DEVELOPMENT, PSYCHOMETRIC EVALUATION, AND VALIDATION OF AN INSTRUMENT TO MEASURE IMPLEMENTATION AND ACCESSIBILITY OF PRESCHOOL ARTS EDUCATION

by

Jasmine Begeske

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THE PURDUE UNIVERSITY GRADUATE SCHOOL
STATEMENT OF COMMITTEE APPROVAL

Dr. Mandy Rispoli, Chair

Department of Educational Studies

Dr. F. Robert Sabol

Department of Art & Design

Dr. F. Richard Olenchak

Department of Educational Studies

Dr. Megan Purcell

Department of Human Development and Family Studies

Dr. Jennifer E. Smith

Department of Educational Studies

Approved by:

Dr. Ayse Ciftci

To all my students – teaching is learning.

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ABSTRACT

Arts learning is a necessary part of childhood and essential to child development in the preschool years. However, little is known about how preschool teachers teach the arts including dance, drama, media arts, music, and visual arts. There is a lack of research on access (opportunities) and accessibility (quality of access) of arts education at the preschool level (Anderson et al., 2017; Bresler, 1993; Koralek, 2005; Phillips, Gorton, Pinciotti, & Sachdev, 2010). Most studies examining the availability and quality of arts education investigate the K-12 setting from the perspective of administrators (e.g., superintendents, school principals; Burt et al., 2009; Parsad & Spiegelman, 2012; Seidel et al., 2009; Wan et al., 2018). Hence, little is known about the status of arts education at the preschool level in the United States. The level of access to arts education and the accessibility of arts education for students with disabilities is a virtually unexplored area at the preschool level (Anderson et al., 2017). There is a need for valid instruments that can be used to gather information about the availability and quality of arts education for preschoolers with and without disabilities.

The Survey of Preschool Teachers and Arts Education (SPTAE) was developed explicitly to fill this assessment void. The SPTAE, a new instrument, was developed, evaluated, and validated to examine the arts opportunities teachers provide in preschool and the accessibility of those arts activities. A rigorous methodological procedure based on the McCoach et al. (2013) model was utilized for the development of the SPTAE. Exploratory and confirmatory factor analysis (EFA; CFA) procedures were employed to provide evidence of content validity, construct validity, and internal consistency reliability of the SPTAE. EFA and CFA results are presented to demonstrate sound measurement properties of the instrument. The SPTAE is presented as the end of this study as a credible and valid instrument designed to measure access and accessibility of arts

education in preschool. Data gathered with the SPTAE can help to establish a baseline understanding of arts education experienced in preschool. State-level SPTAE results can be used to impact advocacy and policy efforts in preschool arts education for all students. Recommendations for future research are discussed including applications of the SPTAE in other preschool populations.

As part of the instrument development process the SPTAE was pilot tested with preschool teachers (n = 157) in Indiana. Demographic data was collected on job title, school location, program location (elementary school or early childhood center), number of students with disabilities served, years of experience, level of education, and mode of instruction. Results from this pilot study provide a snapshot of the state of arts education in Indiana preschools for students with and without disabilities. Preliminary data from this study indicate that most preschool teachers are providing daily arts education in Indiana preschools, with music and dance instruction provided the most frequently. Media arts was the least likely to be included in the preschool curriculum in Indiana. When considering the accessibility of arts opportunities in preschool, about half of the teachers reported using a Universal Design for Learning (UDL) framework for planning arts activities, which eliminates barriers to access and ensures full participation in arts education for students with disabilities. About 85% of preschool teachers reported having accessible arts equipment and instruments such as adaptive arts tools, adaptive musical instruments, or assistive technology that make arts learning accessible for all students.

CHAPTER 1. INTRODUCTION

Mo Willems described the role of the arts in making sense of living through the COVID-19 pandemic in an interview on *The Tonight Show Starring Jimmy Fallon,* "Science will get us out of this. But art will get us through this" (Fallon, 2020).

Importance of the Arts

Now is an important time to study preschoolers and their access to arts education because early experiences with the arts are the greatest predictor of arts participation in adulthood (Bergonzi & Smith, 1996). All people regardless of ability, should be taught how to actively engage in the arts as they contribute to our growth, personal well-being, and community well-being. Participation in arts education has an impact on the social behaviors in adulthood that promote a civil society (Leroux & Bernadska, 2014). The arts have played an essential role during the COVID-19 pandemic, helping people to engage, communicate, and explore the world while the world has been in lockdown; people sang from their balconies, played instruments on their rooftops, experienced *Hamilton* from their couch, watched doctors dance in head-to-toe Personal Protective Equipment (PPE) on YouTube, and drew pigeons with Mo Willems on their lunch breaks. The pandemic has amplified the arts as a powerful part of our human experience (Eisner, 1978). Despite the benefits the arts provide, everyone does not have equal access to arts education (NCES, 2016).

Preschoolers during the 2020-21 school year had some of their first experiences with school and under extreme circumstances. Arts education in preschool should be a core component of the curriculum for all children. Arts education includes instruction in dance, drama, media arts, music, and visual arts. Often in preschool, arts-learning is integrated into the learning of other subjects,

classroom routines, activities, or transitions (Charleroy et al., 2012). A preschool environment rich in arts instruction has been found to benefit children with and without disabilities through improving school readiness and emotional regulation (Brown, 2020; Brown et al., 2010) contributing to both developmental and educational outcomes (Gromoko & Poorman, 1998; Horowitz, 2018; Jindal-Snape & Vettraino, 2007; Kaviani et al., 2014; Menzer, 2015), and to the development of creativity (Duncan, 2007). The arts can be integrated to engage preschoolers' learning in non-arts subjects (Charleroy et al., 2012, NAEYC, 2020), as this approach has improved student academic achievement and engagement (DeJarnette, 2018; Noblit, 2009; Piro, 2010; Robelen, 2011; Thomas & Arnold, 2011).

Professional Practice and Standards in Preschool Arts Education

The National Core Arts Standards (NCAS) described the learning goals, key concepts, artistic processes, creative practices, and traditions of study for artistic literacy in dance, drama, media arts, music, and visual arts for all students in preschool through 12th grade (National Coalition for Core Arts Standards; NCCAS; 2016). These standards are designed to promote excellence in arts education, but the adoption of these voluntary standards and the educational requirements for arts education vary from state to state. The NCAS are organized around four artistic processes: creating, performing/presenting/producing, responding, and connecting. Each artistic process has two or three associated anchor standards that describe the general knowledge and skills taught across arts disciplines and grade levels to achieve artistic literacy. These anchor standards are further articulated into performance standards for each of the disciplines by grade level. To deliver equitable arts education to all students, NCCAS endorses the Malley (2014) guidelines for arts teachers teaching students with disabilities which include maintaining high expectations for all students, supporting communication, utilizing a UDL framework, having

knowledge of accommodations, using evidence-based practices, and making data-based instructional decisions. Professional arts organizations further describe how these standards should be carried out in early childhood education.

Dance

The NCAS in dance are designed to teach all students to be dance literate and describe measurable outcomes for what students should be able to do and know. The National Dance Education Organization (NDEO) believes that high-quality dance instruction in early childhood should be taught by a qualified dance teacher using a standards-based curriculum and age-appropriate classroom activities (NDEO, 2015.). Students in preschool should receive at least 60 minutes of dedicated dance instruction per week and dance should be integrated through the school day. Dance in early childhood should focus on exploration, sensory experience, and dance as an activity to express and communicate. Students with disabilities are included in general education dance classes with their peers whenever possible and provided supports and modifications when needed to ensure participation (Malley, 2014). Dance teachers should play a role in the placement decision for a child with disabilities and be informed of any dance-related needs (NDEO, 2015).

Drama/Theater

The NCAS in theater emphasize mastery of knowledge and skills that lead to artistic literacy with an emphasis on both drama processes and theater products. Most theater education opportunities in the United States are available at the high school level, so the preschool NCAS are largely aspirational (NCCAS, 2015). No guidance is provided from the predominant professional organizations (Educational Theatre Association and the American Alliance for Theatre & Education) for the implementation of theatre during early childhood. The NCAS

promote preschool engagement in drama processes through imaginative play that is guided or supervised by an adult. They describe this type of learning as *dramatic play* or *guided drama experiences* (NCCAS, 2015).

Media Arts

The NCAS in media arts emphasize expanding artistic literacy by including new and emerging technologies. Media arts involves the use technologies in arts-making including art forms such as photography, video, digital arts, animation, and web design which are sometimes subsumed within the traditional arts disciplines. Media arts was introduced as a distinct arts discipline in the 2014 NCAS. Collaborations across the arts are considered best practice to meet media arts standards rather than distinct and formal media arts instruction (NCCAS; 2015). The National Art Education Association's (NAEA) 2015 position statement on media arts states that certified visual arts teachers have the expertise to instruct in media arts. There is little professional guidance specific to media arts for children with disabilities or the early childhood level.

Music

NCAS music standards are designed to teach all students to develop music literacy. The National Association for Music Education (NAfME) believes that all young children should be taught by or in consultation with a professional early childhood music educator who is intentionally responsive and provides play-based, developmentally appropriate music engagement opportunities (NAfME, 2018). A balanced, sequential, and standards-based curriculum should be used. NAfME believes that at least 12% of contact time in preschool should be devoted to experiences in music as well as having music integrated throughout the school day (NAfME, 2016). NAfME's position on the inclusion of students with disabilities in music class includes the

belief that music teachers should play a role in the placement decision of a child with a disability, be informed of student needs related to music instruction, and receive inservice training in special education (NAfME, 2016).

Visual Arts

The NCAS standards for visual arts describe learning progressions that lead to artistic literacy for all students for traditional and contemporary fine arts (e.g., drawing painting, printmaking, photography, media arts, architectural arts, environmental arts, industrial arts, folk arts, etc.; NCCAS, 2015). The NAEA position statement (2020) on equity for all learners supports the use of differentiation for students with disabilities and the use of instructional materials that represent diverse populations. Professional arts organizations suggest that visual arts in preschool be integrated throughout the day and that at least 15% of contact time is dedicated to learning experiences with visual arts (NCCAS, 2015). Preschool visual arts education should be taught by or in consultation with a responsive early childhood visual arts specialist. Visual arts learning should include high-quality, varied, and standard-based experiences inside and outside of the classroom (NAEA, 2016; McClure et al., 2017). Preschool visual arts learning should emphasize guided and spontaneous exploration with a variety of materials, art-making that allows for play, and social knowledge building with peers and a responsive teacher (McClure et al., 2017).

Significance of the Study

Although arts and early childhood educators agree that high-quality experiences in the arts are essential for young children's overall development, how the arts currently are implemented in preschool is largely unknown (Bresler, 1993; Koralek, 2005; Phillips et al., 2010). Few studies of domain specific arts learning in preschool, primarily in music, have been conducted which provide

a narrow view of arts learning (Daniels, 1992; Nardo, 2006). Teacher implementation of arts education in limited preschool populations was studied by McDonald (1980) and Bresler (1993) but no recent investigations into the topic exist in the literature.

The Office of VSA (VSA, historically an acronym for Very Special Arts) and Accessibility within the John F. Kennedy Center for the Performing Arts published a set of recommendations for research to grow the field of the arts and special education (Anderson et al., 2017). Research priority area number one included the study of access and equity in arts education. The first suggested research question in this document was "What arts learning opportunities exist for students with or without disabilities?" This study aims to examine this question for the preschool level. The overarching question for this investigation will address whether opportunities for high-quality arts learning in the five arts disciplines (i.e., dance, drama, media arts, music, and visual arts) exist in preschool for both students with and without disabilities. No known national studies have focused on access to quality arts education for students with disabilities, although this is a known area of needed research (Anderson et al., 2017).

Purpose of the Study

The overarching purpose of this dissertation is to address whether teachers report providing accessible opportunities for high-quality arts learning in the five arts disciplines (dance, drama, media arts, music, visual arts) for both students with and without disabilities. This study will (a) validate a new survey instrument designed to gather information about arts education in a preschool setting and describe the availability and quality of arts education for preschoolers with and without disabilities and b) assess preschool teachers' implementation of high-quality arts education. Specifically, the following research questions will be addressed:

Research questions

1. What evidence exists for the content validity, construct validity, and internal consistency reliability of the *Survey of Preschool Teachers and Arts Education*?
2. How are preschool teachers who serve students with disabilities self-reporting teaching each of the arts disciplines (i.e., dance, drama, media arts, music, visual arts)?

Definitions

The following definitions will be used in both the discussion of this study and the survey instrument. These terms are important to understanding arts education within an early childhood setting.

Arts. The arts include dance, drama, media arts, music, and visual arts. (NCCAS; 2016).

Arts integration. Combining arts learning with learning in another subject (e.g., interdisciplinary, or cross-curricular teaching; Silverstein & Layne, 2020).

Dance. An instructional program teaching students to use their bodies to express ideas, respond to music and convey feelings. Preschoolers develop foundational skills in dance through improvisational and structured creative movement. (CDOE, 2010; IDOE, 2017; NCCAS; 2016).

Drama. An instructional program teaching students to tell stories and communicate through action and/or dialogue. Preschoolers develop foundational skills in drama/theater through dramatic play and guided drama. (CDOE, 2010; IDOE, 2017; NCCAS, 2016).

Early Childhood Education. A part- or full-day group educational program in a community childcare center, school, or home that serves children from birth through age eight (Willer, 1993).

Early Childhood Special Education. Free appropriate public education (FAPE) is provided for children with disabilities ages three to five under the Individuals with Disabilities Education Act (Part B Sec. 619 IDEA). The least restrictive environment (LRE) to deliver services is based on individual needs. Early Childhood Special Education services are delivered in preschools, homes, or in community settings (IDOE, 2022).

Inclusion. Early childhood inclusion involves educating or caring for children with disabilities in the same environment as their non-disabled peers, ensuring access, participation, and supports that promote learning and development for all children (DEC/NAEYC, 2009).

Media Arts. Media arts involves the use of current and emerging technologies in arts-making including art forms such as photography and video (NCCAS, 2016).

Music. An instructional program teaching students to combine voice and/or instruments to create melodies and pleasing sounds. Preschoolers develop foundational skills in music through listening and interacting with a variety of sounds (CDOE, 2010; IDOE, 2017; NCCAS, 2016).

Preschool. An early childhood educational program serving three- to five-year-old children. (IDOE, 2017).

Visual arts. An instructional program teaching students to create, critique, apply meaning, and respond to the visual arts. Preschoolers develop foundational skills in art through the process, production, and appreciation of visual art forms such as painting, drawing, sculpture, printmaking, and photography. (CDOE, 2010; IDOE, 2017; NCCAS, 2016).

CHAPTER 2. LITERATURE REVIEW

The purpose of this chapter is to describe a theoretical framework for evaluating accessible early childhood arts education. Literature contributing to developing this framework will be discussed in this chapter organized around four themes. First, the necessity of arts education as a part of a well-rounded early childhood education for all students is described. This description aims to position the arts as an essential component of early childhood education for all children including those with disabilities and developmental delays. Next, models for accessibility, which can be applied to arts education are discussed, the purpose of which is to apply an evidence-based approach to envisioning early childhood arts education that is accessible for all students. Third, literature identifying elements of high-quality arts education will be reviewed to define indicators of high-quality accessible arts education at the preschool level. Then, the preschool standards for practice and the preparedness of teachers to implement arts education at the preschool level will be described. This description aims to further identify elements of early childhood arts education with adherence to arts education standards. Finally, the chapter concludes with a proposed framework for implementing accessible early childhood arts education grounded in empirical and theoretical literature and will identify the gaps in the literature and how the current study aims to address these gaps.

