Remote-based e-Learning Experiences in University-level Performing Arts Education: A Case for Integrating ICT tools and technologies in Performing Arts Teaching Systems

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Abstract

The COVID-19 pandemic has interrupted systems of education worldwide. This paper examines how a university-based performing arts program struggled to cope with delivering quality instruction to its students during the pandemic. Online teaching interfaces such as Zoom prescribed by the university for departments to transition from face-to-face learning to remote-based learning proved inadequate for instruction in music, dance, drama, and other performing arts programs. The Community of Interest survey instrument (Arbaugh et al., 2008) was used to assess first-year undergraduate students' perceptions of remote-based e-learning in the performing arts program. Additionally, a short semi-structured qualitative questionnaire was also distributed to first-year students and teaching staff within the program. Forty first-year undergraduate students responded to the survey, and twenty first-year students and four teaching staff responded to the short semi-structured questionnaire. Data collected through these methods revealed challenges and possibilities for improving remote-based learning for performing arts-based courses. Based on these insights, we suggest incorporating AR technology to further enhance remote teaching and learning experiences in higher education performing arts programs.

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Introduction

During the COVID 19 pandemic, distance or remote-based learning employing various online platforms such as Zoom, YouTube, Microsoft Teams, and Google Meets has been promoted as a necessary strategy in India as well as in other neighbouring countries such as Malaysia to keep learning and teaching communities engaged safely (Jena, 2020; Saikat, Dhillon, Wan Ahmad, &Jamaluddin, 2021). Studies examining remote-based learning experiences in India during the COVID 19 pandemic show that benefits of distance/remote learning are significant and include continued access to learning, flexible platforms for teaching and testing as well as access to learning material hosted by national and international experts which students can access in their own time and often at no cost as well as increased access to learning opportunities to vulnerable populations like women and physically disabled groups who face mobility restrictions. However, remote-based learning also comes with challenges such as lack of availability of technical gadgets and access to high-speed internet, difficulty keeping all students equally engaged, increased exposure of students to online sexual exploitation and loss of interpersonal relationships within and across student groups and teaching staff (Jena, 2020; Mukhtar, Javed, Arooj, &Sethi, 2020; Tarkar, 2020). A majority of the studies cited here focus on supporting learning that is 2-dimensional and academic in nature and fail to address the specific challenges faced by learning and teaching communities in movement-based performing arts where body form, position and movement, group composition and choreography, and facial

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expression form an integral part of teaching and learning.

In Australia, teachers in drama and other performing arts fields worked significantly longer hours to implement systems to enable remote learning. However, they found it very difficult to replicate some of the foundational tenets of practice-based learning – which refers to a group of people working together in the same space physically and engaging in peer-to-peer collaboration, learning and co-creation (Davis & Phillips, 2020). In Kenya, the Edmondo teaching and learning platform was found to be a satisfactory way to impart pedagogical competencies in performing arts but was not tested to assess imparting practice and skill-based competencies, which could have differing results (Pratama&Surahman, 2020). In New York, a study of first-year graduate dance students' remote learning experiences showed remote learning to be an individualised experience dependent on various factors. Factors included students' access to resources, location, family life, communication and learning styles, and affinity or aversion to technology. Challenges faced included lack of community, variable internet connectivity, and lack of appropriate space (Damast, Cohen, & Martinez, 2021).

While the COVID 19 pandemic has amped up remote-based learning globally, forays into enabling remote-based performing arts education have been taking place for the past several years. For example, remote-learning systems, both synchronous and asynchronous with varying interactive capabilities, have been used to improve access for rural students with limited opportunities in performing arts (Parrish, 2008), to build a community of inquiry and practice for dissertation students moving back to their countries of residence from overseas universities (Peacock et al., 2012), and increase opportunities for youth employability (Iwuchukwu, 2013). However, even within these systems, drawbacks were recognised for the delivery of practice-based learning competencies. In response, several projects have experimented with integrating technological tools and systems such as Augmented Reality (AR), Artificial Intelligence (AI), and Virtual Reality (VR) to address the challenges noted above, as well as preserve traditional and folk dance forms, and explore possibilities for enhancing creativity in performing art forms.

