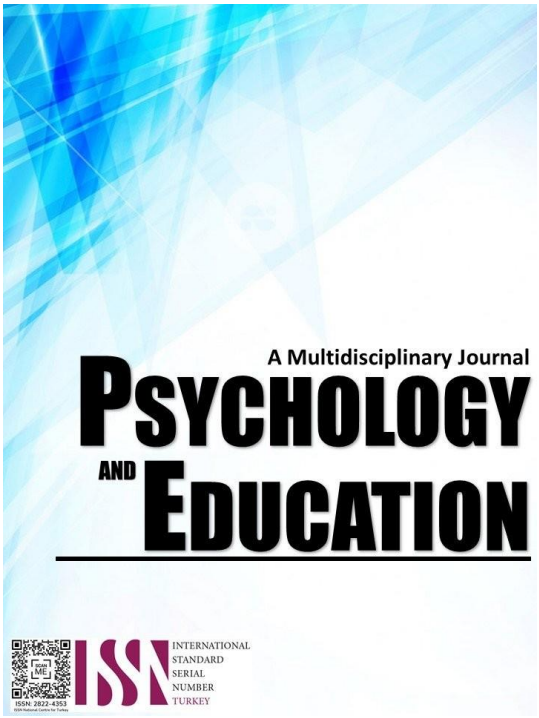
A SCALE DEVELOPMENT ON TEACHING SPECIAL PROGRAM OF THE ARTS: AN EXPLORATORY FACTOR ANALYSIS



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Research Article

A Scale Development on Teaching Special Program of the Arts: An Exploratory Factor Analysis

Janeth T. Melancolico*
For affiliations and correspondence, see the last page.

Abstract

Teaching the Special Program of the Arts (S.P.A.) in an online setting can be challenging due to the performance-based nature of most learning competencies. This quantitative scale development study employed the Exploratory Factor Analysis (EFA) to establish a robust scale for teaching S.P.A. by integrating Information and Communication Technology (ICT) into S.P.A. distance learning during the COVID-19 pandemic. Using a standardized instrument, surveys were conducted to 95 randomly selected S.P.A. teachers. Exploratory Factor Analysis (EFA) revealed three distinct underlying factors, forming a multidimensional framework. The Kaiser-Meyer-Olkin (KMO) measure, assessing sample adequacy, yielded a strong result, surpassing the widely accepted threshold and confirming the suitability of the data for EFA. Bartlett's test of sphericity was statistically significant, indicating structured correlations among the variables in the data set. The scree plot provided compelling evidence of a multidimensional framework for the instrument under study. The Rotated Component Matrix identified three key factors defining S.P.A. teaching during the COVID-19 pandemic: strategic online transitions in teaching, relevance of online teaching methods, and the relative advantage of online instruction. The result implies the feasibility of online instruction for arts education. Future development of scale studies on exploring and implementing hybrid models of education that integrate online teaching is recommended.

Keywords: *special program of the arts, exploratory factor analysis, scale development,*

Introduction

Key challenges emerged with the shift to digital learning during the COVID-19 pandemic. One major issue is the difficulty of adapting arts education, which is hands-on by nature, to an online format while maintaining engagement and effective learning outcomes. Teachers often struggle to assess student progress and engagement in virtual arts programs, especially when students have varying access to technology and resources. Additionally, there is a lack of standardized tools to assess the effectiveness of online teaching in specialized arts programs. Without such tools, it is difficult for educators to evaluate their teaching methods or ensure they meet students' diverse needs.

Access to technology resources was crucial for teaching Special Programs of the Arts. These tools allowed for the continuation of creative, hands-on learning in both virtual and hybrid formats. Arts education typically involves visual, auditory, and performance elements that require specialized software, digital tools, and high-quality media to replicate in-person experiences effectively (Mahsan et al., 2023). Without these technologies, students face challenges participating in digital painting, music composition, dance choreography, and theater productions, which are essential for the arts curriculum (Yuxing, 2024). Additionally, technology facilitates real-time collaboration and feedback between teachers and students, enhancing creativity and artistic growth (Zheng et al., 2022). It also provided access to a wide range of online resources, tutorials, and global communities, which expanded learning opportunities beyond local classrooms (Abidin et al., 2021). Therefore, ensuring equitable access to technology was vital for maintaining the quality and inclusivity of arts education, enabling students to continue their artistic development despite physical and logistical challenges (Espelt, 2023).

Regarding the use of technology in education, Turk (2022) hypothesized that the three-factor model of online student engagement focusing on three core dimensions of behavioral, emotional, and cognitive engagement was adequately confirmed in the context of confirmatory factor analysis (CFA). It was also shown to have reasonable evidence of convergent and criterion validity and strong evidence of discriminant validity through Pearson correlations. Additionally, Sinclair et al. (2024) used exploratory factor analysis (EFA) on satisfaction with e-learning instruments. They identified a seven-factor solution with 30 items, explaining 86.1% of the total variance, which best fit the data. Moreover, the Bayesian exploratory factor analysis (BEFA) test results of Pham et al. (2021) showed that students' online learning outcomes are affected by 6 factors in descending order respectively: learner characteristics, perceived usefulness, course content, course design, ease of use, and faculty capacity.

The latter results reflect the transition of using ICT in learning. Perera and Abeysekera (2022) noted that 53.4% of the students had participated in e-learning for the first time, while 65.6% of the pupils had access to technology through mobile phones. Students "intention to use" e-learning to pursue education is significantly influenced by performance expectations, social influence, effort expectations, and service quality. Additionally, it was found that 53.4% of the students had used e-learning for the first time, and 65.6% of the students had access to technology through mobile phones. The virtual environment conditions influencing the purpose of learner-technology interaction behavior inside online learning platforms might include a fast network, computer resources, and mobile-friendly software (Wut et al., 2022).

