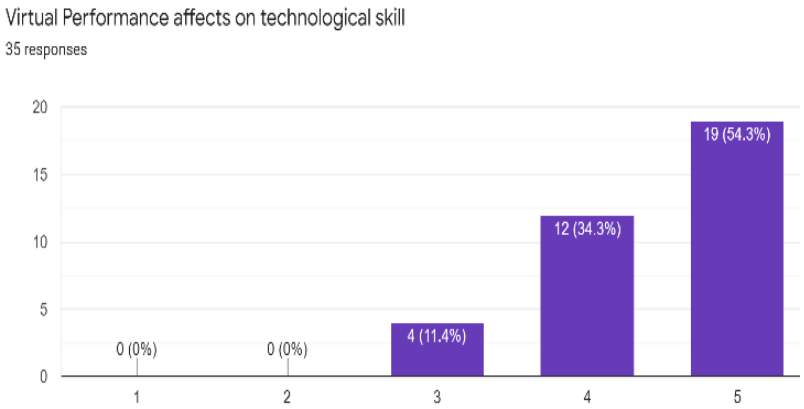


Fig. 7. Student's Adaptation on Technology Use in Virtual Performance

Guided by the costume director, the actors are also asked to take costume fitting, customize costumes, and assist in procuring props by using the appropriate items they had at home. The transformation to virtual work forms means expanding the role of players to work more closely with creative teams to co-produce staging design elements.

3.2. Designing Virtual Theater Performance

The Covid-19 pandemic is a condition that requires a quick response for theatrical performances. One of the quick responses was to create a virtual theatrical performance. In virtual performances, creativity becomes a strategy to respond to the transformation of the performance. Creativity does not need to have a building, so one of the transformations takes place on a virtual stage. This transition is more easily seen when the intrinsic adaptation of staging, as conveyed by Ahmad Rozikin as an actor:

> "*Theater is a sector affected by the pandemic. Many changes and adaptations come from various divisions of the creative team. Therefore, the creative division teams, actors, and all the teams involved can express new ideas and apply them as a form of improvisation to advance the theatre performance industry*."

Muiz (actor) also said, "improvisation skills are not new and difficult for actors and directors to learn because we are used to improvisation." From the interview results, all those involved were highly motivated and felt proud because they experienced the theatrical production process during the transition from analogue to virtual, as shown in the following graphic. It can be seen in Figure 8.

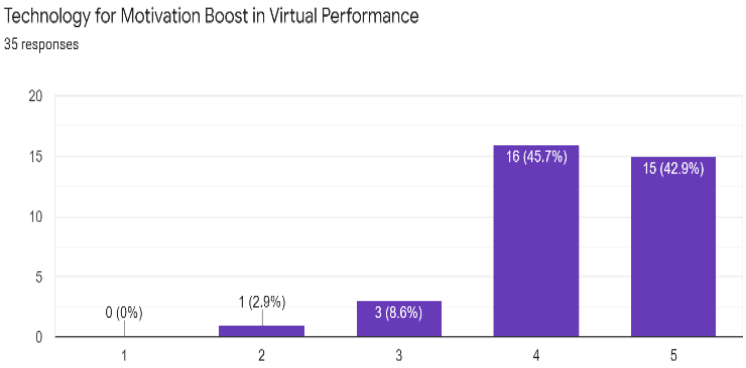


Fig. 8. Student's Response Toward Virtual Theater

The spirit of being a pioneer in virtual performances is strengthened by the change in the performance method to "live film" as stated by Agung that "virtual performances through Zoom make creativity wider. Things we cannot do in the real world can be done on Zoom." Virtual performances generate and standardize new art forms. Zoom Theater is a complex stage that can combine various ideas with unlimited patterns of interaction. To create a virtual theatrical performance, creative team members need to upgrade their broadband or mobile data connection, to transfer from their WIFI or broadband connection to their mobile in case of connection problems. Some creative team members need equipment in Table 1.