Importance of Arts Education

Scribbling lines on a page, building a worm out of clay and smashing it, singing with your mother, bouncing to music while riding in the car, imitating the sounds of an animal while telling a story… the arts are an important source of joy in childhood and essential to a child's holistic development. In the early childhood years, the arts provide the initial means of engaging,

communicating, and exploring self and the world. Arts education in early childhood builds on these naturally occurring experiences to enhance arts skills and knowledge while contributing to overall learning and development. Although preschool is not compulsory in the United States and not uniformly provided, early access to school has been found to benefit the most vulnerable children including those who come from low-income families (Heckman, 2006) and students with developmental delays and those identified with disabilities (Gallagher, 1989; MacMillan et al., 1986).

Making and consuming art is a necessary part of culture, a means of communication, and a human right to which all children, regardless of ability, should have access (Malley & Silverstein, 2014; McClure, 2011; National Endowment for the Arts, NEA, 2012; UNCRC, 2013; Sabol, 2017). The arts are recognized, world-wide as a necessary part of childhood, supported by the United Nations Convention on the Rights of the Child (UNCRC; 2013), which is a human rights treaty describing the needs and rights of children across the world. Article 31 of the UNCRC includes a description of the rights of every child to participate in the arts both through creating art (songs, dance, painting, puppetry) and through experiencing artistic and cultural activities. In the United States, Every Student Succeeds Act (2015; ESSA) describes a "well-rounded education" as one that includes an education in the arts. Scholars have argued that the arts are what make us human and engaging in the arts are self-justifying but there are other benefits associated with the arts.

The Arts Connect to Non-Arts Outcomes

A wildly popular position is that the arts are important because arts participation leads to some other non-arts outcome or benefit, such as academic success (Catterall et al., 1999; Deasy, 2002; Eisner, 1998; Ruppert, 2006; Winner & Cooper, 2000; Winner et al., 2013). Several reports

and literature reviews have compiled studies to leverage the necessity of the arts based on non-arts outcomes. For example, Deasy (2002) reviewed 62 research studies on arts and non-arts connections across the disciplines of dance, drama, multi-arts, music, and visual arts to demonstrate what the arts contribute to education. Deasy found that strong studies have established a positive relationship between music and drama with learning in other subjects. However, there is a lack of research that explores these connections with the visual arts or dance. Winner and Cooper (2000) conducted three metanalyses of the empirical research on arts learning transferring to verbal, mathematical, and composite outcomes. Thirty-one studies met their inclusion criteria, 28 of those studies were unpublished papers (i.e., dissertations, Masters theses, technical reports) and not subjected to peer review. The authors reported a positive and significant relationship between arts education and non-arts outcomes specifically that arts education improves verbal and math achievement.

Young Children

For preschoolers receiving arts education, several studies have claimed causal links between music learning and increased cognitive ability. Gromoko and Poorman (1998) investigated the effect of multisensory music education on preschoolers' performance IQ and found effects for three-year-old children, but not four-year-old children, in the ability to complete spatial-temporal tasks (e.g., fitting objects into a box). Kaviani et al. (2014) found positive effects for IQ scores after using the Orff method of music education with five- and six-year-old children. Schellenberg (2004) explored the causal link between music learning and intellectual functioning (measured by the Wechsler Intelligence Scale for Children; WISC-III) and social functioning (measured by the Behavior Assessment System for Children; BASC) in six-year-old children. The Schellenberg study has been heavily cited because it is regarded as a well-designed study.

Participants in this study were assigned to one of four groups: keyboard lessons, Kodály (a socio-cultural approach to music education) voice lessons, drama lessons (control), or no lessons (control). Both types of music instruction demonstrated small gains in IQ while drama lessons had effects on adaptive social behaviors.

In 2015, See and Kokotsaki reviewed the quality of 199 studies from 1995 to 2005 on the effects of arts educations on non-arts outcomes. They found that, of the 28 studies including preschoolers, none were of promising quality. The authors judged quality based on the rigor of research design and not the reported effects. The authors recommended that preliminary research be conducted with this age group. Charleroy et al. (2012) conducted a literature review for dance, music, theater, and visual arts to look for evidence of arts effects on human development. The evidence presented for early childhood was limited in each area, except for music, which links arts participation during early childhood with gains in child development across physical, cognitive, social, emotional, and artistic domains. Unfortunately, several reviews of research investigating the causal link of arts education to non-arts outcomes have found little to no evidence, lack of robust study design, and inconsistencies across study findings (See & Kokotsaki, 2015; See & Kokotsaki, 2016).

Children with Disabilities

The arts have many benefits for children with disabilities. However, the study of these benefits is a relatively new field of research and a limited number of empirical studies have been conducted (Crockett et al., 2015; Crockett & Blakeslee 2018; Horowitz, 2018; Malley & Silverstein 2014; Menzer, 2015; Sjöqvist et al., 2020). Research examining the effects of arts education for children with disabilities makes the strongest claims for outcomes related to social skills, communication skills, and language skills (Horowitz, 2018).

For example, Menzer (2015) conducted a literature review including 18 articles that demonstrated a relationship between arts learning (i.e., music, dance, drama, theater, drawing, painting) in early childhood and social-emotional outcomes for both children with and without autism. Another example is Jindal-Snape and Vettraino's (2007) systematic review of the literature from 1990-2005 (8 articles) on drama techniques and the social-emotional development of children with disabilities which found that drama shows promise for the development of social-emotional skills.

Research at the Intersection of the Arts and Disability

Crocket et al. (2015) conducted two literature reviews related to the arts and students with disabilities. First, they reviewed the literature linking the arts to the learning of students with disabilities from 2002-2012. Their initial search included preschool through college-aged students and resulted in 100 articles. Sixty-six of the articles were professional commentaries and 34 were research studies. Abstracts were subject to content analysis and revealed four themes: inclusive practices, students' artistic growth, teachers' development, and arts integration. Crocket et al. explicitly described only one article by Simpson and Keen (2010) who included preschoolers as participants. The Simpson and Keen review concluded that more empirical research is needed in this area as only 34% of the reviewed literature was research. Crocket et al. also suggested that guidance and resources provided to teachers to access supports for students with disabilities were inadequate across approaches (arts education, art therapy, arts integration) to delivering the arts.

Crocket et al. (2015) further explored articles related to arts integration intervention for supporting students with disabilities. They searched the literature from 2002 to 2014 in K-12 settings. They found articles with participants identified as having attention deficit disorder (ADHD), autism spectrum disorder (ASD), emotional and behavioral disorders (EBD), learning

disorders (LD), and speech and language impairment (SLI). The search resulted in 24 articles in various artistic disciplines. However, no articles were found related to visual arts or media arts. Eleven articles included drama interventions, 11 used music interventions, and two studies had dance and movement interventions. Crocket et al. found that only 5 of the 24 studies were conducted in inclusive classrooms; more research is needed to understand arts integration in inclusive settings. They also found that most arts integration interventions were conducted with students with LD or ASD. Students with other disabilities were rarely studied. The authors concluded that arts integration as an intervention for students with disabilities is a value-added intervention model, where arts integration adds another layer of support for student learning.

Malley and Silverstein (2014) also provided insight into the research that has been conducted in the intersection of arts education and special education. They provided a thematic overview of the literature on arts education and students with disabilities. They described nine studies demonstrating positive effects of arts learning on students with disabilities. Two studies Ponder and Kissinger (2008) and Mason et al. (2008) were pilot investigations. In the Ponder and Kissinger article, triads of special education teachers, VSA (the international organization on arts and disability) teaching artists, and arts teachers were asked to collaboratively deliver arts instruction to students with disabilities. The project focused on professional development and improving the quality of arts education for students with disabilities. The authors described this collection of studies as inconsistent, attributing this to the professional fields of special education and arts education operating separately. They identified a need for empirical research on the importance of arts education in the education of students with disabilities.

Mason et al. (2008) explored using arts-based instruction within special education services. First, they interviewed teachers about their perceptions of the arts' impact on students with

disabilities where three themes identified: voice, choice, and access. The first theme, voice, described the arts as providing another means of expression for students with disabilities. The second theme, choice, was described as a way for students with disabilities to have agency, express preferences, and make decisions. The third theme, access, was described as access to learning and feelings of accomplishment in artmaking for students with disabilities. In the second part of the Mason et al. (2008) article, the development of a rubric model for measuring the use of arts integration in preschool through eighth-grade classes, both arts and special education were discussed. In summary, outcomes of the Mason et al. (2008) and Ponder and Kissinger (2008) studies suggest a collaborative and structured approach to arts integration for teachers of students with disabilities might increase arts implementation.

The Arts Cultivate Creativity and Innovation

Arts education is believed to help develop creativity, a necessary 21st-century workplace skill (Charleroy et al., 2011; Logsdon, 2013; Scott, 2019). The President's Committee on the Arts and the Humanities (PCAH) produced a report of research demonstrating the benefits of arts education (Dwyer, 2011). In the forward of this document, the U.S. Secretary of Education at that time, Arne Duncan, argued for reinvesting in arts education because it fosters creativity. Duncan explained that creativity and innovation will better prepare children for the workforce and help "America to win the future" (Dwyer, 2011, p.3). Another example of examining the arts connection to creativity is a meta-analysis of arts education participation and creative thinking conducted by Mogo et al. (2000) who found modest associations for correlational studies and modest evidence for a causal relationship for experimental studies using measures of figural creativity (i.e., tests requiring drawing). Unfortunately, the authors' conclusions were limited by the small number of experimental studies available.

The Creativity of Young Children with and without Disabilities

Arts interventions have enhanced the creativity of students with and without disabilities. For example, Duncan (2007, as cited in See & Kokotsaki, 2015) found positive effects for preschoolers' creativity (originality and total creativity score) when exposed to individual music instruction once a week for eight weeks. Creativity in this study was measured by the Thinking Creatively in Action and Movement (TCAM; Torrance, 1981). The TCAM was designed to measure the creativity of preschoolers by observing their actions and movements in response to four prompts.

Jay (1991) also found a positive impact on the creativity of preschoolers with disabilities (speech and language delay, developmental delay, visual impairment, hearing impairment) when exposed to dance instruction. Study results indicated that imagination scores were significantly different after a 12-week school-based dance program. Imagination, a component of creativity was measured by the TCAM.

The creativity of preschoolers was explored by Warger and Kleman (1986) who used the TCAM to study the effects of a 2-week drama intervention on the creativity scores of 82, six- to ten-year-old children. They had four subgroups of participants: (1) children with behavior disorders living at home with their families; (2) children with behavior disorders living in residential institutions; (3) children without behavior disorders living at home with their families; and (4) children without behavior disorders living in residential institutions. Each subgroup was randomly assigned to an intervention or control group. The TCAM was used to measure pre- and post-intervention creativity. All intervention groups demonstrated significant gains in creativity over control groups. In summary, few examples exist in the literature that explores the development of creativity in the education of young children with and without disabilities. Those discussed here are reporting increases in creativity by engaging with the arts.

Two Models for Ensuring Arts Education is Accessible for All

Universal Design for Learning (UDL)

Accessibility is a broad concept in education. When determining if learning is accessible, the needs of individuals as well as the needs of groups of learners are considered. All states are required to incorporate UDL principles into their state education plans to increase access to learning (Every Student Succeeds Act, 2015). UDL is a framework that guides planning for variability in all learners, not just students with disabilities. The purpose of employing a UDL lens is to intentionally plan for flexibility and reduce barriers so that all learners can engage (CAST, 2018). All teachers can use the UDL framework. When UDL is applied to the design of an arts curriculum, learning becomes more universal and inclusive (Glass et al., 2013). UDL has a broad focus on accessibility by planning for multiple means of engagement, representation, and action and expression (CAST, 2018). A teacher creates more opportunities to access the curriculum when applying a UDL framework which may make learning more accessible for students with disabilities. UDL is a focus on access to the curriculum for most learners. This approach reduces common barriers to learning but is not a solution to providing access for all students with disabilities.

Accommodations Model

Three interrelated laws protect the rights of students with disabilities in schools by providing accommodations and modifications, the Individuals with Disabilities Education Act (IDEA; 2004), Section 504 of the Rehabilitation Act (1973), and Title II of the Americans with Disabilities Act (ADA, 1990). Accommodations remove barriers to learning and may include changes to the environment, curriculum, or materials. Accommodations provide students with

disabilities access to the curriculum by altering the way information is presented, how students demonstrate what they know, characteristics of the environment, or changes to the timing or scheduling of learning (The IRIS Center, 2010). Students who qualify for special education under IDEA are provided with an individualized education program (IEP) that describes their individual accommodations and modifications. For some students with intensive support needs, modifications to the content or instructional level of the grade-level curriculum may be appropriate. Individual student accommodations or modifications must be provided to ensure access to the arts curriculum.

Assistive Technology (AT)

The use of assistive technology may allow a student to gain greater access to the curriculum. IDEA requires that AT needs of every student with an IEP be considered. Commercially available and customized equipment that aids in the functional capabilities of the student can be considered AT. Devices used to access arts curriculum may range from low tech to high tech, anything from a grip on a paint brush to software on an iPad for composing music (Coleman et al., 2015). AT that is specific to arts learning or in an arts context may be referred to as adaptive arts equipment or adaptive instruments.

Indicators of High-Quality Arts Education

Standards-Based Arts Curriculum

The term *the arts* refers generally to various art forms including the visual arts (e.g., painting, drawing, ceramics, filmmaking, photography), literary arts (e.g., drama, poetry) and the preforming arts (e.g., dance, music, theater). The National Core Arts Standards for arts education within the P-12 school setting have content standards for five arts disciplines including dance,

drama, media arts, music, and visual arts (NCAS, 2015). All states have Early Learning Guidelines (ELG) that include guidance for the curriculum and practices in early childhood that often include some of the NCAS arts disciplines or reference to arts learning in general (National Center on Early Childhood Quality Assurance, 2016). Unlike elementary schools, where arts teachers are often employed to teach an arts discipline as a discrete subject, early childhood teachers are often expected to include instruction in the arts (Bea, 2004). Arts learning should occur throughout education but what constitutes high-quality arts education specifically in preschool is unclear in the literature.

Defining High-Quality Arts Education

Standards-based, sequential arts instruction provided by a certified arts teacher is the foundation to definitions of high-quality school-based arts programs. Burt, et al. (2009) defined eight key components in the assessment of high-quality arts education to advocate for arts education in California school districts. The eight components included: (1) *standards-based curriculum* which is sequential and includes grade level expectations; (2) *instruction and methodology* which refers to access to instruction in all arts disciples; (3) the *arts integrated into other academic areas*; (4) *access to adequate resources and facilities* for teaching the arts; (5) student *assessments* that capture student abilities in the arts; (6) *professional development* for teachers instructing in the arts; (7) *partnerships and collaborations* were defined as opportunities for students to experience exhibits and live performances as well as an expanded curriculum through collaborations with artists and artistic resources in the community; and (8) *program evaluations* should be conducted on a regular basis to improve the program. Burt et al. provides an initial framework for defining high-quality arts education, but they did not specify how

indicators of quality might differ in preschool and they do not include a component to address accessibility.