Interactions in virtual classroom settings are essential for students in S.P.A. classes to be engaged in their studies. For a better teaching-

learning experience, learner-learner and educator-learner interactions should be encouraged and fostered throughout online sessions. Rautela et al. (2022) emphasized that educator-learner and learner-learner interactions are critical for student learning engagement in online teaching. Additionally, student confidence in their ability to use technology effectively positively impacts learner relationships. Furthermore, Kumar et al. (2021) argued that effective fulfillment of the anticipated learning results is primarily attributed to learner-content interaction. E-learning material comprising top-notch lesson plans and website content is crucial for satisfying learners and educating them to the highest standards. The contention concurred with their study's results that statistically significant correlations exist between the quality of the e-learning, the student's satisfaction, and the e-learning material.

On the other hand, Mellati and Khademi (2020) stated that delivering instructional activities and contemporary educational technologies may be considered adequate and practical tools. Learning activities can be offered using technology-based tools following a set method to alter, adjust, and manage students' learning environments. In their study using the Massive Open Online Courses (MOOCs), educational programs based on MOOCs offer extraordinary prospects for language learners. However, these new technology-based educational tools pose problems for stakeholders, policymakers, instructors, and students. Despite its learner benefits, it might limit learners' progress through their behaviors.

Furthermore, it has been seen that studies suggest that information and communication technology (ICT) has become the foundation of modern society and also plays a significant role in the teaching-learning process, most especially in the advent of the pandemic (Zahariev et al., 2013). Specifically, integrating ICTs provides excellent opportunities for teachers and students to collaborate more effectively in the globalized digital age (Lawrence &Tar, 2018). It will enhance educational resource use and improve education quality (Umar & Hassan, 2015).

On the contrary, several studies revealed that some teachers and students in some schools find it challenging to integrate ICT because of poor economic conditions in middle-income countries (Mumtaz et al., 2021). Moreover, many teachers lack the expertise and abilities to properly employ ICT technologies to facilitate learning (Boafo, 2017). Digital inequalities are prominent because not all students have the same social conditions (Beaunoyer et al.,2020) and fully functional devices to assist distant learning (De Villa & Manalo, 2020). Also, students have limited access to computers, software, and the Internet (Marcial & Rama, 2015). Students were also dissatisfied because of a lack of synchronous instructional strategy and engagement (Jain et al., 2021).

The Philippine Department of Education offers the Special Program in the Arts (S.P.A.) to help exceptional students develop skills in Creative Writing, Visual Arts, Theater Arts, Vocal and Instrumental Music, Dance, and Media Arts (Carmen, 2017). To qualify, students must pass the High School Readiness Test (HSRT) and maintain an average of 82% in elementary school (DepEd Order 04, 2018). According to Lusdoc and Namoco (2019), the S.P.A. aims to nurture students' artistic abilities over four years. However, assessing artistic performance is challenging due to its subjective nature (Leocario & Pawilen, 2015). The program uses the existing grading system for academic subjects while evaluating students based on their output and performance in their specialized classes to address this.

The abovementioned contradicting findings of previous studies have influenced the inception of the current study. Considering that the Special Program of the Arts (S.P.A.) is new. This class is more on practical application and favors face-to-face interaction in assessing the required skills, as stated in the Learning Competencies. For example, due to the pandemic, classes in S.P.A. became more challenging than usual because it requires the capacity of students and teachers to use ICT. In the online learning environment, the S.P.A. students are expected to carry out their activity to be as close as possible to reality, between the real and the virtual worlds. They must combine reality and the virtual world. To effectively carry out learning activities using ICT, the connection between students and teachers, the importance of adapting methods and strategies in the online learning environment, and student involvement should be established (Lai et al., 2021).

Student engagement in online learning environments is crucial for successful learning, given the distinctive characteristics of these settings. Accurate and dependable assessment of student engagement is essential for making informed, evidence-based decisions about online learning. The focus of this study is to address the limited research on creating and validating measurement scales specifically designed to assess online arts education programs. While there has been substantial research on online teaching, there is a lack of exploration into how specialized arts education can be effectively delivered in digital formats. This is particularly important when considering learners' diverse needs and resource access.

The development of scale on factors in teaching Special Program of the Arts will provide the authorities of the Department of Education relevant insights into how effective the online learning methods are in delivering arts education. This includes understanding if the learning objectives are being met if students are engaged, and if the instructional methods are suitable for S.P.A. Additionally, the development of scale will allow school authorities to assess how well the S.P.A. has adapted to online delivery on the aspect of flexibility of the program in accommodating diverse learning needs and adapting arts activities to virtual formats. Moreover, teachers may use the scale to gather feedback from students, parents, and colleagues. This feedback can highlight areas that need improvement, such as technology integration, instructional design, or student support services. Also, using the scale may provide parents with significant information about the necessary support and supervision for their children to engage in an online learning environment successfully. Furthermore, students can use it to improve their performance by receiving teacher feedback about their engagement and participation in various art activities. Finally, the result developed in this study may be used in future research about online learning.

Further, the study responds to several Sustainable Development Goals (SDGs), particularly Goal 4 (Quality Education) and Goal 10 (Reduced Inequality). The development of a scale will aid in exploring the effectiveness and challenges of delivering arts education during the pandemic; the study emphasizes the importance of adapting teaching methods to ensure continuous learning, even in crises. This supports the goal of providing inclusive and equitable quality education for all. Moreover, it highlights the need to reduce inequalities in access to education by developing scales that measure the accessibility and impact of arts programs, which can help tailor future interventions to diverse student populations, thus fostering a more equitable educational landscape. Arts education is a powerful tool for fostering creativity, critical thinking, and cultural awareness.