AR and related technologies can enable a more immersive experience of practice-based learning, and the possibilities of using technology for recognising, mapping, and tracking body movements allows for 3-dimensional communication of movement-based arts (Nogueira, Menezes, &Patrão, 2021). In India, where traditional dance forms comprise complex movements with layered sensorial nuances, to maintain authenticity of learning and teaching traditional dance forms a novel AR mobile based classical dance app has been ideated (Choudhury&Chowdhury, 2022). In 2016, a survey conducted as part of the Whole-body interaction Learning for Dance Education (WhoLoDancE) project on incorporating ICT technologies such as augmented and virtual reality in dance instruction and pedagogy and creative performance revealed a range of possibilities for enhancing dance instruction. These included using various tools such as ‘super mirrors’, VR goggles, body sensors, motion tracking and mobile dance applications (K. El Raheb, A. Kasomoulis, and V. Katifori. 2016). These tools, according to Alaoui, Carlson, &Schiphorst (2014), can be categorised as: reflective tools which enhance the user's perception of movements and shapes through reflection; generative tools which generate movement material autonomously (for example, using AI) or manually; interactive

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tools which allow dancers and teachers to interact with digital media in real-time while performing where one can add virtual dance partners for choreography; and annotative tools which allow instructors to embed descriptions and explanations to video recordings of dance forms to aid learning processes. The WhoLoDancE EU project is a pioneer in advancing dance interactive learning systems and proposes a common workflow to facilitate interactive learning experiences that can be relevant to other performing arts as well. The proposed workflow comprises four phases of user interaction with the system: Student Moving, Capturing Student's Movement, Processing Movement Data and Feedback (Raheb, Stergiou, Katifori, & Ioannidis, 2020).

This article describes the theoretical framework, research setting, and methodology used to study students' and teachers' experiences of remote-based learning in a university-based performing arts program in India. Data collected was analysed to understand perceptions, challenges and barriers faced by students and teachers. We focus on first-year students as they have the least experience in the program and could potentially face other challenges socially and with technology as they make their advent in higher and more independent learning. Based on the findings of this research study, we propose ways in which ICT systems and tools such as augmented reality can improve remote-based e-learning experiences in performing arts programs.

Theoretical Framework

According to Garrison and Anderson's model (2003), e-learning is most effective when there is a 'distant presence' or 'community of inquiry' that enables a collaborative and constructive practice of knowledge building at collective and individual levels. E-learning, according to these authors, comprises three dimensions:

- **'Social** Presence' refers to "the ability of learners to project themselves socially and emotionally, thereby representing themselves as "real" people in a community of inquiry" (Garrison, Anderson, Archer, 2003, p. 115). Social Presence is measured by indicators in three broad categories – Affective expression, Open communication, and Group cohesion.

- **'Cognitive** Presence' is defined "as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (p.115). This is measured by indicators in four phases of iterative learning – Triggering event, Exploration, Integration and Resolution.

- **Teaching presence** is defined "as the design, facilitation and direction of cognitive and social processes for the purpose of realising personally meaningful and educationally worthwhile learning outcomes" (p.116). This dimension is measured by indicators relating to – Design and organisation, Facilitation, and Direct instruction.

In this study, we use Garrison and Anderson's Community of Inquiry model to evaluate remote e-learning/teaching experiences of first-year undergraduate students and teaching staff in a performing arts program which included courses in dance, drama, and music.

Research Setting

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In India, when lockdown regulations came into effect in March 2020, several educational institutions across the nation remained closed intermittently till January 2022, affecting the learning, health and wellbeing of millions of students and young people (Hamid &Poorvaja, 2022). This study was conducted in a fairly new Performing Arts Program (established in 2017) in a university in Andhra Pradesh, India, where COVID 19 regulations closed campus-based learning for all programs for over 75 weeks. The research aimed to assess how new students entering the Performing Arts Program adapted to remote-based e-learning and better understand ways to improve the effectiveness of remote-based teaching and learning strategies in performing arts programs. Remote-based teaching and learning within the program largely took place through synchronous video communication such as zoom classes and asynchronous multi-media communication, including teachers sharing video recordings, web-based resources, and textual material. The curriculum for remote-based learning was largely structured around previously existing face-to-face instruction.

Methodology

The Community of Inquiry survey instrument (Arbaugh et al., 2008), validated in different cultures and contexts of e-learning, was distributed through email to all first-year students (68) in the performing arts program three months after the commencement of remote learning. The survey included indicators on social, cognitive and teaching presence relevant to remote-based e-learning. Additionally, a short questionnaire was sent out via email to all teaching staff (7) and first-year students in the program. The questionnaire included semi-structured and open-ended questions to understand challenges and barriers to effective remote-based learning and positive outcomes for students and teachers, as well as suggestions for improvements of remote learning systems to accommodate the distinct needs of performing arts programs.