Harvard's Project Zero researchers also defined elements of high-quality arts education (Seidel et al. 2009). They interviewed 16 theorists and practitioners, visited 12 exemplar programs, and interviewed 250 people within those programs. Their work resulted in a description of four lenses for examining questions of quality in arts education programs within K-12 schools. The four lenses were student learning, pedagogy, community dynamics, and environment. The student learning lens focused on what students are doing in the classroom including engagement, experiences both making and looking at art, experimentation, having an emotional safe space, and a personal investment in arts learning. The pedagogy lens focused on how teachers imagine and enact their teaching including engaging in authentic arts experiences, modeling artistic processes, utilizing inquiry, and studio habits, engaging with students in the learning experience, connecting prior knowledge/experiences to the learning, and being intentional yet flexible when making instructional decisions. The lens of community dynamics focused on the social relationships in the classroom including trust among all participants, having open communication, and collaborative learning experiences. The environment lens focused on the physical space and materials available for arts learning. This lens described having functional and professional space and materials, a school where the arts occupy a central focus in the school with both the inclusion of famous artists/artwork as well as the display of student artwork, and adequate time dedicated to arts instruction. Seidel et al. (2009) provided a thorough description of different elements of high-quality arts education in K-12 schools, some of which may also apply at the preschool level. They did not include accessibility as an indicator of quality arts education.

In each of these studies a standards-based, sequential arts instruction provided by a certified arts teacher is central to the definitions of a high-quality K-12 school-based arts programs. How these definitions of high-quality might apply in the preschool setting is unclear.

K-12 Nationwide Surveys

The National Center for Education Statistics (NCES) assessed the availability and quality of arts education programs across K-12 education on three occasions 1994-95, 1999-2000 and 2009-10 (Parsad & Spiegelman, 2011). The first NCES arts education study in 1994-95 was conducted to provide baseline data on the approach of public schools to arts education. The second study conducted in the 1999–2000 school year covered a broader range of arts education issues, collecting data on the educational backgrounds of teachers, professional development activities, teaching loads, and instructional practices of both elementary classroom teachers and elementary music and visual arts specialists.

Results of the most recent NCES arts education study conducted in the 2009–2010 school year indicated that music education was available in 94% of the nation's public elementary schools and visual arts instruction was available in 83% of schools (Parsad & Spiegelman, 2011). Only three percent of elementary schools offered dance and four percent offered drama/theater. Dance and drama availability decreased in elementary schools by 20% between the 1999-2000 and 2009-2010 school years. These surveys can serve as a guide to elements of quality in arts education but are focused on K-12 settings. These assessments of availability and quality did not collect data on accessibility or preschool level arts education.

Investigating availability and participation in arts education is the most common theme within arts education research (Wan et al., 2018). The availability of arts education in K-12 schools has been declining for years (Parsad & Spiegelman, 2011; Rabkin and Hedberg, 2011) and

anecdotal evidence suggests the COVID-19 pandemic exacerbated that decline (Buchler, 2021). Pre-pandemic access to arts disproportionately affected schools with higher percentages of students who are culturally and linguistically diverse (CLD) and those from low incomes families (Government Accountability Office [GAO], 2009). Arts participation for students with disabilities, another vulnerable population, is rarely reported. Simeonsson et al. (2001) found that from a national sample, only 48% of students with disabilities fully participated in art class. Band, chorus, and orchestra had even lower participation, four, ten, and one percent, respectively. This limited evidence suggests that there are unexplored barriers to arts education participation and access for students with disabilities.

State-based Surveys

At least 26 states have conducted, or regularly conduct, assessments of their K-12 arts education programs (Silk et al., 2015). The design of state-level surveys often mimics the types of data collected on the NCES surveys including items: to determine arts education teacher characteristics; type of arts education courses offered; level of student participation in arts education; frequency and duration of arts instruction; characteristics of arts education programs; availability of arts education professional development; types of assessments in arts education; barriers to arts education; funding for arts education; policy guiding arts education; level of arts integration; and other arts education collaborations or partnerships. These surveys gather data on the availability and quality of arts instruction mostly from the perspective of an administrator (Silk et al., 2015).

State-level surveys often have local impacts such as changes to policy or practice. For example, Illinois Creates commissioned the first statewide survey in 2005 to assess the status of arts education and to identify the barriers to high-quality arts education in Illinois (Solotaroff &

Valkanas, 2005). Superintendents and public-school principals across the state were surveyed and reported on elementary, middle, and high school arts programs. Results of the surveys indicated that 20% of the Illinois principals surveyed reported having no arts education at their schools. Students in rural or small school districts received the least amount of arts education in Illinois (Solotaroff & Valkanas, 2005). In response to the results and recommendations of the initial survey of arts education in Illinois, advocacy efforts have improved the state of arts education. In 2020, Illinois became the first state to elevate the status of arts education by including the arts in schools' accountability scores. State funding to support greater access to arts education across the state was to begin in the 2021-2022 school year, reinforcing schools for providing an arts education (Nietzel, 2020).

A multi-state assessment of arts education was conducted in 2009-10 across Idaho, Montana, Utah, and Wyoming (Stubbs, 2010). The purpose of this survey was to describe arts education during the 2009-2010 school year by surveying principals. These data were collected to serve as a baseline description. This mixed-methods survey assessed five key areas: demographics, student learning, teachers, professional development, and space and resources. For the area of student learning, high-quality instruction was defined as sequential, aligned to standards, and taught by a certified arts teacher.

Statewide Arts Education Assessment (Stubbs, 2010) survey responses were reported quantitatively as well as qualitatively. An open-ended question asking for further comments was analyzed for themes. Themes centered on either a description of how schools implemented the arts or how various obstacles hindered schools from implementing arts education. Significant results from the quantitative analysis revealed that more than half of the districts in three of the four states did not treat the arts as a core subject. Dance education was virtually non-existent in three of the

four states, Utah being the exception where it was often available. Music instruction was the most common arts offering across the four states (SAEA, 2010).

The Kentucky Arts Commission initiated a similar statewide survey in 2005 that assessed the status of arts education in preschool through 12th grade. Superintendents in all school districts across the state participated in the survey. Items were designed to gather data on the current condition of arts learning in the state. Results indicated that students in preschool through middle school received no more than 30 to 60 minutes of visual arts and music instruction time per week and they received at most, 1 to 30 minutes of instruction time in dance and drama (Horn, 2005). Recommendations from Horn (2005) and arts advocacy efforts in Kentucky led to the Arts Education Equity Act passed in 2020 ensuring equal access to standards-based arts education for all students in grades K-12 during the school day starting in the 2021-22 school year. Although data were collected about preschools, no preschool specific recommendations were made. The participation level of student with disabilities in the arts nor the accessibility of arts instruction considered in these surveys.

Preschool Level Surveys

The availability of arts education at the preschool level is rarely investigated. McDonald (1980) surveyed preschool teachers across 25 states and found that 69% included arts instruction in four disciplines: dance, drama, music, and visual arts. The availability of music instruction specifically in preschool has been studied (*see* Nardo, 2006). Nardo found that teachers used music for short amounts of time to enrich the learning environment, such as using a song to teach the days of the week. Although indicators of quality K-12 arts education have been thoroughly identified and measured, how those indicators apply to preschool arts education is unknown.

Extremely limited evidence exists to describe implementation of arts education in preschool. Nationally, the availability and quality of arts education in preschool remains unknown.

Early Childhood Education Practices

Naturalistic Instruction

In early childhood education, early childhood special education, and early childhood arts education it is considered best practice to engage in developmentally appropriate naturalistic instruction. Research, recommended practices, philosophy statements, and positions papers on teaching and learning in early childhood support this approach (Division for Early Childhood (DEC), 2014; Early Childhood Art Educators, 2016; McClure et al., 2017; National Art Education Association, 2021; National Association for Music Education, 2018; National Association for the Education of Young Children (NAEYC), 2019; NAEYC, 2020; NDEO, 2015).

Naturalistic instruction involves providing many opportunities to allow children to practice newly acquired skills in everyday activities and play. In this approach, teachers follow the child's lead, matching activities to their interests. A responsive educator is an important component of naturalistic teaching. The teacher must respond to the child's interactions by aiding, demonstrating, suggesting, and asking questions. A teacher will support a child and make accommodations or modification to an activity to ensure participation (DEC, 2014; NAEYC, 2020; Odom et al., 2012; Rule et al., 1998; Snyder et al., 2015).

Inclusion of Young Children with Disabilities

The optimal learning environment for young children with disabilities is a high-quality, inclusive early childhood classroom with individualized supports (Laumann et al., 2019). An inclusive program is one that includes both students with and without disabilities in what is

considered the natural environment (Hestenes et al., 2008). Individualized supports for arts instruction may include adaptive arts equipment, tools, or instruments, assistive technology, or specialized instructional strategies (Odom et al., 2012). Current preschool arts instructional practices for students with and without disabilities are largely unknown (Bresler, 1993; Koralek, 2005; Phillips et al., 2010).

Collaboration and coordination of services is essential to successful inclusion and early childhood special education. Special education and general education teachers have shared responsibility for students with disabilities in an inclusive classroom (Da Fonte & Barton-Arwood, 2017). The inclusion of students with disabilities is a collaborative effort, removing barriers and providing individualized supports.

Families and Communities

Early childhood general education, special education, and arts education all support family involvement, where educators build relationships with families and support their participation in the education of their child (Dunst & Espe-Sherwindt, 2016). Family practices are defined by the Division of Early Childhood (2014) as including family-centered practices (i.e., being responsive to families), family capacity-building practices (i.e., parent training), and family and professional collaborations (i.e., shared decision-making). NAEYC (2020) also describes engaging with families as an essential component of developmentally appropriate practices which encourages communication, family participation, shared decision-making, and families as a source of information.

NAEYC as well as the NCAS emphasize the importance of using community knowledge and resources in the delivery of early childhood programming. NAEYC (2020) suggests that educators develop community relationships to implement the curriculum, connect families to

resources, and contribute to the community. The NAEA (2014) describes these partnerships as essential to the delivery of arts education between arts educators and non-arts educators with community arts providers as an approach to connecting learning to real-world arts practice.

Arts Education Practices

Arts Education and Arts Integration

Students with disabilities may have experiences with the arts through arts education, arts therapy, or arts integration (AI). Professional arts education organizations advocate for including the arts in the curriculum in multiple ways, such as AI and arts education (National Art Education Association, 2014). When students learn through and with the arts, often referred to as AI, they are learning more deeply about a concept by incorporating arts learning (Berry & Loughlin, 2015; Crockett et al., 2015).

An umbrella term, AI encompasses various interdisciplinary approaches that include both arts and non-arts learning goals (Burnaford et al., 2007). In preschool, arts are often integrated into the school experience through AI rather than taught as a discrete discipline (Charleroy et al., 2012). AI practices that incorporate multiple subjects or disciplines together are typically more meaningful for young learners than teaching content areas separately (NAEYC, 2020). An example of the benefits of AI is the A+ Schools Program which includes arts integration across PK-12 schools. The A+ Schools Program is a whole school reform effort where the arts are integrated across the curriculum and arts instruction occurs daily. Research on A+ Schools has reported gains in affective outcomes, student achievement, and parent engagement (Noblit, 2009; Thomas & Arnold, 2011).

The Brown (2020) study is an example of the benefits of AI specifically at the preschool level and includes students with disabilities. Brown (2020) investigated preschool students receiving an arts integration approach and found that participants in an arts integration group showed statistically significant gains in school readiness, emotional regulation, and stress reduction when compared to students in a control group. In an earlier study of the same preschool arts integration curriculum, Brown et al. (2010) found positive gains in school readiness for students with developmental delays.

Arts integration is also used in preschool through STEAM (Science, Technology, Engineering, Arts, and Mathematics) initiatives, where the arts are integrated with STEM (Science, Technology, Engineering, and Mathematics) subjects (Jones, 2011). STEAM instruction for young learners can be enhanced by the addition of the arts by providing different ways of accessing the concepts and improving engagement (DeJarnette, 2018; Piro, 2010; Robelen, 2011). DeJarnette (2018) implemented early childhood teacher professional development in STEAM. She found that teachers were more confident after training and students increased their communication and engagement during STEAM lessons. These findings may suggest a need for professional development to include an AI or STEAM approach in preschool.

Although most AI research has been conducted with students without disabilities, students with disabilities also benefit from this practice in both inclusive and special education settings (Geber & Guay, 2014). Anderson (2012) found that when drama was integrated with language arts instruction for fourth-grade students with and without disabilities, their written language improved more than students who did not receive instruction with drama. AI is a promising approach to creating deeper, more meaningful learning experiences for students with disabilities (Loughlin & Anderson, 2015).

Process-focused Arts Learning

In arts education, the practice of process-focused arts experiences is recommended for instruction in early childhood. A process-focused arts activity emphasizes the experience of engaging with or making art itself whereas a product focused activity emphasizes the outcome. In process-focused art, art is a behavior: to construct, express, play, act, or make (Dissanayake, 1988). Process focused art reflects naturalistic teaching in that it allows for repeated opportunities to practice a new skill and play. Process-focused art is a child led practice with many naturally occurring opportunities for communicative interactions. (Bongiorno, 2014; Stone & Chakraborty, 2011). Process-focused arts education allow children to engage in play and play-related behaviors. Play-based and process-focused arts education allows children to engage in play and play related behaviors. Play-based and process focused arts education allow children to engage in important early learning processes such as examining, re-examining, transforming, imagining, and creating (Johnson et al., 2013).

Play-based and process-focused arts education within each arts discipline takes on different forms and practices (Charleroy, 2012). Charleroy (2012) continues by defining dance, movements and those used to express feelings and explore using imagery, stories, sounds, words, and games. In music, students improvise with musical instruments and engage in spontaneous music making (vocal or instrumental). In drama, students engage in imaginative play to pretend being another person or in another time. And in visual arts, students can engage in collaborative inquiry, where teachers pose questions or present materials for students to respond to and make choices with art making tools and materials (Charleroy, 2012).

Bresler (1993) examined the curricular approach to teaching the arts in the primary grades (K-3). She described three curricular approaches: a process-focused approach with little teacher intervention; a teacher lead production focused approach where students worked towards an ideal

or model; and a guided exploration approach where the educator was active in the learning process with a focus on arts skills and techniques. Unfortunately, in preschool, arts experiences are often brief, regarded as ancillary in the curriculum, and involve minimal teacher interaction (Bresler, 1993; Nardo, 2006; Phillips et al., 2010). To improve access to and the quality of arts learning in preschool, first an audit of contemporary instructional practice and availability of instruction must be conducted.

Preparedness of Teachers

Arts Education Personnel

Several studies defining high-quality arts education as well as the professional arts education organizations indicate that the arts should be taught by a certified arts teacher or a teaching artist (Burt et al., 2009; National Art Education Association, 2014; Seidel et al., 2009). Deasy (2002) described how the responsibility of arts instruction has shifted over time. Dance was taught in physical education and drama included in the study of literature, but those arts disciplines are now more likely to be taught by an arts teacher if offered. While data is collected on the person responsible for K-12 arts instruction in schools, the literature is unclear who is teaching the arts in preschools.