Table 1. Creative Team and The Equipment

Creative team	Equipment	Name of Equipment
Stage Director	Hardware	Laptop; Smartphone; Monitor
	Software	Zoom; Qlab; ManyCam; Adobe Audition; Whatsapp
Actor	Hardware	Laptop/PC; Smartphone; Webcam; Microphone; Green Screen; Black curtains; Lamp
	Software	Zoom; Whatsapp; Facerig

The stage director bears the primary responsibility for learning how to use Zoom and its compatibility with *Qlab* and *ManyCam*. All team members must learn to use the platform, guided online by stage and production directors and other team members.

"We learned to get used to using Zoom and other software from day one of practice. At first, We learn through trial and error and from each other. From trial and error, we look for the best solution so that virtual theatre performances run smoothly." Yoga

Actors also had to learn with production directors and stage directors to set up studios in their homes with green screens by the cast's lights. Giving a green background is intended to avoid image distortion or shadows so that it blurs the virtual background. It can be seen in Figure 9.

Fig. 9. Green Screen for Background Depth

The actors also have to learn to operate the microphone and set lighting. Actors must learn commands on the zoom platform and can set and change their backgrounds as directed. Some players will also need to learn how to edit videos for their backgrounds and how to use ManyCam to switch between multiple webcams in their respective home studios. In addition, players are to adjust their eye contact in Zoom, especially learning to look at the camera instead of the laptop screen. Actors must also keep a distance from the green screen by at least one meter to avoid shadows recorded by zoom. The image below shows the cast during eye contact practice focusing on layers. When the actor's eye contact focuses on the layer, the audience sees the actor is not looking at the camera. It has an unfavourable impact due to the lack of eye contact between actors and the audience and their loss of enthusiasm to see the show. It can be seen in Figure 10.

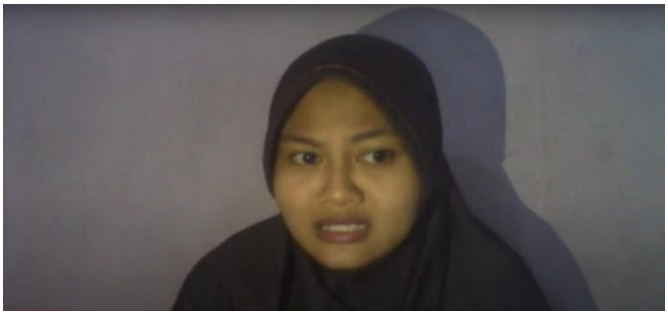


Fig. 10. Disturbing Shadow for Disproportionate Distance

Acting in front of a laptop camera can give the audience an immediate sense of intimacy. Actors have to manage all forms of photography, such as checking lighting, framing and camera angles. They must also learn not to make noises when it is not their turn to avoid accidental spotlights. On the other hand, when necessary, they should get used to starting their dialogue in a small voice (such as clearing their throats) to trigger the "spotlight" at the right time. Actors claim that acting in zoom is a skill in

and of itself, but we have all learned a new style of acting that transforms zoom acting into a creative blend of screen and stage acting. Zoom theatre requires actors to appear in front of the camera. They must also be prepared for other performance techniques such as muting or unmuting, changing the background, or automatically triggering the spotlight by making small noises. Meanwhile, actors also need to follow the communication in the Whatsapp group to check if other players are having network problems and need someone to improvise to cover up the error while performing. Such improvisation is used in some shows where a performer's internet connection is unstable, or the microphone is accidentally turned off. Another actor must pick it up by continuing the dialogue. The design for the Zoom show relies on the creative team's ideas. The creative team had to quickly adapt by incorporating virtual backgrounds, props, and costumes at home. Stage design is the most impacted area in virtual staging. Creative teams are required to create immersive digital experiences. Background: *The Chroma Key* is used in this virtual performance to generate a virtual background for most viewers who can afford to set up a green screen in their home studio and have access to hardware compliant with Zoom's specifications. Digital backgrounds can be static or, if the hardware allows, can include video. For animated characters such as dragons, you can use a combination of *chroma key* and *facerig*. It can be seen in Figure 11.