However, ensuring that these programs meet their educational goals and promote social inclusion becomes challenging without tailored assessment tools. The gap in this study could be the lack of a standardized, validated scale to measure the effectiveness and specific dimensions of teaching special programs in the arts (Wang et al., 2021). Additionally, insufficient research may explore how these teaching programs are assessed in the context of public high school student populations. This study aims to empower educators to provide more effective, inclusive, and impactful arts education aligned with the Sustainable Development Goals (SDGs) by developing a comprehensive scale for online arts teaching. Additionally, this research will offer valuable insights for future researchers, who can build on this scale to explore online arts education's evolving needs and outcomes. Ultimately, this will enhance the long-term social value of arts programs in both local and global contexts.

The main objective of this study was to develop a framework for factors affecting teaching Special Program of the Arts During the COVID-19 pandemic. Specifically, the study aims to determine the factor structures of Teaching Special Programs of the Arts During the COVID-19 pandemic and develop a multidimensional framework for Teaching Special Programs of the Arts during the COVID-19 pandemic.

Literature Review

In response to government restrictions at the height of COVID-19, technology was called upon to play this pivotal teaching-learning online role, as it has influenced learner task accomplishment in various ways. It has become a part of the changing educational terrain. It is an important part of e-learning to create relationship-involving technology, course content, and pedagogy in the teaching-learning environment (Hamdan & Amorri, 2022). With this, e-learning has become an essential instructional modality in a virtual teaching environment where students can take control of their learning and optimize it in a virtual classroom and elsewhere (Seufert et al., 2022).

Learning today has shifted from conventional face-to-face learning to online learning and to direct access to information through available technologies, as e-learning has proven to be more beneficial to students regarding knowledge or information acquisition (Hamdan & Amorri, 2022). The virtual world represents an effective learning environment, providing users with experience-based information acquisition. Instructors set up the course outcomes by creating tasks involving problem or challenge-based learning situations and offering the learner complete control of exploratory learning experiences (Gallagher & Savage, 2023). However, some challenges exist for instructors, such as selecting the most appropriate educational strategies and designing learning tasks and activities to meet learners' needs and expectations. Various online approaches can lead to intense student behavioral changes, especially when combined with ethical principles (Soler-Costa et al., 2021).

With careful selection of the learning environment and pedagogical strategies lining up with the concrete specifics of the educational context (Hamdan & Amorri, 2022), the building of learners' self-confidence and empowerment during the learning process becomes within reach. Another benefit of online teaching/learning is the need to explore new teaching strategies and principles that positively influence distance education (Paudel, 2023), as traditional teaching/learning methods are becoming less effective at engaging students in the learning process.

Incorporating Information and Communication Technology (ICT) in education extends beyond the traditional classroom, enabling learning to occur anywhere and anytime (Salunke, 2023). Educators are developing strategies to foster deep learning and create learner-centered environments by integrating ICT into teaching practices (Paudel, 2023). This technological integration has transformed how students engage with learning and influenced teaching methods by encouraging collaborative activities (Haleem et al., 2022).

The use of online educational platforms has become a necessity and has spread rapidly since 2020, being the only tools that could be used during the break for online teaching. The influence of innovative learning was presented by Budharani et al. (2018) and Bojovic et al. (2020), like education in times of crisis: rapid transition to distance learning. However, using these educational platforms also has disadvantages since they require experience in computer use, both by teachers and students, and involve high design and maintenance costs.

Online teaching has become a vital part of education in recent years, offering a flexible and accessible alternative to traditional classroom learning (Müller & Mildenberger, 2021). With the widespread use of digital technologies, students can engage in education regardless of their location or schedule, providing convenience that traditional in-person classes may lack (Haleem et al., 2022). This flexibility allows learners to balance education with other commitments, such as work or family responsibilities, making education more inclusive for a broader range of individuals (Ulanday et al., 2021). For example, students in remote or underserved areas, where access to physical schools or institutions might be limited, can still receive high-quality education through online platforms.

Furthermore, online teaching fosters personalized learning experiences by allowing students to progress at their own pace. With self-paced learning modules (Ebbini,2023), students can revisit materials, take breaks, and engage with content that suits their individual learning styles. This adaptability enhances student engagement and retention by offering various formats that cater to diverse learning preferences, such as videos, discussions, and interactive activities. Teachers can also provide tailored feedback, assessments, and support through digital tools, enhancing the overall educational experience and addressing individual student needs more effectively (Haleem et al., 2022).

In addition to improving access and personalization, online teaching promotes the development of critical digital skills, which are essential in today's technology-driven world (Sharma et al., 2024). By using online learning tools, students develop proficiency in navigating digital platforms, communicating virtually, and utilizing technology for research and collaboration skills that are increasingly important in both academic and professional environments (Kumbo et al., 2023). For educators, the move to online teaching encourages the integration of innovative digital resources, fostering creativity and enhancing the learning process (Alenezi et al., 2023). As online education continues to evolve, it offers new possibilities for both teaching and learning, making it a crucial component of the future of education. As online education continues to evolve, it offers new possibilities for both teaching and learning, making it a crucial component of the future of education.

One of the key advantages of online teaching is its flexibility, allowing students to learn at their own pace and on their own schedule (Li, 2022). Unlike traditional classrooms, where fixed schedules bind students, online education allows learners to access materials anytime and from anywhere (Hastuti et al., 2021). This flexibility is particularly beneficial for individuals who have busy schedules or live in remote areas, as it allows them to continue their education without needing physical presence. Whether it is for working professionals, parents, or students with disabilities, balancing learning with other responsibilities is a significant advantage of online teaching.