Teaching the Arts

Teaching arts education to students with disabilities involves two areas of expertise: competence in both arts-specific knowledge and special education (Sjöqvist et al., 2020). Alter et al. (2009) found that elementary teachers and special education teachers in rural U.S. schools felt that they could not fulfill the teaching expectations of the arts because they lacked the content knowledge and skills required to teach all the arts. Investigations into preschool teachers' self-

efficacy towards teaching the arts have found similar results (see Garvis & Pendergast, 2011; Hargreaves et al., 2003; Nardo et al., 2006).

While early childhood general education teachers and special education teachers are often expected to implement arts education, they often lack the confidence to do so. Garvis and Pendergast (2011) surveyed early childhood teachers in Australia about their perceived competence towards teaching dance, drama, media arts, visual arts, and music. They found that most teachers rated their current level of content knowledge for the five arts areas as very low. In the United Kingdom, Hargreaves et al., (2003) found that elementary teachers lacked confidence in teaching music and that teaching music caused them more stress than any other subject. Similarly, in the U.S. Nardo et al., (2006) found that teachers at NAEYC accredited preschools felt ill-equipped to deliver meaningful music instruction. The number of employed arts teachers at the preschool level is unknown. These studies suggest that non-arts teachers at the preschool level lack confidence in their ability to teach the arts.

Implementation of Arts Education in Preschool

Arts education is an essential activity in early childhood. There are few studies examining teachers' implementation and preschoolers' access to arts education and none specifically examining preschoolers with disabilities participation and the accessibility of arts education. For example, Nardo et al. (2006) found that teachers at NAEYC accredited preschools included music instruction for only a small amount of time and students had few experiences with music, dance, theater, and visual arts. Garvis and Pendergast (2011) found that some early childhood teachers in Australia never teach drama, dance, or media arts. Although access to the arts is thought of as a necessary part of childhood, there is limited evidence describing arts education in early childhood education.

A Framework for Defining High-Quality Early Childhood Arts Education

The following constructs are synthesized from the extensive review of the literature, previous studies of the status of arts education, and the national and state-level preschool arts standards. These descriptions attempt to characterize a well-rounded, high-quality, accessible preschool arts education. Categories of investigation include description of personnel, curriculum, approach, and instructional practices across the five arts disciplines: dance, drama, media arts, music, and visual arts.

Arts Education Personnel

Arts education personnel refers to the type of teacher responsible for instruction in each of the arts disciplines. Figure 1 illustrates a proposed model for personnel collaborations to deliver an accessible early childhood arts education. The NAEA (2014) framework for quality arts education for all served as a starting point for this model. Figure 1 demonstrates how various stakeholders in early childhood education can collaborate to support student learning in the five arts disciplines through arts education, arts integration, accessible arts learning, with opportunities for family and community involvement.

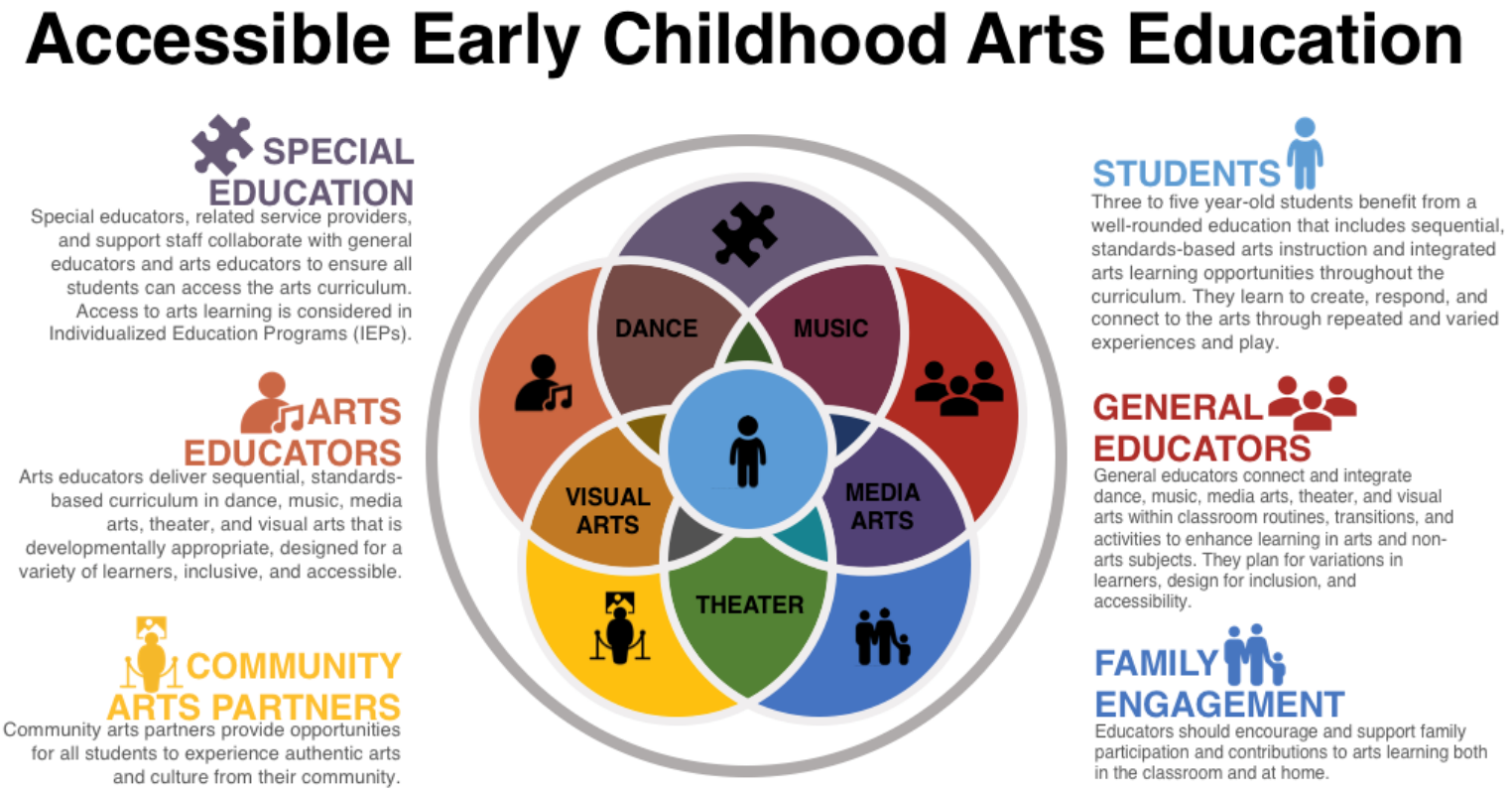


Figure 1. Model for Personnel Collaborations: Accessible Early Childhood Arts Education

Adapted from National Art Education Association, 2014

Arts Education Curriculum

Arts education curriculum includes the frequency of planned, sequential, standards-aligned arts instruction and evaluation of arts education objectives.

Approach to Arts Education

Approach to arts education describes how opportunities to engage in arts learning are provided. Approach may be the result of the availability of support/resources as well as the influence of educational philosophies (e.g., beliefs about how students learn, the role of educators, the role of families and the community in arts learning, the importance of accessibility, the value of arts learning).

Instructional Practices

Instructional practices refer to descriptions of how and what essential arts skills and concepts teachers emphasize within each of the five arts disciplines including standards-based activities, use of materials/instruments, instructional goals, and teacher-student and peer interactions.

Gap in the Literature

The availability, quality, and accessibility of arts education for students with and without disabilities at the preschool level is largely unknown. Most studies examining the availability and quality of arts education investigate the K-12 setting from the perspective of administrators (e.g., superintendents, school principals; Burt et al., 2009; Parsad & Spiegelman, 2011; Seidel et al., 2009; Wan et al., 2018). Hence, little is known about the status of arts education at the preschool level in the United States. The primary reasons for not including the preschool level in large scale

quantitative research of arts education (e.g., surveys of the status of arts education) are likely that public preschool is not universally provided. Furthermore, most arts learning in preschool is implemented within classroom routines, activities, and transitions, which may create additional barriers for school administrators in assessing the delivery of arts instruction. Another potential barrier to administrator reported availability of arts education is that in K-12 school surveys availability of arts instruction is assessed by quantifying the number of employed, certified arts educators and the number and diversity of arts courses offered. In preschool it is often the classroom teacher who is responsible for all instruction in the arts, which would not be captured by this measure.

Therefore, it is necessary to focus on the curriculum and instruction used by preschool teachers to assess the availability, quality, and accessibility of arts education in preschools. A survey of classroom-level arts instruction will help account for naturalistic, embedded arts learning, arts integration, and discipline-specific instruction in the preschool curriculum. Therefore, the purpose of the current study is to utilize the proposed framework of accessible early childhood arts education to develop a survey instrument. The instrument is designed to gather information on the availability, quality, and accessibility of arts education at the preschool level for students with and without disabilities.

CHAPTER 3. METHOD

The purpose of this dissertation is to contribute to the understanding of arts education instruction for preschoolers with and without disabilities by designing a new survey instrument to gather information about the availability, quality, and accessibility of arts education at the preschool level. The aims of the study were two-fold: First, to develop, evaluate, and validate a new instrument that identifies the personnel, curriculum, approaches, and instructional practices for arts education in preschools and then to provide descriptive statistics of preliminary results gathered from field-testing the instrument with preschool teachers serving students with disabilities. The following research questions were explored:

1. What evidence exists for the content validity, construct validity, and internal consistency reliability of the *Survey of Preschool Teachers and Arts Education*?
2. How are preschool teachers who serve students with disabilities self-reporting teaching each of the arts disciplines (i.e., dance, drama, media arts, music, visual arts)?

In the following chapter, five phases of developing, evaluating, and validating an instrument are described. Those phases encompass instrument development, item validation, implementing the measure, evaluating the measure and descriptive analysis.

Phase 1: Instrument Development: Survey of Preschool Teachers and Arts Learning

The overall design of a survey and the design of individual items can have a significant impact on the quality of the research (Creswell, 2003). Effective and efficient instrument design follows several principles used by researchers. To optimize reliability and validity results in the ultimate version of this instrument, a 14-stage process described by McCoach et al. (2013) steered the design of the instrument. This procedure has been widely utilized in social science research

and has consistently produced instruments holding respectable psychometric properties. The stages in this process are:

1. Specify the purpose of the instrument.
2. Confirm that no existing instrument serves that same purpose.
3. Provide preliminary descriptions of constructs.
4. Specify the characteristics of the constructs.
5. Refine construct definitions based on review of the literature.
6. Operationalize construct definitions and generate survey items for each.
7. Choose a scaling technique and response scale.
8. Match items back to the construct characteristics, ensuring adequate content representation.
9. Conduct a judgmental review of items.
10. Develop directions for responding; create final pilot version of the instrument.
11. Pre-pilot the instrument with a small number of respondents and make revisions based on feedback.
12. Gather pilot data from a closely representative sample.
13. Analyze pilot data; conduct exploratory factor analysis (EFA), reliability analyses, initial examination of item and scale properties.
14. Revise the instrument based on the initial pilot data analysis and re-administer if needed.

Purpose of Instrument

The purpose of this instrument is to describe the status (i.e., availability, frequency, approach, and type of arts instruction) of arts education in preschool. The instrument was

developed specifically for this study and, assuming it yields acceptable psychometric properties, it may be reused in future studies to determine changes in instruction over time. While instruments exist that measure similar constructs to report on the status of arts education in K-12 schools, currently no instrument exists for the measurement of arts instruction within preschools. Instruction in arts education at the preschool level differs significantly from arts education at the K-12 level. Instruction in preschool is often provided by a classroom teacher through naturalistic instructional approaches (e.g., embedded into classroom activities, activity-based) which are recommended practices in early childhood education (DEC, 2014; DEC/NAEYC, 2009). Early childhood education, early childhood special education, and early childhood arts education instructional practices are based on a constructivist approach which emphasizes learning through experience, a child-centered approach to education, and the importance of social interactions in learning (Baum, 2017; DeVries, 2002; Mallory & New, 1994; Odom & Wolery, 2003). Best practices for teaching the arts in preschool are to embed the arts within interdisciplinary learning opportunities rather than teaching the arts solely as a distinct discipline (Early Childhood Art Educators, 2016; Early Childhood Music Education, 2018; National Art Education Association, 2021; National Dance Education Organization, n.d.).

Defining Constructs

After careful review of the literature on the status of K-12 arts education, literature on arts learning in early childhood, the study of the preschool arts standards, and review of existing instruments measuring K-12 arts education, initial constructs for arts learning in preschool were drafted. Since no measure of early childhood arts education exists, constructs were refined and synthesized from available guidance from leading researchers and organizations in early childhood education as well as arts education. The constructs and their definitions attempt to characterize

well-rounded, high quality preschool arts education instruction that includes a description of the arts education personnel, arts education curriculum, approaches to arts education, and instructional practices.

Item Generation

Construct definitions were operationalized, and a broad range of survey items was generated for each construct. The *Elementary School Arts Education Survey: Fall 2009* was used as an operational foundation for writing survey items related to arts education personnel, arts education curriculum, and approaches to arts education (Parsad & Spiegelman, 2011). This study included a set of seven surveys that collected data on arts education during the 2009–10 school year, one that surveyed elementary school principals, and three that surveyed elementary teachers. These surveys did not target early childhood teachers and so items were substantially revised or rewritten for the target population of this study.

Instructional practices survey items were mapped to the National Core Arts Standards (NCAS; National Coalition for Core Arts Standards, 2015) that include preschool discipline specific standards for dance, media arts, music, theater, and visual arts. This was done to ensure that instructional practice items reflected age-appropriate instructional activities and general expectations for arts learning in the United States. NCAS standards are voluntary and used by some states to inform the development of their local and state standards. Additional survey items were generated so that all NCAS standards for dance, media arts, music, theater, and visual arts were represented.

Most states have adopted or adapted the NCAS standards for K-12 arts education state standards but at the preschool level there is more variation. Instructional practices items were mapped to California, Indiana, and Texas preschool standards or guidance documents for arts

learning to ensure that the items reflected the variety of expectations found in different states. The *California Arts Standards for Public Schools, Prekindergarten through Grade Twelve* (2019), reflect the NCAS, including expectations for five artistic disciplines: dance, media arts, music, theater, and visual arts at the preschool level. The *California Preschool Learning Foundations* (2010) include visual arts, music, drama, and dance, and were mapped to the survey items.

Indiana has academic standards in the arts reflecting NCAS for K-12 learning in dance, music, theater, and visual arts. The Indiana Early Learning Foundations include four artistic disciplines under the domain of creative arts that includes subcategories for music, dance, visual arts, and dramatic play for infants, younger toddlers, older toddlers, younger preschoolers, and older preschool levels (Indiana Department of Education, 2017). The younger preschool and older preschool levels were mapped to the survey items.

Texas has K-12 curriculum standards for the fine arts including dance, music, theater, and visual arts that are not reflective of the NCAS. Texas includes the fine arts in their definition of high-quality prekindergarten and includes a fine arts domain within the Texas Prekindergarten Guidelines (Texas Education Agency, 2015) that describe three artistic skill areas: art skills, music skills, and dramatic expression skills. These guidelines were mapped to the survey items.