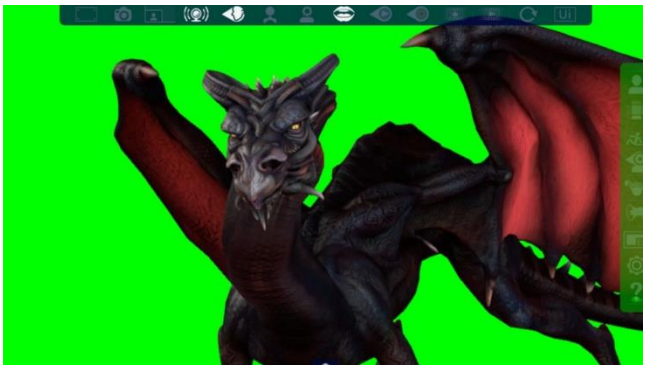


Fig. 11. Facerig for Animation Effect

To achieve sharp images, actors need as large a room as possible and a green screen to act in the space between the camera and a distance of at least 1 meter from the green screen. Keeping a distance from the green screen is key to focusing on the screen without creating distracting shadows on *the Chroma Key*, as in the staging image below in Figure 12.

Fig. 12. Applying Virtual Background to Create Setting

Actors who do not allow long distances between the camera and the green screen to be limited can be overcome by taking pictures between head and shoulder positions. Meanwhile, actors in larger rooms can take three-quarters and even full-body shots to move more freely in the zoom frame so that the video conferencing aesthetic results in a more aesthetic. The creative team may use the same virtual backdrop to create the illusion that the actors are in the same setting. However, the background angle must be adjusted to the actor's position in the background and in the frame. It can be seen in Figure 13.

Fig. 13. A Virtual Stage From a Different Location

Thus, they are visually imagined to be in slightly different parts of the same environment. The following virtual backdrop design needs to consider the plausibility of the actor's body size dimensions. For example, a ceiling high enough not to visually press the character's head. One actor cannot use any background for this performance but guides the stage director to create a physical set design in a reusable wardrobe. The creative team decided to help him build a stage in his house so the audience could see the beauty in the background. Other players do not have access to the hardware required for *Chroma Key*. The actors then use a projector to transmit the background image to the white wall. All scenes involving the actors were adjusted to the projected image to maintain the scene between the characters so that the appearance could not be used appropriately. It can be seen in Figure 14.

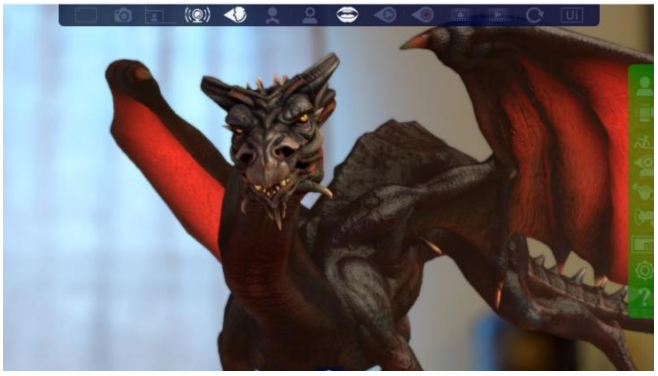


Fig. 14. Dragon Character by Facerig

For virtual performances, the creative team have worked closely with performers to get costume fittings via videocall. When using Chroma Key, the actors say they have to be very careful about the colour of their clothes. The virtual background can absorb colours that are too close to the green screen colour. Using face rigs, the actor emphasized his creative use of props and costumes. His properties and imaginative use in these virtual performances are vital to sustaining a theatrical production in a screen setting. It can be seen in Figure 15.

Fig. 15. Applying Virtual Costume

Actors also said the absence of a costume manager made them feel a bit depressed. Dependence on the properties and costumes provided by each actor makes them insecure. The presence of a costume and property designer is needed to unite the aesthetic elements. This is something the actors cannot do. The costume designer takes advantage of the face rigs' features, which include various props and costumes to add to the character. It can be seen in Figure 16.