Another significant benefit is online education's wide range of learning resources (Paudel, 2021). Students can engage with multimedia content, such as videos, interactive simulations, quizzes, and discussion forums, catering to different learning styles. This diverse range of resources helps enhance the learning experience, making it more engaging and interactive compared to traditional textbook-based methods (Panday-Shukla, 2024). Additionally, online platforms often include real-time feedback and assessments, allowing students to track their progress and gain immediate insight into areas needing improvement (Cavalcanti et al., 2021). Teachers can also use analytics tools to monitor student performance and provide personalized guidance.

Online teaching also fosters global connections and collaboration, enabling students to interact with peers and educators from different cultures and backgrounds (Vahed & Rodriguez, 2021). Exposure to diverse perspectives enhances learning and broadens students' horizons, preparing them for a globalized world (Almakaty, 2024). Students can participate in online discussions, group projects, and webinars, building a network of international connections that would be difficult to achieve in a traditional classroom setting (Leo et al., 2021). On the other hand, online teaching platforms often provide tools to facilitate group work, peer evaluations, and other collaborative activities, which can help strengthen the sense of community and engagement in virtual learning environments (Cavinato et al., 2021).

However, in the Philippine settings, among the obstacles that teachers experience in integrating ICT in teaching and learning are needing more knowledge, outdated equipment, lack of time, and technical competency. Students in Metro Manila are among the digitally poor because of their limited access to computers, software, and the Internet (Marcial & Rama, 2015). According to Umar and Hassan (2015), Continuous ICT integration will enhance educational resource use and improve education quality. The faculty members should step up and let the student feel their socio-emotional presence, especially in this challenging period of our generation. Since we are not in a normal situation, learning should not be highly regarded as a matter of grades and content, but a pedagogy of compassion and care must always be present (Bozkurt & Sharma, 2020).

This study is based on the Unified Theory of Acceptance and Use of Technology by Venkatesh et al. (2003), which posits that actual technology use is driven by behavioral intention. This intention is influenced by four main factors: performance expectancy, effort expectancy, social influence, and facilitating conditions, with moderators including age, gender, experience, and voluntariness of use. Performance expectancy refers to the belief that using the system will enhance job performance and is a key predictor of use intention in voluntary and mandatory contexts (Zhou et al., 2010; Venkatesh et al., 2016). Effort expectancy relates to the ease of system use, while social influence encompasses perceived expectations from important others regarding system use. This influence is notably significant when technology use is mandated, as individuals may comply due to external pressure rather than personal preference (Venkatesh & Davis, 2000). Facilitating conditions represent the belief in the support of the organization's technical infrastructure for system use, initially boosting use intention but becoming less significant after initial adoption. Overall, the model asserts that facilitating conditions positively impact behavior.

From the perspective of teachers in Special Programs of the Arts, the concept of this study can be examined through the lens of the Unified Theory of Acceptance and Use of Technology (UTAUT). Teachers in these specialized programs faced unique challenges in facilitating online classes, such as incorporating artistic expression with technology, and their acceptance of new teaching tools can be influenced by several factors outlined in UTAUT. Performance expectancy refers to teachers' belief that using technology will enhance their ability to teach arts effectively, whether through enriching students' learning experiences or facilitating new ways to express

creativity. Effort expectancy focuses on how easy or challenging teachers perceive it to be to integrate and use technology in their arts curriculum. Social influence affects how colleagues, administrators, and students affect teachers' willingness to adopt technology. Finally, facilitating conditions involve the availability of necessary resources such as training, technical support, and access to appropriate tools, significantly impacting a teacher's ability to implement technology successfully. By developing a scale that considers these factors, the study can provide insights into how teachers in Special Programs of the Arts perceive and integrate technology into their teaching, which could ultimately enhance the quality and effectiveness of arts education.

Methodology

Research Design

This quantitative study used the scale development approach by applying exploratory factor analysis to discover the factor structure of teaching identification and developing a multidimensional framework for teaching Special Program of the Arts during the COVID-19 pandemic. The scale development process includes item generation, pilot testing, and refining the scale based on feedback.

Specifically, this study applied the Exploratory factor analysis (EFA). This is used to identify the underlying structure of a set of observed variables. In this case, the researcher used EFA to explore the factors that explain the relationships between the items on the scale and group them into meaningful categories. Further, it helped identify the latent constructs (that make up the teaching program, ensuring that the scale you develop is valid and reliable. It also identified the dimensionality of constructs by examining relations between items and factors when information on the dimensionality was limited (Sürücü et al., 2022). For this reason, EFA was performed in the early stages of developing a new or revised instrument (Wetzel, 2011).

Additionally, it was used to definitively understand the number of factors needed to explain common themes among a given set of variables. It was also used to determine the Degree to which each variable in the dataset was associated with a common theme or factor, ultimately providing an interpretation of the common factors in the dataset. The purpose of factor analysis in this study was to explore the underlying variance structure of a set of correlation coefficients. Factor analysis helped explore and verify patterns in correlation coefficients (Shrestha, 2021)). If the analysis was designed to account for only the variance in the correlation coefficients and ignore the error variance (i.e., the variance not accounted for by the correlation coefficients), it was called a factor analysis.

Respondents

The researcher selected 95 respondents for the study, which involves collecting data from the entire population of interest. In an exploratory factor analysis (EFA) study, a total population sampling approach with a sample size of 95 can be justified by the need to understand the underlying structure of the data. EFA aims to identify latent factors that explain the correlations among observed variables, and using the entire population or a large proportion of it allows for more accurate and stable factor solutions (Sürücü et al., 2022). A sample size of 95 is sufficient to provide a reliable factor structure, as it generally meets the minimum recommendations for factor analysis. Furthermore, a complete enumeration sampling helps minimize sampling bias, ensures the representativeness of the data, and enhances the generalizability of the results, which is particularly crucial when exploring new or less-understood constructs (Ahmed, 2024).