The survey response rate was relatively high, with 44 students responding to the survey. A total of 4 survey responses were incomplete and therefore disregarded. Students who completed the surveys included 18 male and 26 female students, with approximately half having a formal training background in performing arts. Students hailed from various backgrounds, and approximately a third of them lived in the city, while others lived in neighboring towns or were out-of-state students who had returned to their homes when remote learning was in place. The response rate for the questionnaire was modest in comparison. Twenty students, two full-time staff, and two guest lecturers completed the questionnaire. Follow-up interviews were conducted with teaching staff to further explore themes arising in the analysis of qualitative data from questionnaires. The questionnaire was an important method to draw out practice-based aspects of learning and teaching in the performing arts, which were inadequately addressed in the survey instrument.

Data collected was analyzed using SPSS and Atlas.ti. The themes in the data collected through the short questionnaire were further analyzed using survey data. Additionally, student data was disaggregated by location, background, and presence/absence of formal training to further understand underlying factors affecting remote-based learning experiences for students.

Analysis and Findings

Student's Perceptions of Social Presence in Remote e-learning

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Overall, as Figure 1 indicates, students struggled to develop and maintain a social community of learning. The questionnaire revealed that at the start of the program, both teaching staff and students made concerted efforts to create a social presence within the program through various activities like mind mapping, sharing interests and hobbies and setting up interest-based subgroups. However, as the term progressed, academic aspects such as discussions of reading material, lectures, and assignments took front stage, and most other informal and relationship building activities took backstage. Communication among students and teachers was formal, and students were less inclined to share their feelings or anecdotes or indulge in humour. A few students who knew each other and lived within the city where the university was located were more inclined to connect online and offline. However, students who had returned to their hometowns did not feel a sense of belonging to the program and felt less at ease being active participants in online discussions and forums – both synchronous and asynchronous.

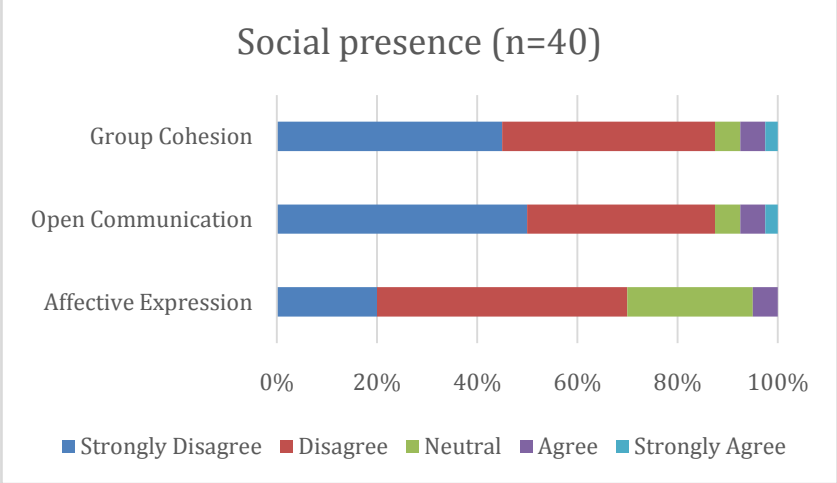

Figure 1: Student's perceptions of Group Cohesion, Open Communication and Affective Expression aspects of Social Presence during remote learning.

Student's Perceptions of Cognitive Presence in Remote e-learning

Curriculum content and related material were shared using a Learning Management System that was being used University-wide and one which had existed before remote learning was implemented. Synchronous Zoom sessions were held by teaching staff for both theory as well as practice-based courses. Pre-recorded material, breakout rooms, and quizzes were appreciated by students and were instrumental in enabling students to actively engage and explore course material and apply some of the learnings in practice-based courses. As evident from Figure 2, students could engage and grasp learning content during remote learning. But, data from the questionnaire show that this was not without issues. For example, several students noted experiencing internet connectivity issues and struggling with navigating 'zoom' sessions and breakout sessions which left them frustrated and having to rely on recorded versions of synchronous sessions. Students also struggled with grasping practice-based content. While video recordings of dance, music and drama routines and techniques were found to be helpful, students still found the two-dimensional format to be lacking. Teaching staff, too, expressed synchronous zoom sessions and asynchronous sharing of practice-based learning content to be inadequate in transferring required practice-

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based skills to students. A few students who had past formal training in their chosen program area fared better, but this was not experienced across all students who had formal training in the past. This could be related to various factors, including the quality and duration of formal training and when it was received. Apart from individual skill development, the whole aspect of group-based performances was largely suspended during remote learning as teachers felt they did not have access to appropriate technology or ICT capacities to implements such classes.