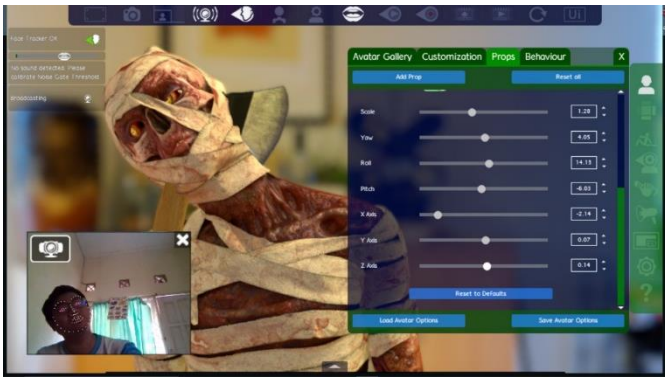


Fig. 16. Facerig with Virtual Properties

3.3. Lighting

The basic principle of Zoom lighting for the smooth operation of Chroma Key is that the green screen behind the actor must be seen clearly and evenly, with no shadows cast by the actor or property, and the actor requires additional lighting for his face and body. The ideal lighting setting for using *Chroma Key* on Zoom is that the actor will have the lighting from the two diagonals in front of him, the leading light behind him, and then the green screen will light up separately. Actors can never get closer to the green screen than a meter lest the actor cast a shadow on the green screen. It can be seen in Figure 17.

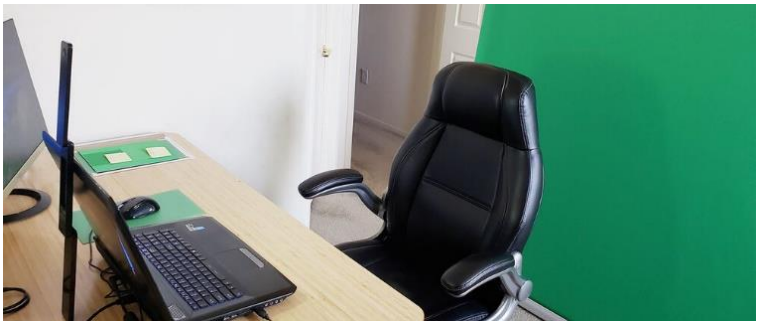


Fig. 17. Perform Set

The production manager and stage manager are both in charge of lighting design in virtual theatres. They directed the actors to use whatever lighting they had on hand and additional softbox lights that some had purchased. Lighting also turned out to create the perception of depth in their virtual background actor relationships. Actors who work in rooms with much natural light must also find ways to block out the light if it interferes with their studio lighting because natural and artificial light are not on the same wavelength.

3.4. Sound

Like lighting, sound design poses a challenge for virtual performance on Zoom. Zoom is designed for conferences where the human voice is more critical as a spotlight sensor. If the actor uses the microphone on the laptop, the sound will be easily caught by the spotlight. The problem is that the laptop microphone cannot filter out other sounds around the actors. Therefore, some actors add podcast microphones to capture their voices without disturbing other sounds coming in. It is also difficult for the performers to determine how loud they should be in their vocal delivery. The problem is compounded by the level of sound the stage manager hears when inputting sound effects is underscored when using *Qlab*. The voices that can be heard at the end of the stage manager are different from those heard by performers.

4. Conclusions

Virtual theatre performances challenge the creativity of actors and support crews to produce works of art with the help of digital technology. Adjustment to the traditional paradigm shift towards the digital era also affects the theatre teaching pedagogy for students. Communicating well using a new method (Zoom Theater) in teaching theatre and building motivation for all production supporters are essential for virtual theatre performances. Virtual theatre performance is a new idea after the theatre is presented in a conventional concept. Virtual theatre performance is a novelty in which other research cannot facilitate new methods and concepts for theatre. The presence of virtual theatre can also shake its identity as a live show. Converting theatre into a recording has the opportunity to create a new history called theatrical film. Presenting free and virtual theatre shows is a step toward bringing this theatre closer not only to the theatre. This theatrical recording is also documentation that can be reached by more people to access an art performance. The presence of the concept of virtual theatre should be a response to the situation. The main thing is to maintain the existence of the theatre in public, as well as take advantage of the available vehicle opportunities.

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