Using a complete enumeration approach, the researcher would comprehensively understand the specific population of interest rather than relying on a smaller, potentially biased sample (Basti & Madadizadeh, 2021). According to Crossman (2018), complete enumeration is a type of purposive sampling where the whole population of interest (i.e., a group whose members all share a given characteristic) is studied. It is most practical when the total population is manageable, such as a well-defined subgroup of a larger population.

This technique was selected due to the study's specific inclusion criteria, which state that the participants must be public high school teachers who have taught Special Program in the Arts (S.P.A.) classes. In contrast, schools were temporarily closed during the peak of the COVID-19 pandemic. This criterion was chosen to ensure that the study captures the unique experiences and challenges faced by the participants during this unprecedented time.

Instrument

The study utilized a semi-structured interview guide to generate information about the experiences of teachers who handled S.P.A. classes during the COVID-19 pandemic. Initially, the researcher conducted literature reviews to find the related concepts and factors that determine the use of online teaching for S.P.A. classes. Then, a semi-structured interview guide was made based on the factors of online classes provided in the literature. The transcripts of interviews from six S.P.A. teachers were analyzed to extract key statements for the 5-point Likert scale questionnaire list ranging from "Strongly Agree" to "Strongly Disagree ."With the help of experts, an initial set of 84 items was generated through interviews to capture the relevant constructs.

To refine and reduce the number of items, exploratory factor analysis (EFA) was employed, which resulted in the retention of 40 items that best represented the underlying factors. These 40 items were then carefully analyzed to identify the most critical and cohesive elements and refine the selection. Through this process, a final set of 32 items was established, each effectively capturing the three key factors crucial to the successful use of online teaching for S.P.A. classes. This reduction in items ensured a more focused and

comprehensive representation of the essential components, enabling a clearer understanding of online education's unique challenges and opportunities in this context.

Procedure

The study followed a structured, four-phased data collection procedure. Phase 1 involved the preparation of the survey tool, where the researcher developed structured interviews about teachers' experiences with teaching S.P.A. through distance learning during the COVID-19 pandemic. This led to creating a Five-Point Likert survey tool, with expert assistance sought for validation. In Phase 2, the researcher obtained the necessary permissions to conduct the study, starting with approval from the Dean of the Graduate School, followed by a letter of intent sent to the Schools Division Superintendent (S.D.S.) and subsequently to the Cluster Head and School Principal for final approval to administer the survey. Phase 3 focused on survey administration, where the researcher explained the study's objectives, addressed respondents' questions, and collected the completed questionnaires, expressing gratitude for their participation. Finally, in Phase 4, the data collected from the survey was encoded into an Excel spreadsheet and processed for exploratory factor analysis using appropriate statistical tools. Subsequently, themes were developed through statistical procedures that grouped related variables into factors, rotated the factors to maximize interpretability, and labeled them based on their content.

Data Analysis

In treating the data with statistical tools, the Kaiser-Meyer-Olkin (KMO) test measured how suited the data was for Factor Analysis. The KMO statistic was used to measure overall sampling adequacy for each variable (Cerny & Kaiser, 1977; Dziuban & Shirkey, 1974). The test measured sampling adequacy for each variable in the model and for the complete model. The KMO test measures the proportion of variance among the variables that might be common variance, which makes the data suitable for factor analysis. It tests whether the correlations between variables are strong enough to perform a factor analysis. Additionally, Bartlett's test for homogeneity of variances was used to test that variances were equal for all samples (Snedecor & Cochran, 1989). It was used to check for redundancy between variables that could be summarized with some factors.

Bartlett's (1951) test of sphericity tested whether a matrix (of correlations) was significantly different from an identity matrix. This test aimed to provide the probability that the correlation matrix had significant correlations among at least some of the variables in a dataset, a prerequisite for factor analysis to work. In other words, before starting with factor analysis, it was necessary to check whether Bartlett's test of sphericity was significant. Also, this measured how much of the common variance of the observed variables, a factor explained by using eigenvalues. In factor analysis, the eigenvalue was a condition that showed the variance explained by a factor alone. In factor analysis, the eigenvalue of a sub-dimension was expected to be at least 1, and each sub-factor was expected to explain at least 5% of the total variance in the scale (Seçer, 2015).

Moreover, Cattell Scree Plot A was used to show how much variation each principal component captured from the data. It was also used to select the principal components to keep. Thematic analysis was used to group the standard variables into factors. For example, varimax rotation was used to obtain a more generalizable factor structure rather than compatibility with the data (Şencan, 2005). Varimax rotation is an orthogonal rotation method commonly used in factor analysis to make the factors more interpretable. In factor analysis, the goal is to reduce many variables into a smaller set of factors. Generally, the process involved adjusting the data coordinates resulting from a principal components analysis.

Ethical Considerations

In adherence to the University of Mindanao Research and Ethics Committee (UMERC) Protocol number UMERC-2024-055, ethical considerations become especially important since the study's respondents are high school teachers in public schools. Informed consent is critical; the researcher ensured that teachers fully understood the study's purpose, the voluntary nature of their participation, and their right to withdraw at any time without penalty. Teachers were informed about how their responses would contribute to developing a scale for teaching the Special Program of the Arts, and they were reassured that their responses would remain confidential and anonymous. The researcher avoided coercive persuasion or undue pressure, as teachers may feel obligated to participate due to hierarchical relationships in the school setting.

Moreover, the researcher ensured that their participation did not affect their professional status or teaching responsibilities. Further, the researcher respected the participants' time, keeping the data collection process as efficient as possible while minimizing disruption to their teaching schedules. Moreover, the researcher guaranteed that the data collected will only be used for research purposes, and all data must be securely stored to prevent unauthorized access by using a password for the computer-filed data. Finally, the researcher used proper citations to avoid plagiarism and maintain the integrity of their work.