Scaling of the Initial Instrument

A dichotomous scale was chosen for most items on the survey. The dichotomous scale asks participants to respond either yes or no to each item, indicating if they did or did not do the behavior or activity in the 2020-21 school year. This type of response scale does not provide an opportunity for respondents to be neutral and is an appropriate scale for gathering factual data, quickly and efficiently (Farrington & Loeber, 2000). This scale was chosen because of the benefits to the user as well as to the researchers, balancing user experience with the need to collect data (Capik &

Gozum 2015). Benefits of using a dichotomous scale for responding include ease of response, ease of comprehension, and responding requires minimal effort and time. While lack of variance in response options limits data analysis to two groups (yes/no responders), the ability to gather a broad range of data on arts learning across five disciplines quickly outweighs this limitation. Hence, this response format best serves the purpose of describing an overview of the status of arts education in preschools including the availability, frequency, approach, and type of instruction as reported by preschool teachers.

Three items on the survey do not use a dichotomous scale; rather, they ask respondents to choose a Likert-type response from a list of options. One item on the survey asks respondents, "Who instructed your students in the arts?" and provides the choice of five responses "me, certified arts teacher, teaching artist, co-taught with arts teacher or teaching artist, or no instruction" for each of the arts disciplines. Another Likert-type item on the survey, "How often were the arts included in the curriculum?" asks participants to respond on a 7-point Likert scale measuring frequency of instruction for each of the arts disciplines. The final Likert-type item, "Which best describes your arts instruction during 2020-21?" asks participants to choose one of five options describing the types of arts integration used in their instruction. Arts integration is not universally defined or implemented. Arts integration is an approach to teaching that involves the merging of arts disciplines with non-arts disciplines for various reasons. Response language for the third Likert-type item is tailored to the early childhood setting and based on the categories of arts integration defined by The Kennedy Center (Silverstein & Layne, 2020). Silverstein and Layne (2020) describe three variations to approaching arts integration including art as curriculum, arts-enhanced curriculum, and arts-integrated curriculum. Art as curriculum is the teaching of the arts as distinct disciplines. The survey response option "I taught the arts as its own subject" intends to

reflect this category. Arts-enhanced curriculum is when the arts are used as a tool for learning in another discipline, but arts objectives are not explicit. This category is reflected in the survey option, “I used the arts to enhance or explore activities, routines and/or transitions.” An arts-integrated curriculum includes dual learning objectives in both arts and non-arts disciplines. This approach is reflected in the survey response option, “I fully integrated the arts with learning in other subjects including both arts and non-arts objectives.” Two other response options are included, one for not including arts learning in instruction and another for superficial inclusion of the arts in instruction.

Content Representation

Items were reviewed by four graduate and three undergraduate students studying education. They were asked to read the construct definitions and match items to the constructs. This process ensured alignment between construct characteristics and items. Next, students were asked to make suggestions for additional items for each construct. Survey items were mapped to the NCAS, and four artistic processes emphasized in the standards: creating, preforming/presenting/producing, responding, and connecting. Mapping ensured adequate content coverage existed for each artistic process within each artistic discipline.

Phase 2: Item Validation

Establishing Face Validity

A two-step process to establish face validity was conducted (Collingridge, 2021). First, a group of people familiar with early childhood education reviewed the survey to determine if items reflect the intended purpose. The second review of the survey items was conducted by a psychometrician, an expert on item construction. This person determined if wording of any survey

items contains errors such as leading, confusing, or double-barreled items. Revisions to the instrument were made based on this feedback.

Readability

Readability of the survey instrument, directions, definitions, and the informed consent form were evaluated using readability statistics in Microsoft Word. The Flesch-Kincaid reading level and Flesch reading ease summary were measured. The target Flesch-Kincaid reading level was between 7 and 8, reflecting an eighth grade reading level. The Flesch reading ease summary analyzes how easy a document is to read on a scale of 1 to 100, with 100 being the easiest. A Flesch reading ease summary score of 60 or above was targeted. This score would indicate that the content is easy to read for most of the population (Kincaid et al., 1975).

Establishing Content Validity

To establish content validity of the survey, the items were reviewed by a panel of experts from the fields of early childhood education or early childhood arts education (version 1.0 available in Appendix A). Experts were identified based on their university position as a professor of teacher education or early childhood education. Experts were identified and recruited, with Institutional Review Board (IRB) approval, from their university profile available on public websites. The panel was asked to provide both qualitative and quantitative feedback (McCoach, 2013). Qualitative feedback was elicited for the wording of survey items, conceptual definitions of constructs, survey directions, and content of items.

For quantitative feedback, the panel was given a description of each construct and the survey instrument. They rated each item as either essential, useful but not necessary, or not necessary. A content validity ratio (CVR) for each item was calculated and interpreted using

Lawshe's (1975) method with a minimum critical value of CVR equal to or greater than 0.75 (Taherdoost, 2016). The content validity index for the entire instrument was calculated and interpreted using the necessary value of 0.80 suggested by Davis (1992). Revisions to the instrument were made based on expert feedback.

Version 1.0 of the Instrument

Directions were developed for the entire survey and for responding to each section of items on the instrument. Definitions were given at the beginning of the survey for terms used within the instrument. Directions and definitions were evaluated using readability statistics. The informed consent form was placed in the beginning of the survey and demographic items were collected last. Consent was collected prior to collecting data. Version 1.0 of the instrument was built and administered in the Qualtrics platform.

Pre-Pilot Test of the Instrument

The instrument was pre-piloted with inservice early childhood education teachers who represent the target population. Participants were recruited, with IRB approval, from Indiana early childhood education centers. They completed the online survey based on their 2020-2021 teaching experience. After completing the survey, individuals were recruited for interviews to discuss the instrument. Interviewees provided feedback on content, usability, readability of survey items, and directions. Revisions were made based on pre-pilot feedback.

Phase 3: Implementing the Measure

Design

This pilot study employed a quantitative, descriptive cross sectional survey design to better understand preschool teachers' arts education practices during the 2020-21 school year. Results of the response variables describe the current arts education personnel, arts education curriculum, approach to arts education and instructional practices used by Indiana preschool teachers serving students with and without disabilities.

Instrument

A 94-item instrument was administered online through Qualtrics to a representative sample of early childhood teachers in Indiana. The survey measures the availability, frequency, approach, and type of arts instruction within preschools. Six demographic items collected data on the job title of the respondent, location of the school (state), age(s) of students served, program description, years of experience teaching preschool, and education level of respondents. Survey items focused on the arts education personnel, arts education curriculum, approach to arts education and instructional practices.

Participants

Participants for this survey were early childhood teachers serving children with and without disabilities ages 3-to-5 across various preschool settings in Indiana. Teachers self-identified as either an early childhood teacher or an early childhood special education teacher.

Context

The parents of young children across all 50 states, U.S. territories, and BIE may choose to enroll in a variety of care and education settings at varying ages. Some states, such as Florida, Vermont, and Oklahoma, have publicly funded universal preschool while other states, such as Idaho, Montana, and New Hampshire, have no publicly funded preschool (Friedman-Krauss et al., 2018).

The National Institute for Early Education Research (NIEER) describes Indiana as a "Preschool Desert." Indiana has partially state-funded public preschool but in 2016-2016 just 2% of children in Indiana attended state-funded preschool through the On My Way Pre-K (OMWPK) program for 4-year-olds from low-income families (NIEER, 2017). Federally funded Head Start programs, also serving low-income families, in Indiana serve about 11,000 children ages 3 and 4, which is 6% of 3-year-olds and 7% of 4-year-olds in the state (NIEER, 2020). According to NIEER (2020), the majority (87-89%) of preschoolers in Indiana were either enrolled in private preschool or no preschool.

The Individuals with Disabilities Education Act (IDEA) provides protections for children with disabilities from birth to age 22. All states are required to provide special education to children ages three to five under Part B: Section 619 of IDEA (IDEA, 2004). The Office of Special Education (OSE) coordinates efforts across various preschool settings in each state to ensure students with disabilities are provided a Free and Appropriate Public Education (FAPE).

Educational settings include both developmental preschools as well as community-based preschools. Developmental preschools for early childhood special education serve students with disabilities in both inclusive settings with their nondisabled peers and in self-contained settings where all students have disabilities. Community-based preschools or childcare are often inclusive classrooms where special education services may be delivered by a local special education

cooperative, either through co-teaching, in-home services, on-site services, or transportation to another setting for services. In Indiana in 2020, 5% of 3-year-olds and 6% of 4-year-olds were enrolled in special education and not also enrolled in state-funded or Head Start preschool (NIEER, 2020).

Data Collection Procedures

Both special education and general education early childhood teachers were recruited from preschools identified on the Indiana Department of Education (IDOE) website including On My Way Pre-K (OMWPK), Head Start, and special education early intervention preschools serving 3-to-5-year-old children. Administrators were emailed a summary of the project and a link to the preschool teacher survey. Administrators were asked to distribute the survey to preschool teaching staff via email.

Teachers submitted informed consent prior to completing the survey. The survey was administered completely online using the Qualtrics platform. The first 75 participants who complete the survey were sent a $10 Starbucks e-gift card as a response incentive. A separate survey collected identifiable information (email addresses) for delivery of e-gift cards. The survey remained open for 30 days after the initial invitation. Administrators were sent two follow up emails to encourage participation.

Phase 4: Evaluating the Measure

Establishing Construct Validity

All data were analyzed using Statistical Package for the Social Sciences (SPSS) software version 26. To establish construct validity, factor analyses procedures were used. Factor analysis (FA) is a group of techniques used to identify patterns and reveal latent variables. FA is used for

theory development, psychometric instrument development, and data reduction. There are two predominant types of FA: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The purpose of EFA is to explore which relationships between and among variables and factors are the strongest. In contrast, CFA is utilized to examine a hypothesized structure based on the EFA that will be tested for goodness of fit (Fabrigar & Wegener, 2012; Finch, 2020), a goodness of fit test describes how well a data set fits a model. Prior to conducting factor analyses, a correlation matrix was constructed to establish a relationship among the variables as suggested by the Columbia Mailman School of Public Health (2019). A Pearson correlation matrix is not appropriate for categorical or dichotomous items; therefore, to conduct an EFA on dichotomous data, a tetrachoric (for dichotomous items) matrix was created (Columbia Mailman School of Public Health, 2019).

For this study, EFA (n = 78) and CFA (n = 79) were carried out on two separate randomly selected samples from the overall return. An initial EFA was conducted to establish support for construct validity. This process resulted in a reduction of variables by identifying variables that did not have a strong relationship with constructs. EFA helped to determine which items belong together or intercorrelate. The EFA process provided evidence for construct validity by determining to what extent variables seem to be measuring the same constructs. Then CFA was conducted to test the construct validity of the instrument.

To conduct EFA, data first were examined for normality. Then a rotation method (see the section on Rotation Strategy in Chapter 4) was performed to identify factor loading (Schmitt & Sass, 2011). The factor loading is the correlation between the item and the factor; a factor loading of more than 0.30 usually indicates a moderate correlation between the item and the factor

(Tavakol & Wetzel, 2020). The correlation matrix was also be examined for items exhibiting extreme multicollinearity (i.e., $r > 0.90$).

Inclusion of factors was based on the criterion of Eigenvalues (EV; i.e., the amount of variance that is accounted for by a given factor) greater than 1 (Kaiser, 1960) and visual examination of Scree plots. Once the factors were established items were deleted based on these criteria, and EFA was re-run to reverify the factor loadings. Re-running the factor analysis with the selected variables clarified problematic items (factors that are low loading, cross loading, or freestanding), thus yielding a cleansed factor structure with the best fit to the data (Costello & Osborne, 2005).

Establishing Internal Consistency Reliability

Internal consistency reliability was calculated for the entire survey using Cronbach's alpha to determine if responses were consistent. Cronbach's alpha (CA) was interpreted according to George and Mallery's (2003) tiered approach; an alpha equal to or greater than .9 is considered excellent internal consistency, ≥ .8 is considered good, ≥ .7 is acceptable, ≥ .6 is questionable, ≥ .5 is poor and, ≤ .5 is unacceptable. Hair et al. (2010) suggested lower limits of acceptability for exploratory research. Items were deleted if doing so dramatically improved CA. The instrument was revised based on the initial pilot data analysis.

Confirmatory Factor Analysis

The next recommended step after EFA is to employ CFA (Worthington & Whitaker, 2006). Per Worthington et al. (2006), the steps in this process include the researcher indicating (a) how many factors are present in the instrument, (b) which items are related to each factor, and (c) whether the factors are correlated or uncorrelated (issues that are revealed during the process of

EFA). For this data set, based on the guidelines set forth by Worthington et al. (2006), CFA was conducted using structural equation modeling (SEM) to find a good fit of the model to the data to help support the factor structure reliability and the validity of the scale.

Phase 5: Descriptive Analysis

Summary of Demographic Variables

Descriptive statistics were reported for participant demographics of the pre-pilot and pilot in the results section. Demographic data were collected on job title, school location, program location (elementary school or early childhood center), number of students with disabilities served, years of experience, level of education, and mode of instruction. Demographic variables in this study may provide in-depth comparative analysis of varied perspectives of survey responses, as well as generalization of findings and possible replication of the results (Hughes et al., 2016).

Summary of Response Variables

Descriptive statistics were reported in the results section for all response variables retained after EFA to describe the current arts education instructional practices of preschool teachers with attention to those serving students with disabilities in various preschool settings. These results extend the research on the status of arts education into the early childhood setting. This description of arts education in preschools may lead to hypotheses or provide guidance for research and practice efforts to improve policy, curriculum, availability, and child outcomes related to arts education.

CHAPTER 4. RESULTS

In this section, results are presented in the following order (1) item validation outcomes, (2) factor analytic results of teacher responses, (3) reliability of the scale, (4) confirmatory factor analysis, and (5) descriptive statistics.

1) Item Validation Outcomes

Establishing Face Validity

A two-step process to establish face validity was conducted (Collingridge, 2015). First, a panel of eight early childhood education experts was recruited to evaluate the survey. Qualitative data were collected to establish face validity. Experts responded to prompts to determine if items captured the topic and reflected the intended purpose. All eight experts agreed that the content of the survey captured the topic. The collective impact of the participants' responses echoed this quote "The coverage is excellent." Next a psychometrician reviewed the survey items and identified items with errors like double-barreled items, confusing wording, and leading items. Minor revisions to the wording of items were made based on this feedback.

Readability

Readability of the survey instrument, directions, definitions, and the informed consent form were evaluated throughout the development and validation process using readability statistics in Microsoft Word and gunning-fox-index.com. The follow reading levels were calculated for the final version of the instrument: Flesch-Kincaid reading level 10.6, Flesch reading ease summary 34.2, and Gunning Fox index 10.71. These results indicate a high school sophomore readability level, which is an acceptable level for the targeted population (Spadaro et al., 1980).

Establishing Content Validity

To establish content validity of the survey, a panel of eight early childhood education experts were assembled to provide both qualitative and quantitative feedback. The panel provided qualitative feedback on the wording of survey items, conceptual definitions of constructs, survey directions, and content of items. Based on expert feedback, a definition for "preschool" was added to the instrument and directions for who should complete the survey. Experts suggested eliminating, rewording, and adding items to the instrument. Items reworded based on expert feedback are identified in Table 1. For example, question 14, "Did you utilize a Universal Design for Learning (UDL) framework when planning arts activities? (e.g., flexible planning for a variety of learners)" was reworded to include a clear explanation of UDL "During the 2020-21 school year did you utilize a Universal Design for Learning (UDL) framework when planning arts activities? (e.g., providing multiple means of engagement, representation, action and expression to plan for a variety of learners)".