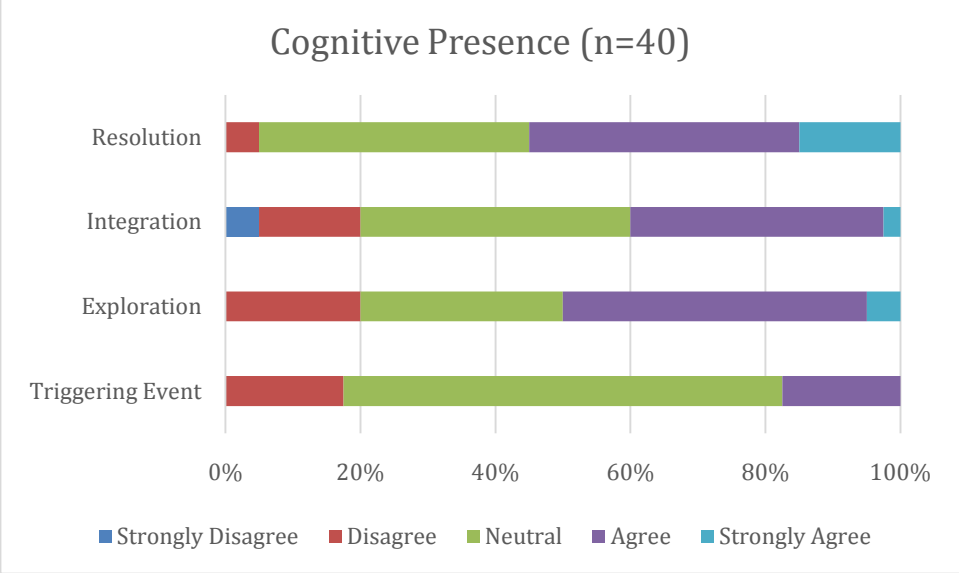

Figure 2: Student's perceptions on Resolution, Integration, Exploration and Triggering Event aspects of Cognitive Presence during remote learning.

Student's Perceptions of Teaching Presence in Remote e-learning

Figure 3 shows that while students were largely satisfied with the design, organization, and facilitation of learning content, they found personal feedback and attention from teaching staff is lacking. Analysis of qualitative data gathered from the questionnaires and follow-up interviews with teaching staff showed that a range of factors such as lack of technical abilities, lack of time, and personal issues prevented teaching staff from being more responsive to students' needs. One of the teachers explained that developing proficiency with the technology required to implement remote learning and developing e-learning content was extremely time-consuming. Barriers included weak internet connectivity in teachers' homes, power outages, and a lack of dedicated university tech-support staff for remote-based learning. One teacher resorted to relying on personal connections for tech support. These issues, together with staff having to support their family members during the COVID crisis (such as children staying at home as schools were shut or caring for ailing parents), all contributed to time poverty, preventing teachers from being more present for students.

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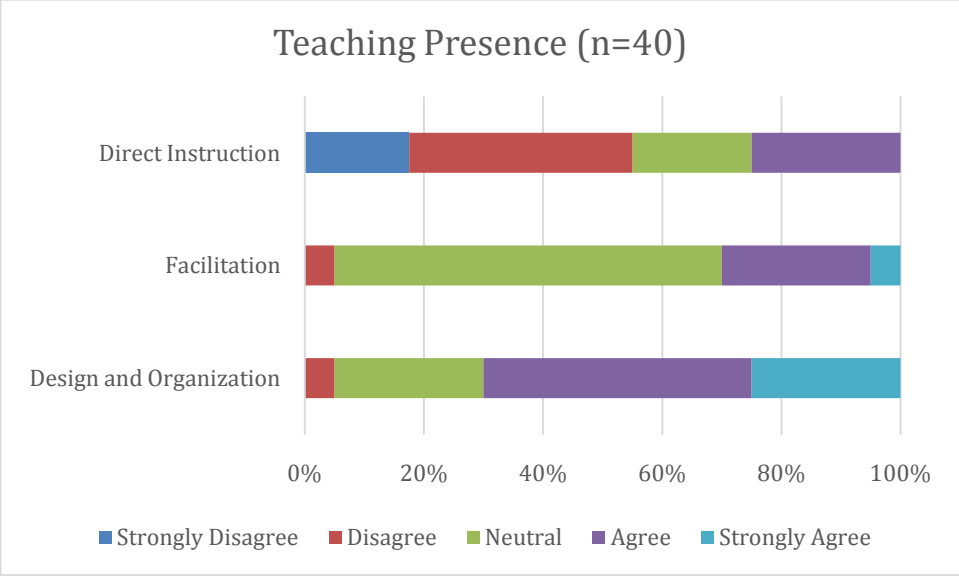

Figure 3: Student's perceptions of Direct Instruction, Facilitation, and Design and organisation aspects of Teaching Presence during remote learning.