Results and Discussion

This section presents the results and the discussion that illuminates the key data pertinent to scale development. These include the sampling and adequacy test, the rotated component matrix, and the latent roots criterion of the extracted factors.

The results of the evaluation to determine whether the sample was suitable and sufficient for exploratory factor analysis (EFA) are presented in Table 1. The Kaiser Meyer-Olkin (KMO) measure, which assesses the sufficiency of sampling, produced a strong result

of.853. This value exceeds the commonly accepted criterion point of 0.6 (Bahkia et al., 2019; Hoque et al., 2017). confirming the high EFA appropriateness of the data. By Kaiser's (1974) guidelines, this high KMO score indicates that the dataset is appropriate for distinguishing different factors.

Table 1. *Sampling Adequacy and Multidimensionality Tests for Teaching Special Program of the Arts During COVID-19 Pandemic*

Tests		*Value*
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.853
Bartlett's Test of Sphericity	Approx. Chi-Square	3045.042
	df	780
	Sig.	.000

Moreover, Bartlett's sphericity test has determined the significance of the deviation between the correlation matrix (R-matrix) and the identity matrix. Results from this following analysis, statistical significance (p<.000) was found, indicating that the variables in the dataset are related to each other and exhibit structured correlations. These two results indicate that the data is adequate to proceed further with the data reduction procedure in EFA (Hoque et al., 2018; Noor et al., 2015; Yahaya et al., 2018).

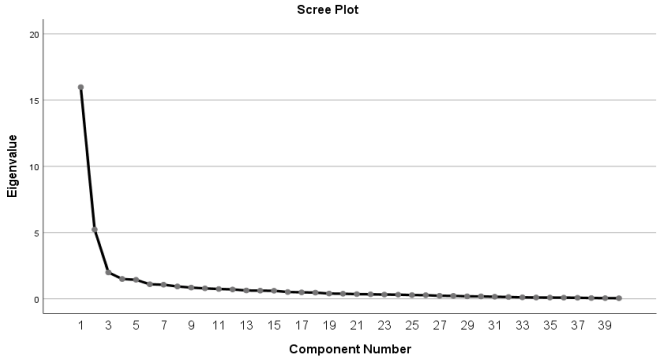

Figure 1.Scree Plot of Teaching Special Program of the Arts During COVID-19 Pandemic

The Exploratory Factor Analysis (EFA) of the Teaching Special Program of the Arts presented in Table 2 identified three key factors related to the experience of online teaching. Factor 1, strategic transitions of online learning, captures how teachers adapt to and manage the shift to online teaching, focusing on creating supplementary materials, using various digital platforms, and engaging in professional development. Key items for this factor include: teachers make supplementary learning materials for students (0.836); teachers manage the use of different online learning applications (0.799); teachers make consultations with colleagues about the application of distance learning strategies (0.781); teachers are introduced to different online platforms for teaching (0.786); teachers engage themselves in active exercise to relieve stress (0.603); and internet connectivity is functional for teachers (0.568).

Table 2. *Loadings of Variables for Each Factor of Teaching Special Program of the Arts During the COVID-19 Pandemic*

	Components	*Factor 1*	*Factor 2*	*Factor 3*
Q32	Teachers make supplementary learning materials for students.	0.836		
Q36	Teachers manage the use of different online learning applications.	0.799		
Q35	Teachers follow the instructions in attending seminars.	0.792		
Q33	Teachers are introduced to different online platforms for teaching.	0.786		
Q38	Teachers make consultations with colleagues about the application of distance learning strategies.	0.781		
Q37	Students are encouraged to make adjustments with the transition to distance learning.	0.723		
Q29	Teachers provide students with inspirational stories.	0.669		
Q31	Teachers cautiously socialize with their colleagues.	0.631		
Q30	Teachers engage themselves in active exercise to relieve stress.	0.603		
Q34	Teachers make little adjustments with the transition to distance learning.	0.577		
Q17	Internet connectivity is helpful for teachers.	0.568		
Q25	Teachers incorporated the presentation of performance with trending online applications (e.g., TikTok)	0.546		
Q16	Students manage to use different online applications.	0.518		
Q13	Distance learning supports the consistency of connection between teachers and students.		0.795	
Q15	Students' learning momentum is stable.		0.794	
Q14	Learning outcomes are congruent with the teachers' plan.		0.786	
Q11	Teaching S.P.A. through distance learning is memorable.		0.775	
Q21	Teachers are effective in the delivery of instruction.		0.701	
Q22	Teachers manage to attain the learning objectives.		0.667	

Q18	Distance learning boosts students' motivation.	0.654	
Q20	Students participate in virtual discussions despite distractions at home.	0.649	
Q12	Less time is needed to record the actual measure of students' performance.	0.636	
Q8	Students still meet the learning competencies even in the absence of face-to-face classes.	0.617	
Q10	Teachers manage to measure students' learning output.	0.553	
Q24	Students have shown adequate skill in navigating with the use of virtual platforms.	0.540	
Q6	Giving instructions to S.P.A. students is easy.	0.499	
Q23	Teachers have adequate technical background to work effectively with online teaching.	0.473	
Q4	Teaching visual art is better than teaching dance, theater, and singing.		0.753
Q1	Students have adequate access to an internet connection.		0.705
Q2	It is easy to teach dance using self-learning modules.		0.700
Q5	Learners' specialization and skills progression are manageable through online meetings.		0.698
Q3	Distance learning modality does not demand a heavy workload.		0.684

Factor 2, which is the relevance of online teaching, reflects the effectiveness of online learning in maintaining strong student-teacher connections, ensuring learning stability, and achieving educational outcomes, highlighting the perceived success and motivation that distance learning fosters. The key items for this factor include: distance learning supports the consistency of connection between teachers and students (0.795); students' learning momentum is stable (0.794); learning outcome is congruent to the teachers' plan (0.786); teaching S.P.A. through distance learning is memorable (0.775); teachers are effective in the delivery of instruction (0.701); and distance learning boosts students' motivation (0.654).