Quantitative data were also collected on each survey item. Content validity ratio for each item was calculated and interpreted using Lawshe's (1975) method. A minimum critical value of CVR equal to or greater than 0.75 was necessary to retain a survey item (Taherdoost, 2016). Thirty-six of the 100-items were eliminated due to a CVR below 0.75. The content validity index for the entire instrument was 0.70. The CVI necessary value suggested by Davis (1992) for a panel size of eight is 0.75. All items with a CVR below 0.75 were removed from the instrument and the CVI was recalculated (0.88) and fell in the acceptable range. Directions, definitions, and items were revised, eliminated, and added based on expert feedback. Changes made during the process of content validation and the reason for those changes are recorded in Table 1.

Table 1 *Changes Made During Content Validity*

Item	Revisions
1. Who instructed your students in the arts?	RW
2. How often were the arts included in the curriculum?	RW
3. Did your school or district have a written, sequential curriculum guide in any of the arts disciplines?	CVR
4. Was your arts curriculum aligned with your state's Early Learning Guidelines?	RW
5. Was your arts curriculum aligned with the National Core Arts Standards?	
6. Did you assess student learning in the arts?	
7. Was your arts instruction expanded or enhanced through collaborations with artists or arts resources in your community (e.g., performances at the school, classroom guests)?	
8. Did you integrate the arts into activities, routines and/or transitions *(e.g., using the song "The Ants Go Marching," to teach both music and math related concepts)*?	RW
9. Did you include an arts center or station in your class?	RW
10. Did you include the arts during whole group instruction *(e.g., circle time, morning meeting)*?	RW
11. Did you incorporate open-ended or process-focused activities where students explore the arts?	O
12. Did you use structured and/or sequenced instruction during arts activities *(e.g., direct instruction, explicit, systematic instruction)*?	O
13. Did you teach students to follow directions to make a predetermined end-product?	CVR
14. Did you utilize a Universal Design for Learning (UDL) framework when planning arts activities? (e.g., flexible planning for a variety of learners)	RW

Table 1 continued

15. Did students take arts related field trips either virtual or in-person? (e.g., museums, galleries, performances)?	CVR
16. Did students in your class use arts materials/instruments that were accessible to all students, including those with disabilities? (e.g., assistive technology or adaptive arts equipment/ tools when needed)	RW
17. Which best describes your arts instruction during 2020-21?	RW
During the 2020-21 school year, did you plan for students to work towards IEP goals/objectives during or using arts activities?	A
Music	
I provided opportunities for students to…	
18. …dance or move to music (e.g., *head, shoulders, knees, and toes*).	
19. ... learn why music is performed.	CVR
20. … play musical instruments *(e.g., maracas, tambourine, xylophone, rhythm sticks).*	
21. … listen and respond to different types of music *(e.g., classical, jazz, hip hop, blues).*	
22. … listen and respond to music from various cultures.	
23. … sing rhymes, songs, or chants.	
24. … respond to changes in music.	CVR
25. … express themselves musically.	
26. … preform or record musical ideas.	CVR
27. … indicate musical preferences.	CVR
28. … describe what they like about music they make.	
29. … sing or make musical sounds together.	
30. … apply my feedback about the musical sounds they make.	CVR
31. …hear me sing and/or play a musical instrument.	RW
32. … experience books that have lyrics or musical patterns (e.g., *Wheels on the Bus*).	CVR
33. …use *iconic or visual representation of musical ideas.*	

Table 1 continued

Drama/Theater I provided opportunities for students to…	
34. … use nonrepresentational props, puppets or costumes during dramatic play or guided drama *(e.g., pretending a paper plate is a hat).*	
35. … use gestures and words expressively during dramatic play or guided drama.	RW
36. … produce character voices or animal sounds during dramatic play or guided drama.	RW
37. … make up original ideas, events or characters during dramatic play or guided drama.	RW
38. … express emotions or identify emotions in dramatic play or guided drama.	RW
39. … indicate preferences in dramatic play, guided drama, or theatre performances.	CVR
40. … engage in child-led or free dramatic play.	
41. … respond to teacher's questions during dramatic play or guided drama.	O
42. … identify and describe characters during dramatic play or guided drama.	
43. … connect their own experiences to similar experiences or characters in stories.	CVR
44. … use gestures and words to expressively tell a short story.	CVR
45. … engage in dramatic play together.	CVR
46. … participate in dramatic play with adults.	CVR
47. … participate in guided drama experiences *(e.g., process drama, story drama, creative drama, narration, guided imagery).*	CVR
48. … learn about using their imagination.	CVR

Table 1 continued

Dance I provided opportunities for students to…	
49. … make-up dances or movements to music.	
50. … express ideas, thoughts, or emotions through movements.	
51. … engage in locomotor (walk, jump, run, hop) and non-locomotor (bend, twist, balance) movements upon request.	
52. … identify different parts of the body using dance, movement, or drawing.	
53. … perform dances.	CVR
54. … identify directions, speed, and force using dance or movement *(e.g., up, down, backwards, turning, fast/slow, heavy/light).*	
55. … start and stop body movements in response to musical, tactile, or visual cues *(e.g., freeze dance).*	
56. … dance with props *(e.g., ribbons, scarfs).*	
57. … indicate preferences in dance.	CVR
58. … share dance movements learned from their personal experience or their culture.	
59. … view dance performances and ask questions.	CVR
60. … talk about how dancing or viewing dance makes them feel.	
61. … dance with adults.	CVR
62. … dance with each other.	
63. … imitate teacher dance movements.	CVR
64. … imitate dance movements observed in performances.	CVR
65. … hear how dancing or viewing dance makes me feel.	CVR
66. … learn through improvisational dance experiences.	CVR
67. … learn dance and movement related vocabulary *(e.g., spinning, twirling, jumping, swaying).*	

Table 1 continued

Visual Arts I provided opportunities for students to…	
68. … explore color and mark-making (lines, shapes, textures, symbols) to communicate meaning.	
69. … explore, experience, and play with art materials.	
70. … make art for self-expression.	
71. … identify colors, shapes and lines found in the school.	CVR
72. … identify colors, shapes, lines, and subject matter in works of art.	
73. … use a variety of art materials (paint, clay, glue) to make art.	
74. … make drawings or paintings of familiar places or objects.	
75. … express their preferences in artwork.	
76. … use messy art materials in my class.	
77. … share stories about the art they make in my classroom.	CVR
78. … learn the difference between images and objects.	CVR
79. … make art together.	CVR
80. … share art materials with each other.	CVR
81. … appreciate and describe famous works of art.	CVR
82. … talk about what they see, think, and feel in response to artwork.	
83. … learn about art from different time periods.	CVR
84. … learn about art from various cultures.	
85. … learn art related vocabulary (e.g., lines, shapes, colors, textures).	
86. … to display their student artwork.	
87. … to learn about the purpose of art museums and galleries.	CVR
Media Arts **I provided opportunities for students to…**	
88. … to explore, experience, and play with digital tools for artmaking (e.g., camera, video camera, audio recording equipment, imaging software)	
89. … plan media arts projects.	

Table 1 continued

90. … present their media artworks to an audience.	CVR
91. … combine art forms (e.g., puppets and video).	
92. …make media artworks together.	CVR
93. … engage in media artworks creation with adults.	CVR
94. … talk about what they see, think, and feel in response to a media artwork.	
Demographics	
95. Which best describes your job title/position?	RW
96. Which best describes where your school is located?	RW
Which best describes the location of your preschool?	A
97. What age(s) of children do you currently teach? Check all that apply.	O
How many students identified with disabilities did you teach/serve during 2020-21 school year?	A
98. Which best describes your preschool program?	O
99. Including this school year, how many years have you been employed as a preschool teacher in private and public schools?	RW
100. Please indicate your highest level of education.	
Which best describes how you provided instruction during the 2020-21 school year? Check all that apply.	A

*Note. CVR = item eliminated due to low CVR, O = item eliminated based on expert feedback, RW = item or response choice reworded based on feedback, A = item added based on feedback, I*tems *s 1-17 individuals responded for each of the 5 arts areas for each question.*

Pre-Pilot Test of the Instrument

Seven inservice early childhood general education teachers pre-pilot tested the instrument in Qualtrics in June and July of 2021 (see Table 2 for demographic data of these teachers). Four teachers were interviewed over Zoom as a follow-up to gather feedback on the instrument content, design, and user experience of completing the survey. These teachers are a subset of the target population for the instrument and provided practical feedback. IRB approval was obtained prior to recruitment from two early childhood education centers. Participants were compensated for their time with Starbucks gift cards.

Pre-Pilot Results

Teachers took 4 to 118 minutes (average 34 minutes) to complete the survey. During interviews, teachers revealed completing parts of the survey at different times during the school day rather than in one sitting. Teachers said there were a lot of items to answer but that they estimated spending 10 to 20 minutes to complete the survey. Since the survey was left open, the average time to complete the survey is likely less than the time calculated.

Teachers described the experience of taking the survey as “a good reflection on practice” and “a good survey, nice to have time to reflect on what we are doing.” Teachers reported that the survey items were easy to read and respond to and that they understood all the directions. When asked about the organization of the survey, teachers indicated that they liked that the survey was broken into the different arts areas, allowing them to focus on a single discipline when responding to items and thinking about the activities within their class. Teachers identified a few items that felt repetitive. Question order and formatting were revised based on organizational feedback from teachers.

Teachers agreed that the definitions at the beginning of the survey were necessary and helpful. Teachers suggested that the definitions for the arts disciplines be repeated before each section of items and that examples be added for unfamiliar terms. These revisions were made in response. The teachers all indicated that they were not very familiar with media arts. One teacher said she had to "Google it," before answering those items.

Teachers reported being comfortable with answering the demographic items but suggested revising the wording of the item about the number of students with disabilities. They suggested that the item clearly state, "students identified with disabilities" since students at the early childhood level are often yet to be identified.

All seven participants were able to complete the online survey. Visual analysis of pre-pilot response data did not reveal any patterns of concern. Table 2 displays number and percent of the pre-pilot participant demographics. When asked about their level of arts integration, 71% of teachers indicated that they fully integrated the arts with learning in other subjects including both arts and non-arts objectives (see Table 3). Most teachers in the pre-pilot indicated that they co-taught or shared the responsibility for arts instruction with another teacher or related service provider(s) (Dance 71%, Drama 71%, Media Arts 57%, Music 71%, Visual Arts 71%)(see Table 4). Most teachers (Dance 71%, Drama 57%, Media Arts 43%, Music 100%, Visual Arts 71%) indicated that they included the arts daily during the 2020-21 school year (see Table 5). Media Arts was least likely to be included in instruction with 29% of respondents indicating they never include it. The pre-pilot of the survey contributed to minor clarification of terms and refinement of the organization of the survey.

Table 2 *Demographic Variables Pre-Pilot (n = 7)*

Variable	*n*	%
Job Title		
Early childhood general education teacher	7	(100%)
Early childhood special education teacher	-	-
Location of Preschool		
Elementary school		
Early childhood center	7	100%
Number of Students with Disabilities Taught		
No students with disabilities	4	57%
1-2 students with disabilities	2	29%
3-5 students with disabilities	1	14%
6 or more students with disabilities	-	
Years of Experience		
1-5 years	2	29%
6-10 years	4	57%
11-15 years	-	
16-20 years	1	14%
20+ years	-	
Highest Level of Education		
High school diploma or equivalent	-	
Child Development Associate Credential (CDA)	2	29%
Associate degree	1	14%
Bachelor's degree	1	14%
Master's degree	3	43%
Doctorate degree	-	
Mode of 2020-2021 Instruction		
In-person	5	71%
Online	-	
Hybrid	2	29%

Note. *n* = number of participants

Table 3 *Pre-Pilot Instructional Grouping Variable- Arts Integration*

Which best describes how you included the arts in your teaching during the 2020-21 school year?	*n*	%
I used the arts to celebrate or decorate. I consider my activities more craft than art.	-	
I used the arts to enhance or explore activities, routines and/or transitions.	2	29%
I fully integrated the arts with learning in other subjects including both arts and non-arts objectives.	5	71%
I taught the arts as their own subjects.	-	
I did not include arts learning.	-	

Note. n = number of participants

Table 4 *Pre-Pilot Instructional Grouping Variable- Arts Instructors*

During the 2020-21 school year, who instructed your students in the arts?	*Dance* *n (%)*	Drama *n (%)*	Media Arts *n (%)*	Music *n (%)*	Visual Arts *n (%)*
I was solely responsible for instruction.	2 (29%)	2 (29%)	2 (29%)	2 (29%)	2 (29%)
A certified arts teacher was solely responsible.					
A teaching artist was solely responsible.					
I co-taught or shared the responsibility for instruction with an arts teacher or teaching artist.					
I co-taught or shared the responsibly for instruction with another teacher or related service provider(s).	5 (71%)	5 (71%)	4 (57%)	5 (71%)	5 (71%)
My students received no arts instruction.			1 (14%)		

Note. n = number of participants

Table 5 *Pre-Pilot Instructional Grouping Variable- Frequency*

During the 2020-21 school year, how often did you include the arts?	*Dance*	Drama	Media Arts	Music	Visual Arts
	n (%)	*n (%)*	*n (%)*	*n (%)*	*n (%)*
Daily	5 (71%)	4 (57%)	3 (43%)	7 (100%)	5 (71%)
2 to 3 times a week	2 (29%)	2 (29%)			2 (29%)
Once a week			1 (14%)		
2 to 3 times a month		1 (14%)	1 (14%)		
Once a month					
Once a semester					
Once a year					
Never			2 (29%)		

Note. n = number of participants

2) Factor Analytic Results of Pilot Teacher Responses

Pilot Teacher Responses

One hundred fifty-seven inservice early childhood general education and special education teachers in Indiana completed the pilot instrument in Qualtrics in October and November of 2021. Seventy-nine other teachers started the survey but did not complete the entire survey. Only data from completed surveys were used in the analysis.

Data Cleaning Procedures Prior to EFA and CFA

I examined the data for missing values and no missing data points were identified. Grouping variables were re-coded to reflect near-even groups for comparison. For example, an item asked teachers about the number of students they taught who were identified with disabilities. The item presented eight response options (0,1,2,3,4,5,6 to 10, more than 10). Responses were

recoded into 4 groups (0, 1-2, 3-5, 6 or more). Open-ended responses were grouped to allow for adequate group representation. For example, the question asking the number of years employed as a preschool teacher allowed an open text response. Those responses were grouped into five groups to encompass the range of years. Two independent coders verified all re-coding prior to analysis.

Prior to performing EFA and CFA, items that resulted in zero variance were excluded. Six items were excluded due to zero variance, including two items from the music area (9.1 *Provided opportunities for students to dance or move to music*, 9.2 *Provided opportunities for students to play musical instruments*) and four items from the visual arts area (10.1 *Provided opportunities for students to explore color and mark-making communicate meaning*, 10.2 *Provided opportunities for students to explore, experience and play with art materials*, 10.5 *Provided opportunities for students to use a variety of art materials to make art*, 10.12 *Provided opportunities for students to display their artwork*).

Establishing Construct Validity – Exploratory Factor Analysis

Using randomization, the total data were divided into two samples, each used for Exploratory (EFA, n = 78) and Confirmatory Factor Analysis (CFA, n = 79). Survey items were categorized into demographics (22 items), and five art areas: Dance (21 items), Drama (16 items), Media Arts (14 items), Music (20 items), and Visual Arts (22 items). Since this was the first administration of this rating scale, EFA was carried out for each of the five arts areas items separately to allow for adequate representation of items from each area within the final model.