Challenges and barriers to effective remote-based learning in performing arts programs

Analysis of qualitative data gathered from questionnaires and follow-up interviews with teaching staff in Atlas.ti revealed three key challenges and barriers. These are explained in detail below:

Lack of appropriate technology and tools for imparting practice-based content and enabling collaborative practice-based work such as group dance choreography or drama productions, as highlighted in the above analysis, proved to be one of the biggest challenges to remote-based learning for first-year undergraduate students and teaching staff. Students cited lack of immediate feedback, lack of detailed three-dimensional practice-based content, and lack of appropriate technology to be barriers to enabling effective instruction in practice based-content. For example, several students expressed that positioning of gadgets to capture nuanced facial expressions as well as overall movement was extremely difficult. Many also expressed that they did not know until their final assessment whether their performance techniques and skills were accurate or inaccurate as teachers were not prompt in responding to students' video recordings of their performances.

The lack of an enabling institutional environment to support remote learning was identified by students and staff as a barrier. Both teachers and staff cited lack of access to appropriate gadgets and devices, presence of dedicated technical support staff, and lack of rigorous training for students and teachers in recommended remote-based learning tools to detract from students' learning experiences. Specifically, students from lower SES (socioeconomic status) found it difficult to navigate the e-learning environment.

Lack of personal resources. Individual circumstances of students played a key role in their perceptions and experiences of remote-based e-learning. Students coming from larger families, smaller homes, and from low-income families faced challenges such as time poverty, lack of access to required gadgets and devices recommended by the university for remote-based learning, poor internet connectivity, and lack of space. Teachers and

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students expressed that lack of space within their homes prevented free movement required for movement-based performing arts.

Suggestions for improvements of remote learning and teaching systems in performing arts programs

Based on the findings of this study and relevant literature, several recommendations can be made to improve the remote-based learning experiences of students in performing arts programs. First, to enhance social connectivity and group cohesion, curriculum and structure for remote-based learning should be examined from a lens of not just delivery of learning content but also with due consideration to how e-environments and related technologies can be best harnessed to keep students engaged, active, and connected. For example, in the United States, online teaching in performing arts education included related aspects such as mindfulness, yoga, and instructional videos, which added diversity, encouraged group work, and addressed mental health and wellbeing (Gingrasso, 2020). Facilitating flexible learning schedules for students so that they can design them to fit their schedules can also enhance remote-based learning. In a recent study in Hungary on remote learning experiences in dance, the most critical factors for successful completion of courses were student's own schedule, communicating with group mates and completing tasks regularly (Papp-Danka and Lanszki, 2020).

In face-to-face instruction, theory and practice-based courses in performing arts often tend to be different modules. In remote-based e-learning, however, there are opportunities for bridging these aspects using annotation tools. See, for example, 'A Tool for the Analytical Dance Eye', which Volker Kuchelmeister developed in collaboration with William Forsythe (Forsythe, 2004) as an interactive dance learning system. The tool comprises over a hundred video lectures where film, audio, animation and computer-generated images express the choreographer's meaning in an immersive, 4D experience. The video lectures are annotated with animated shapes, forms, and figures, which give 3-dimensional meaning to the choreographer's movement techniques and theoretical principles. Integrating ICT into dance education, not just for e-learning, can significantly enhance the communication of creative dialogue and techniques (K. El Raheb, A. Kasomoulis, and V. Katifori. 2016).

Universities should invest in building capabilities of teaching staff in performing arts programs to integrate ICT tools and technologies and have dedicated support staff to aid teachers and students experiencing technical difficulties with remote-based teaching and learning. Additionally, students from low-income families should be supported with subsidies and gadgets to enable equitable remote-based learning experiences.

Conclusion

This paper highlights some of the challenges that students and teachers face in remote-based e-learning in a performing arts program. It engages with relevant literature and theoretical frameworks to employ appropriate methodology and parameters to understand better and evaluate remote-based learning. Challenges faced include the lack of appropriate technology and tools for imparting practice-based content and enabling collaborative practice-based work relevant to performing arts programs, the lack of an enabling institutional environment to support remote learning, and the lack of personal resources. While students were able

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to engage with academic learning content, they found it more challenging to build social connectivity and group cohesion and access direct instruction from teaching staff. Based on these findings, suggestions are made to improve remote-based learning/teaching experiences in performing arts programs, such as embracing and integrating ICT tools and technologies in performing arts education.

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