Finally, factor 3, the relative advantage of online teaching, emphasizes the perceived benefits of online learning, particularly in visual arts and dance, where workload and student progression are seen as more manageable. Together, these factors reveal the multifaceted nature of online education in the arts, focusing on adaptation, effectiveness, and the unique advantages of digital teaching methods. The key items for this factor include: Teaching visual art is better than teaching dance, theater, and singing (0.753); students have adequate access to an internet connection (0.705); it is easy to teach dance using self-learning modules (0.700); learner's specialization and skills progression is manageable through online meeting (0.698); and distance learning modality does not demand heavy workload (0.684).

Together, these factors demonstrate how UTAUT constructs help explain the acceptance, adaptation, and effectiveness of online learning in S.P.A. contexts. Figure 2 illustrates the influence of factors in utilizing online learning in S.P.A.

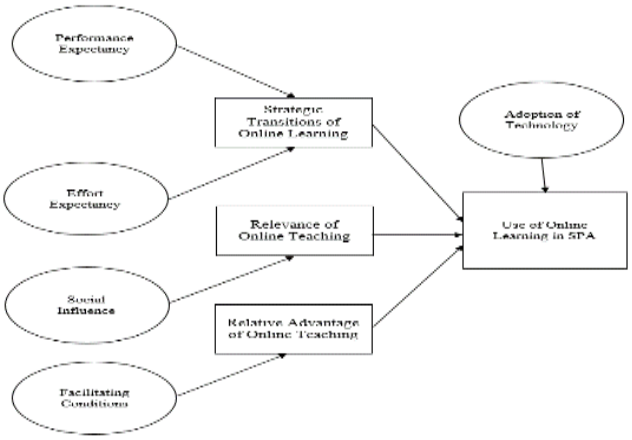

Figure 3. Factors of Teaching Special Program of the Arts During the COVID-19 Pandemic

Table 3 presents the latent roots and the percentage of Variance explained by the extracted factors in the data analysis. This table helps to assess the significance and contribution of each factor to the overall variability, providing insights into the underlying structure of the dataset.

Factor 1 has a latent root 15.978, explaining 39.946% of the total Variance. This indicates that Factor 1 is the most significant factor and accounts for a substantial proportion of the variability in the data. The large percentage suggests that this factor captures a dominant construct related to the variables being studied. Factor 2 has a latent root 5.229, explaining 13.073% of the Variance. While smaller than Factor 1, this factor still contributes meaningfully to the overall structure of the data, adding another layer of explanation for the observed variability. Factor 3 has a latent root of 1.992, explaining 4.98% of the Variance. Although this factor contributes less than the first two, it still plays a role in the overall data structure, cumulatively explaining nearly 58% of the total Variance.

The cumulative percentage of Variance explained by the first three factors indicates that the first three factors together account for over half of the variability in the data. This suggests that the extracted factors represent meaningful dimensions that capture a significant portion of the information in the dataset. The fact that the first factor alone explains nearly 40% of the Variance highlights its central

importance in explaining the underlying structure, while the contribution of subsequent factors becomes progressively smaller, with the third factor explaining just under 5%.

Table 3. *Latent Roots Criterion of the Extracted Factors*

	Total	*% of Variance*	*Cumulative %*
Factor 1	15.978	39.946	39.946
Factor 2	5.229	13.073	53.019
Factor 3	1.992	4.98	57.999

The research's main purpose was to develop a framework for factors affecting teaching Special Program of the Arts During the COVID-19 pandemic. Specifically, the study aims to determine the factor structures of Teaching Special Programs of the Arts During the COVID-19 pandemic and develop a multidimensional framework for Teaching Special Programs of the Arts during the COVID-19 pandemic. The scree plot from the secondary exploratory factor analysis (EFA) conducted for this study is shown in Figure 1. As described by Cattell (1966), the scree plot uses eigenvalues obtained from the input or condensed correlation matrix. The plot is a graphic display in which factors are plotted along the horizontal axis, and eigenvalues are plotted on the vertical axis. Analytical instruments can visually examine the plot to determine the "elbow" of the plot or the point at which the eigenvalue magnitude noticeably declines. The scree plot is a useful tool for determining how many important factors are extracted from the data and how much Variance is explained by each factor. In particular, analysts are interested in a point on the plot where there is a noticeable decrease in eigenvalue magnitude, indicated by an abrupt change in the direction of the line connecting the plotted eigenvalues. The number of items considered significant for additional examination is indicated. It is evident from the demonstrated scree plot that the instrument under study has a multidimensional framework. The significant drop in the displayed line that occurs after the third factor supports this conclusion. the scree test's effectiveness is dependent on several parameters, most notably the existence of a large sample size and clearly characterized underlying factors in the data (Gono Jr., 2024; Fuentes, & Gono, 2024; Romero & Gono Jr., 2023; Gono Jr., & Pacoy, 2021; Gono & Sales, 2024).

In online teaching, the results conform with Allen et al. (2020), who posited that the abrupt transition has led to significantly added workloads for teachers because they have to make supplementary learning materials for students and provide students with inspirational stories. Moreover, they have to move teaching content and materials into the online S.P.A. by managing the use of different online learning applications (Adedoyin & Soykan, 2023), introducing themselves to different online platforms for teaching (Peimani & Kamalipour, 2021), and maximize the use of internet connectivity (Uzoka et al., 2024). In effect, they become sufficiently adept in navigating the requisite software by incorporating the presentation of performance with trending online applications (Ponnusamy & Eswararaj, 2023).