The suitability of EFA was assessed prior to analysis. EFA selection was supported by the initial results of the Kaiser-Meyer-Olkin (KMO) measure of sample fit which resulted in a satisfactory value to conduct this type of data analysis for each of the arts areas. According to the KMO test interpretation guidelines chronicled by Kaiser (1974) and Child (2006), values greater

than 0.5 are acceptable. All KMO measures were greater than 0.6. indicating classifications of 'mediocre' to 'meritorious' according to Kaiser (1974).

Bartlett's sphericity test was statistically significant ($p < .001$) across all five arts areas indicating that the data were likely factorizable and justifying application of EFA. See Table 6 for display of KMO and Bartlett's sphericity values.

Table 6 *Measures of Sampling Adequacy*

Art Areas (Number of Items)	Kaiser-Meyer-Olkin Measure of Sample Fit	Bartlett's Test of Sphericity	
		$\chi 2$ (df)	*p*
Dance (21)	0.678	827.44 (210)	< 0.001
Drama (18)	0.730	801.85 (120)	< 0.001
Media Arts (16)	0.881	892.45 (91)	< 0.001
Music (22)	0.663	595.27 (153)	< 0.001
Visual Arts (24)	0.743	806.37 (153)	< 0.001

Rotation Strategy

The extraction method utilized was Common Factor Analysis, specifically, Principal Axis Factoring (PAF) with a varimax rotation. A PAF extraction methods were chosen because they allow for understanding the latent structure of interrelated variables (Gorsuch, 1990; Reio & Shuck, 2015). The PAF was preferable over other as data reduction procedures such as Principal Component Analysis (PCA) because the constructs being measured cannot be directly measured (Williams et al., 2010). A Varimax orthogonal rotation was employed to assist in clarifying the relationship among the factors (Watkins, 2018).

Item Retention and Deletion Criteria

Factors were first identified by Eigenvalues greater than 1. As presented in Table 7, initial PAF Eigenvalues suggest a six-factor model for dance (68.680% of total variance explained), a four-factor model for drama (71.725% of total variance explained), a three-factor model for media arts (75.200% of total variance explained), a five-factor model for music (65.896% of total variance explained), and a five-factor model for visual arts (71.178% of total variance explained).

Next, Scree plots were examined to visually determine the number of factors for each of the arts areas. Factors were determined by the elbow break or inflection point in the slope of the Scree plot (Gorsuch, 1990). Visual inspections of the Scree plots results were more conservative and indicated three factors for dance, three factors for drama, two factors for media arts, three factors for music, and three factors for visual arts should be retained (Cattell, 1966). Infection points are indicted on Scree plots on Figure 2 a-e.

Table 7 *Initial Eigenvalues and Total Variance Explained for Each of the Art Areas*

Initial Eigenvalues and Total variance			
Factor	Total	% Of Variance	Cumulative %
	Dance		
1	5.801*	27.625	27.625
2	3.712*	17.676	45.301
3	1.380*	6.570	51.871
4	1.243*	5.921	57.792
5	1.153*	5.492	63.284
6	1.133*	5.396	68.680
7	.996	4.744	73.424
8	.942	4.487	77.911
9	.723	3.442	81.353
10	.614	2.922	84.275
11	.590	2.810	87.085
12	.473	2.253	89.338

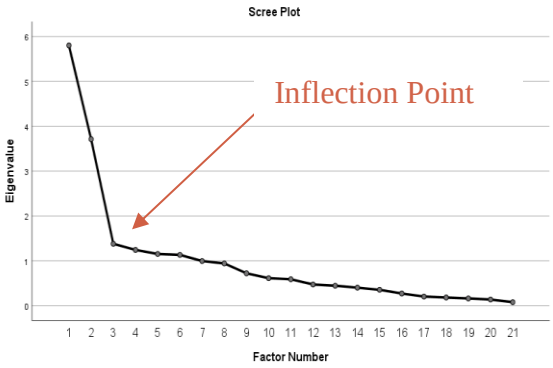
Table 7 continued

13	.445	2.121	91.459
14	.402	1.915	93.374
15	.354	1.687	95.061
16	.271	1.292	96.353
17	.204	.970	97.323
18	.183	.871	98.194
19	.162	.772	98.966
20	.138	.657	99.623
21	.079	.377	100.000
	Drama		
1	6.341*	39.630	39.630
2	2.845*	17.781	57.411
3	1.230*	7.688	65.099
4	1.060*	6.626	71.725
5	.740	4.627	76.351
6	.688	4.302	80.653
7	.557	3.478	84.132
8	.554	3.464	87.595
9	.471	2.944	90.539
10	.409	2.555	93.094
11	.322	2.010	95.104
12	.278	1.739	96.843
13	.188	1.173	98.016
14	.141	.880	98.896
15	.113	.704	99.600
16	.064	.400	100.000
	Media Arts		
1	8.002*	57.156	57.156
2	1.450*	10.354	67.510
3	1.077*	7.690	75.200
4	.720	5.143	80.342
5	.532	3.800	84.142
6	.489	3.495	87.637
7	.390	2.782	90.419
8	.308	2.201	92.621
9	.270	1.930	94.551
10	.254	1.815	96.366
11	.201	1.437	97.803
12	.124	.888	98.691
13	.115	.819	99.510
14	.069	.490	100.000

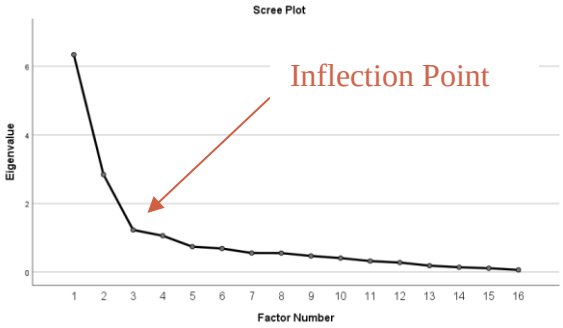
Table 7 continued

	Music		
1	4.871*	27.063	27.063
2	2.536*	14.089	41.152
3	1.743*	9.685	50.837
4	1.476*	8.200	59.037
5	1.235*	6.859	65.896
6	.981	5.451	71.348
7	.827	4.592	75.940
8	.728	4.042	79.982
9	.633	3.517	83.500
10	.573	3.181	86.681
11	.519	2.882	89.563
12	.440	2.443	92.005
13	.387	2.152	94.157
14	.311	1.730	95.887
15	.268	1.491	97.378
16	.198	1.100	98.478
17	.181	1.004	99.482
18	.093	.518	100.000
	Visual Arts		
1	5.936*	32.975	32.975
2	3.030*	16.831	49.806
3	1.561*	8.672	58.478
4	1.233*	6.850	65.328
5	1.053*	5.850	71.178
6	.901	5.007	76.185
7	.786	4.365	80.550
8	.648	3.601	84.152
9	.564	3.132	87.283
10	.484	2.691	89.974
11	.422	2.343	92.318
12	.390	2.169	94.487
13	.235	1.303	95.790
14	.218	1.211	97.001
15	.198	1.098	98.099
16	.157	.874	98.973
17	.096	.532	99.505
18	.089	.495	100.000

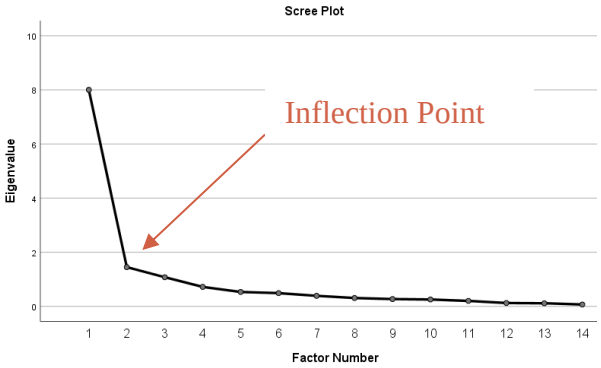
*Note. Extraction Method: PA, * indicates factors with Eigenvalues greater than one*



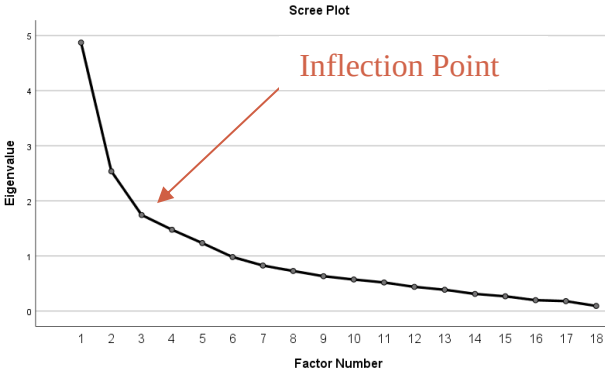
(a) Dance



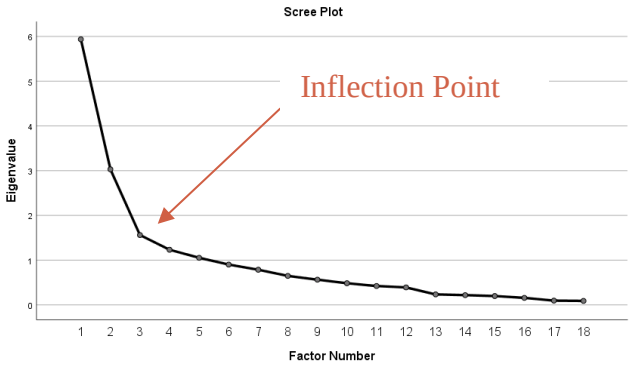
(b) Drama



(c) Media Arts



(d) Music



(e) Visual Arts

Figure 2. *Scree Plots for each of the Art areas (a) Dance (b) Drama (c) Media Arts (d) Music and (e) Visual Arts*

Further interpretation of EFA results was guided by the concept of simple structure (Gorsuch, 1990) and the following criteria for retention and deletion: (1) factors were retained if they have at least three measured variables and eliminated if they had fewer than three variables (Child, 2006; Fabrigar & Wegener, 2012; Izquierdo et al., 2014), (2) items with cross loading Eigenvalues were eliminated if values on two or more factors were greater than or equal to 0.32, (3) retained factors demonstrate internal consistency reliability ≥ .70, and (4) retained factors were meaningful to the purpose of the instrument (Watkins, 2018).

Based on prior recommendations, factor loading coefficients greater than 0.5 were considered stable (Tabachnick & Fidell, 2013; Guadagnoli & Velicer, 1988; Samuels, 2017). Therefore, items with factor loadings below 0.5 were deleted from the measurement model. Next, items with cross loaded factor loading greater than or equal to 0.32 on 2 or more factors were deleted from the measurement model. The factors with fewer than three variables we eliminated from the model. Deleted items with complex loadings were reconsidered and retained if they were theoretically meaningful to the purpose of identifying a latent construct. Tables 8-12 display the changes and rationale for the changes made during EFA for each of the arts subscales. EFA was re-run after items were deleted from the solution (Cabrera-Nguyen, 2010). Table 13 displays the item reduction process throughout the instrument development and evaluation process.

Table 8 *Dance: Initial Factor Loadings and Rationale for Retention/Deletion*

	Factor						
	1	2	3	4	5	6	Deletion/ Retention Code
1.3.1 Curriculum aligned with early childhood standards	-.091	.614*	.275	-.031	.279	.153	R
1.3.2 Curriculum aligned with the National Core Arts Standards	.017	.474*	.451	-.076	.040	.092	RM
1.3.3 Instruction included collaborations with artists or arts resources in your community	.065	.426*	.143	.001	-.155	.205	RM
1.3.4 Utilized a UDL framework when planning arts activities	.126	.784*	.042	.189	.058	.085	R
1.3.5 Arts materials/instruments that were accessible to all students	-.029	.690*	-.060	.056	.195	-.276	R
5.1.1 Assessment of student learning	.110	.397	.513*	.168	.102	.057	CL
5.1.2 Regularly integrated arts into activities, routines and/or transition	-.083	.518*	.408	.429	-.062	-.280	CL
5.1.3 Regularly made use of an arts center or station in your routine	-.101	.569*	.334	.208	.135	.194	CL
5.1.4 Regularly include the arts during whole group instruction	-.096	.540	.067	.765*	.026	.076	CL
5.1.5 Planned for students to work towards IEP goals/objectives during or using arts activities	.136	.465*	.421	.085	.135	-.012	FL
6.1 Opportunities for students to make-up dances or movements to music.	-.047	.277	.162	.058	.872*	.003	F
6.2 Opportunities for students to express ideas, thoughts, or emotions through movements.	.562*	-.022	-.041	.228	.336	.266	CL

Table 8 continued

6.3 Opportunities for students to engage in locomotor and non-locomotor movements upon request.	.700*	-.046	.260	.016	-.034	-.148	R
6.4 Opportunities for students to identify different parts of their body using dance, movement, or drawing.	.983*	.013	-.023	.039	.027	-.018	R
6.5 Opportunities for students to identify directions, speed and force using dance or movement	.700*	.021	.025	-.041	-.070	.211	R
6.6 Opportunities for students to start and stop body movements in response to musical, tactile, or visual cues (e.g., freeze dance).	.487	-.018	.216	.559*	.197	.256	CL
6.7 Opportunities for students to dance with props (e.g., ribbons, scarfs).	.491*	.080	.153	-.178	-.036	.193	R
6.8 Opportunities for students to share dance movements learned from their personal experience or culture.	.323	.099	.679*	.074	.016	.063	CL
6.9 Opportunities for students to talk about how dancing or viewing dance makes them feel.	.232	.160	.503*	.022	.129	.339	CL
6.10 Opportunities for students to dance with each other.	.334	.136	.183	.126	.023	.673*	CL
6.11 Opportunities for students to learn dance and movement related vocabulary	.505*	.021	.297	.115	-.054	.113	R

*Note. UDL = Universal Design for Learning, FL = factor loading coefficient less than 0.5, CL = cross loading, F = factor less than 3 items, RM= item retained for meaningfulness, R = item retained based on factor loading, * indicates primary factor loading*

Table 9 *Drama: Initial Factor Loadings and Rationale for Retention/Deletion*

	Factor				
	1	2	3	4	Deletion/ Retention Code
1.2.1 Curriculum aligned with early childhood standards	.594*	-.074	.518	.228	RM
1.2.2 Curriculum aligned with the National Core Arts Standards	.537*	.135	.279	.091	R
1.2.3 Instruction included collaborations with artists or arts resources in your community	.391	.127	.487*	-.007	RM
1.2.4 Utilized a UDL framework when planning arts activities	.483	.096	.637*	-.036	RM
1.2.5 Arts materials/instruments that were accessible to all students	.287	.011	.858*	.073	RM
5.2.1 Assessment of student learning	.662*	-.080	.153	.112	R
5.2.2 Regularly integrated arts into activities, routines and/or transition	.715*	.172	.264	.102	R
5.2.3 Regularly made use of an arts center or station in your routine	.729*	-.025	.318	.220	R
5.2.4 Regularly include the arts during whole group instruction	.787*	.203	.182	.142	R
5.2.5 Planned for students to work towards IEP goals/objectives during or using arts activities	.789*	.137	.157	.003	R
7.1 Opportunities for students to use nonrepresentational props, puppets, or costumes	-.005	.664*	.160	.133	R
7.2 Opportunities for students to use gestures and words expressively.	.171	.244	.029	.942*	F
7.3 Opportunities for students to produce character voices or animal sounds.	.231	.656*	-.096	.134	R