Moreover, the shift to online learning intensified the community of inquiry, as teachers adhered to guidelines for attending seminars, engaged in discussions with colleagues regarding the implementation of distance learning strategies, and carefully interacted with peers to foster effective online learning environments (Baber, 2022). Despite the limited experience in distance education, such as technical skills, time management, knowledge, and attitude in online education, teachers were still able to cope with the trends in online learning (Ventayin, 2018) by engaging themselves in active exercise to relieve stress, make little adjustments with the transition to distance learning.

In an online teaching and learning environment, various feedback practices are typically implemented to maintain a consistent connection between teachers and students and to provide clear instructions to S.P.A. students. These practices have proven effective in keeping learners engaged with the learning material (Jensen et al., 2021). Teachers have made lessons more engaging by incorporating different resources and using various media, including web pages, software programs, search engines, and social media (Winter et al., 2021). Importantly, S.P.A. students have shown a high level of engagement in the virtual learning environment, which is a testament to the effectiveness of online teaching.

The positive perception of online learning's ability to maintain strong student-teacher connections and ensure learning stability suggests that educators and institutions should continue prioritizing and refining online teaching strategies, particularly those that enhance communication and engagement. The effectiveness of distance learning in achieving educational outcomes points to the need for well-structured, intentional course designs that align learning objectives with virtual delivery methods (Naidoo et al., 2021). Furthermore, emphasizing motivation and memorable learning experiences implies incorporating interactive, engaging, and student-centered approaches in online teaching, further boosting motivation and retention (Caulfield, 2023). These insights suggest that blended or hybrid learning models, combining in-person and online instruction strengths, could be a long-term solution to create flexible, resilient, and effective learning environments (Cunnington et al., 2023).

The relative advantage of online teaching for the Special Program of the Arts during the COVID-19 pandemic highlighted the findings of Khalil et al. (2020), stating that one of the most important advantages of online learning was the manageable progression of students' skills, as it was easy to access since students have adequate access to an internet connection, and focused on the students since learner's specialization and skills progression are manageable through the online meeting. This approach allowed for collaboration and was flexible because teaching visual art is better than teaching dance, theater, and singing. Teachers find it easy to teach dance using self-

learning modules. The distance learning modality for the Special Program of the Arts does not demand heavy workloads, which is consistent with the results of the research conducted on work burnout on distance learning delivery by Lazarte (2022), which revealed that teacher respondents perceived the four aspects of work burnout at a low extent.

The results in the table can be linked to the Unified Theory of Acceptance and Use of Technology (UTAUT) by aligning the identified factors with the core constructs of UTAUT. Strategic transitions of online learning align with the UTAUT constructs of performance expectancy and effort expectancy, as it highlights how teachers' efforts to adapt to and manage online platforms, create supplementary materials, and engage in professional development are directly related to their perceived ability to teach and meet learning outcomes effectively. The relevance of online teaching connects with social influence, as it suggests the role of communication and collaboration with colleagues and students in maintaining learning momentum and ensuring instructional effectiveness. Finally, the relative advantage of online teaching is closely related to facilitating conditions, reflecting the perceived benefits of online learning in specific arts disciplines and the availability of resources like internet access, which influence the overall acceptance and continued use of online teaching methods.

These results imply that the dataset likely reflects a structure where a few key factors represented by Factor 1, followed by Factor 2, and to a lesser extent, Factor 3 are responsible for explaining the majority of the Variance in the observed data. These factors should be interpreted as significant constructs or dimensions central to understanding the phenomenon under study, such as the effectiveness of online teaching in the Special Program of the Arts.

Conclusions

Based on the findings, teaching the Special Program of the Arts (S.P.A.) online represents a strategic transition in educational practices. This transition is not merely a response to the challenges posed by the pandemic but also underscores the broader relevance and advantages of online education in this particular context. The research highlights that moving the S.P.A. online was feasible and beneficial in several ways. Firstly, it enabled continuity in education despite the disruptions caused by the pandemic, ensuring that students could continue learning without significant interruptions. Secondly, online teaching allows for flexibility in scheduling and delivery methods, accommodating diverse learning needs and preferences among students and instructors. Moreover, the research emphasizes the relative advantages of online education in enhancing accessibility and inclusivity. By leveraging digital platforms, the S.P.A. could reach a wider audience beyond geographical constraints, democratizing arts education access. This emphasis on inclusivity ensures that no student is left behind in the transition to online education. Moreover, online platforms often provide interactive tools and multimedia resources that can enhance the learning experience, allowing students to explore and create art in novel ways.

The research findings suggest that the Department of Education Regional Office officers may use the developed scale to gather data in making informed decisions regarding resource allocation, such as technology investments, educational training, and student support services. This ensures that resources are effectively utilized to enhance the online learning experience.

In consonance with the result, the School Heads and S.P.A. Coordinators may tap the scale as an evaluation tool to support the continuous improvement cycle by providing data-driven insights. This will promote accountability and transparency in the delivery of online arts education. Furthermore, teachers may use the scale to gather relevant information needed to refine and adapt their online teaching strategies based on the evaluation results, ensuring ongoing enhancement of S.P.A. It will demonstrate to stakeholders that the program is committed to providing quality education even in a virtual environment.

Lastly, using the scale to provide students with feedback on how well they engage themselves in various online arts activities is highly recommended. This includes understanding if they are actively participating in online classes, submitting assignments, interacting with peers and teachers, and assisting future researchers in developing further assessment scales on exploring and implementing hybrid models of education that integrate online teaching. This can leverage the advantages of online education while preserving the valuable collaborative aspects of arts education.

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Affiliations and Corresponding Information

Janeth T. Melancolico
University of Mindanao – Philippines