Table 9 continued

7.4 Opportunities for students to make up original ideas, events, or character.	.330	.394*	.124	.391	FL
7.5 Opportunities for students to express emotions or identify emotions.	-.029	.953*	.036	.297	R
7.6 Opportunities for students to engage in child-led or free dramatic play.	.113	.336	.035	.807*	F

*Note. UDL = Universal Design for Learning, FL = factor loading coefficient less than 0.5, CL = cross loading, F = factor less than 3 items, RM= item retained for meaningfulness, R = item retained based on factor loading, * indicates primary factor loading*

Table 10 *Media Arts: Initial Factor Loadings and Rationale for Retention/Deletion*

	Factor			
	1	2	3	Deletion/ Retention Code
1.5.1 Curriculum aligned with early childhood standards	.339	.615*	.259	RM
1.5.2 Curriculum aligned with the National Core Arts Standards	.278	.595*	.401	RM
1.5.3 Instruction included collaborations with artists or arts resources in your community	.300	.625*	.397	RM
1.5.4 Utilized a UDL framework when planning arts activities	.222	.768*	.254	R
1.5.5 Arts materials/instruments that were accessible to all students	.190	.880*	.067	R
5.3.1 Assessment of student learning	.611*	.275	.302	R
5.3.2 Regularly integrated arts into activities, routines and/or transition	.830*	.319	.309	R
5.3.3 Regularly made use of an arts center or station in your routine	.695*	.380	.253	CL
5.3.4 Regularly include the arts during whole group instruction	.914*	.216	.206	R
5.3.5 Planned for students to work towards IEP goals/objectives during or using arts activities	.765*	.251	.438	CL
				(table continues)
8.1 Opportunities for students to explore, experience and play with digital tools for artmaking	.238	.285	.702*	F
8.2 Opportunities for students to plan media arts projects.	.234	.208	.748*	F
8.3 Opportunities for students to combine art forms	.397	.244	.585*	CL
8.4 Opportunities for students to talk about what they see, think, and feel in response to a media artwork.	.508	.181	.585*	CL

*Note. UDL = Universal Design for Learning, FL = factor loading coefficient less than 0.5, CL = cross loading, F = factor less than 3 items, RM= item retained for meaningfulness, R = item retained based on factor loading, * indicates primary factor loading*

Table 11 *Music: Initial Factor Loadings and Rationale for Retention/Deletion*

	Factor					
	1	2	3	4	5	Deletion/ Retention Code
1.1.1 Curriculum aligned with early childhood standards	.370*	.087	.309	.120	-.121	FL
1.1.2 Curriculum aligned with the National Core Arts Standards	.012	.372	.403*	.130	-.018	RM
1.1.3 Instruction included collaborations with artists or arts resources in your community	.055	.088	.566*	.034	.046	R
1.1.4 Utilized a UDL framework when planning arts activities	.388	.163	.672*	.207	.051	RM
1.1.5 Arts materials/instruments that were accessible to all students	.224	-.152	.734*	.037	-.023	RM
5.4.1 Assessment of student learning	.204	.394*	.146	.149	.102	FL
5.4.2 Regularly integrated arts into activities, routines and/or transition	.579*	.197	.206	-.129	-.055	R
5.4.3 Regularly made use of an arts center or station in your routine	.731*	-.007	.107	.047	.269	R
5.4.4 Regularly include the arts during whole group instruction	.980*	-.053	.055	.158	-.073	R
5.4.5 Planned for students to work towards IEP goals/objectives during or using arts activities	.442*	.426	.228	.228	.110	FL
9.3 Provided opportunities for students to listen and respond to different types of music	.008	.753*	-.054	-.001	-.111	F
9.4 Provided opportunities for students to listen and respond to music from various cultures.	.075	.685*	.049	.242	.144	F
9.5 Provided opportunities for students to sing rhymes, songs, or chants.	-.120	-.013	.367	.537*	-.094	CL
9.6 Provided opportunities for students to express themselves musically.	.350	.100	.027	.652*	.339	CL

Table 11 continued

9.7 Provided opportunities for students to describe what they like about the music they make.	.135	.403	.075	.696*	.089	CL
9.8 Provided opportunities for students to sing or make musical sounds together	.029	.087	-.007	.171	.916*	F
9.9 Provided opportunities for students to hear me sing and/or play a musical instrument in class.	-.003	.579*	.017	-.069	.483	CL
9.10 Provided opportunities for students to use iconic or visual representation of musical ideas.	.002	.513*	.075	.492	.064	CL

*Note. UDL = Universal Design for Learning, FL = factor loading coefficient less than 0.5, CL = cross loading, F = factor less than 3 items, RM= item retained for meaningfulness, R = item retained based on factor loading, * indicates primary factor loading*

Table 12 *Visual Arts: Initial Factor Loadings and Rationale for Retention/Deletion*

	Factor					
	1	2	3	4	5	Deletion/ Retention Code
1.4.1 Curriculum aligned with early childhood standards	.622*	.112	.115	-.127	.069	R
1.4.2 Curriculum aligned with the National Core Arts Standards	.570*	.157	.256	.111	-.107	R
1.4.3 Instruction included collaborations with artists or arts resources in your community	.551*	-.113	.144	.050	-.035	R
1.4.4 Utilized a UDL framework when planning arts activities	.783*	.035	.294	.114	-.018	R
1.4.5 Arts materials/instruments that were accessible to all students	.812*	.090	.008	-.131	.061	R
5.5.1 Assessment of student learning	.297	.271	.418*	-.040	-.023	FL
5.5.2 Regularly integrated arts into activities, routines and/or transition	.367	.307	.513*	.257	.203	CL
5.5.3 Regularly made use of an arts center or station in your routine	.462*	.100	.341	.133	.379	FL
5.5.4 Regularly include the arts during whole group instruction	.290	.064	.865*	.056	.223	F
5.5.5 Planned for students to work towards IEP goals/objectives during or using arts activities	.320	.259	.720*	.160	.153	CL
10.3 Provided opportunities for students to make art for self-expression.	.012	.276	.042	.561*	.191	R
10.4 Provided opportunities for students to identify colors, shapes, lines, and subject matter in works of art.	-.043	.164	.112	.767*	.441	R
10.6 Provided opportunities for students to make art that represents familiar places or objects.	-.015	.172	.105	.766*	-.123	R

Table 12 continued

10.7 Provided opportunities for students to express their preferences in artwork.	.075	.568	.040	.247	.752*	CL
10.8 Provided opportunities for students to use messy art materials in my class.	-.071	-.176	.262	.074	.489*	F
10.9 Provided opportunities for students to talk about what they see, think, and feel in response to artwork.	.109	.818*	.263	.261	.011	F
10.10 Provided opportunities for students to learn about art from various cultures.	.005	.693*	.216	.129	-.070	F
10.11 Provided opportunities for students to learn art related vocabulary	.138	.748*	-.029	.469	.208	CL

*Note. UDL = Universal Design for Learning, FL = factor loading coefficient less than 0.5, CL = cross loading, F = factor less than 3 items, RM= item retained for meaningfulness, R = item retained based on factor loading, * indicates primary factor loading*

Table 13 *Description of Item Reduction*

Arts Area Subtest	Number of Items Aligned to NCAS	Number of Items After Expert Panel	Number of Items in Pre-Pilot and Pilot	Zero variance items excluded	Number of Items After EFA
Dance	36	24	21	21	10
Drama	32	19	16	16	13
Media Arts	24	17	14	14	8
Music	33	23	20	18	7
Visual Arts	37	25	22	18	8
Total Arts Items	162	108	93	87	46
Demographic	9	7	7	7	7
Other Variables	-	-	15	15	15
Total Instrument	171	115	115	109	68

Note. NCAS = National Core Arts Standards, ECE = Early Childhood Education

Exploratory Factor Analysis Solutions by Arts Area

Tables 14 - 18 display the final EFA models for dance, drama, media arts, music, and visual arts using the PAF extraction and varimax rotation. A two or three-factor model for each of the five arts areas exhibit "simple structure" (Gorsuch, 1990). As such, two factors were retained for dance, media arts, music, and visual arts and three factors were retained for drama. The interpretation of the data is consistent with the attributes the instrument was designed to measure. Table 19 presents the total variance explained by the retained factors. Extracted factors were named based on the unifying theme or construct within the items (Kline, 2016).

Dance

The two-factor dance solution accounted for 54.221% of the total variance (see Table 19). The items and factor loadings are presented in Table 14. Factor 1, which could be labeled as *movement,* had the highest loadings from five items with values ranging from 0.534 to 0.973. Factor 2, which could be labeled as *planning for dance,* had the highest loadings from 5 items with values ranging from 0.425 to 0.786.

Table 14 *Results from a Factor Analysis of the Survey of Preschool Teachers and Arts Education (SPTAE): Dance*

SPTAE Dance Item	Factor Loading	
	1	2
Factor 1: Movement		
6.3 Provided opportunities for students to engage in locomotor and non-locomotor movements upon request.	.690*	-.025
6.4 Provided opportunities for students to identify different parts of their body using dance, movement, or drawing.	.973*	-.028
6.5 Provided opportunities for students to identify directions, speed and force using dance or movement	.694*	.024
	(table continues)	
6.7 Provided opportunities for students to dance with props (e.g., ribbons, scarfs).	.541*	.121
6.11 Provided opportunities for students to learn dance and movement related vocabulary	.534*	.090
Factor 2: Planning for Dance		
1.3.1 [Dance] curriculum aligned with early childhood standards	-.023	.652*
1.3.2 Curriculum aligned with the National Core Arts Standards	.083	.534*
1.3.3 Instruction included collaborations with artists or arts resources in your community	.096	.425*
1.3.4 Utilized a UDL framework when planning [dance] activities	.097	.786*
1.3.5 Used [Dance] materials/instruments that were accessible to all students	-.071	.629*

*Note. UDL = Universal Design for Learning, * indicates primary factor loading, Extraction Method: Principal Axis Factoring, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 3 iterations.*

Drama

The three-factor drama solution accounted for 69.179% of the total variance (see Table 19). The items and factor loadings are presented in Table 15. Factor 1, which could be labeled as *high-quality drama,* had the highest loadings from seven items with values ranging from 0.529 to 0.793. Factor 2, which could be labeled as *accessible drama,* had the highest loadings from three items with values ranging from 0.500 to 0.874. Factor 3, which could be labeled as *dramatic play,* had highest loadings from three items with values ranging from 0.659 to 0.969.

Table 15 *Results from a Factor Analysis of the Survey of Preschool Teachers and Arts Education (SPTAE): Drama*

SPTAE Drama Item	Factor Loading		
	1	2	3
Factor 1: High-Quality Drama			
1.2.1 [Drama] curriculum aligned with early childhood standards	.588*	.540	-.048
1.2.2 [Drama] curriculum aligned with the National Core Arts Standards	.529*	.305	.135
5.2.1 Assessment of student learning [in drama]	.663*	.184	-.076
5.2.2 Regularly integrated [drama] into activities, routines and/or transition	.717*	.291	.185
5.2.3 Regularly made use of a [drama] center or station in your routine	.730*	.354	.001
5.2.4 Regularly include [drama] during whole group instruction	.793*	.217	.213
5.2.5 Planned for students to work towards IEP goals/objectives during or using [drama] activities	.763*	.199	.111
Factor 2: Accessible Drama			
1.2.3 [Drama] instruction included collaborations with artists or arts resources in your community	.367	.500*	.111
1.2.4 Utilized a UDL framework when planning [drama] activities	.452	.649*	.079
1.2.5 [Drama] materials/instruments that were accessible to all students	.257	.874*	.026
Factor 3: Dramatic Play			
7.1 Provided opportunities for students to use nonrepresentational props, puppets, or costumes	-.005	.166	.659*
7.3 Provided opportunities for students to produce character voices or animal sounds.	.255	-.095	.691*
7.5 Provided opportunities for students to express emotions or identify emotions.	.004	.040	.969*

*Note. IEP = Individualized Education Program, * indicates primary factor loading, Extraction Method: Principal Axis Factoring, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 5 iterations.*

Media Arts

The two-factor media arts solution accounted for 76.190% of the total variance (see Table 19). The items and factor loadings are presented in Table 16. Factor 1, which could be labeled as *planning for media arts,* had the highest loadings from five items with values ranging from 0.650 to 0.837. Factor 2, which could be labeled as *media arts methods,* had the highest loadings from three items with values ranging from 0.721 to 0.925.

Table 16 *Results from a Factor Analysis of the Survey of Preschool Teachers and Arts Education (SPTAE): Media Arts*

SPTAE Media Arts Item	Factor Loading	
	1	2
Factor 1: Planning for Media Arts		
1.5.1 Curriculum aligned with early childhood standards	.650*	.391
1.5.2 Curriculum aligned with the National Core Arts Standards	.677*	.333
1.5.3 Instruction included collaborations with artists or arts resources in your community	.686*	.374
1.5.4 Utilized a UDL framework when planning arts activities	.810*	.258
1.5.5 Arts materials/instruments that were accessible to all students	.837*	.161
Factor 2: Media Arts Methods		
5.3.1 Assessment of student learning [in media arts]	.304	.721*
5.3.2 Regularly integrated [media arts] into activities, routines and/or transition	.376	.829*
5.3.4 Regularly include [media arts] during whole group instruction	.230	.925*

*Note. UDL = Universal Design for Learning, * indicates primary factor loading, Extraction Method: Principal Axis Factoring, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 3 iterations.*

Music

The two-factor music solution accounted for 63.259% of the total variance (see Table 19). The items and factor loadings are presented in Table 17. Factor 1 which could be labeled as *music methods,* had the highest loadings from three items with values ranging from 0.544 to 0.957. Factor 2, which could be labeled as *planning for music*, had the highest loadings from four items with values ranging from 0.456 to 0.759.

Table 17 *Results from a Factor Analysis of the Survey of Preschool Teachers and Arts Education (SPTAE): Music*

SPTAE Music Item	Factor Loading	
	1	2
Factor 1: Music Methods		
5.4.2 Regularly integrated [music] into activities, routines and/or transition	.544*	.174
5.4.3 Regularly made use of a [music] center or station in your routine	.708*	.104
5.4.4 Regularly include [music] during whole group instruction	.957*	.070
Factor 2: Planning for Music		
1.1.2 Curriculum aligned with the National Core Arts Standards	-.003	.456*
1.1.3 Instruction included collaborations with artists or arts resources in your community	.039	.572*
1.1.4 Utilized a UDL framework when planning arts activities	.440	.795*
1.1.5 Arts materials/instruments that were accessible to all students	.259	.622*

*Note. UDL = Universal Design for Learning, * indicates primary factor loading, Extraction Method: Principal Axis Factoring, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 3 iterations.*

Visual Arts

The two-factor visual arts solution accounted for 62.700% of the total variance (see Table 19). The items and factor loadings are presented in Table 18. Factor 1, which could be labeled as *planning for visual arts*, had the highest loadings from five items with values ranging from 0.576 to 0.835. Factor 2, which could be labeled as *making art*, had the highest loadings from three items with values ranging from 0.695 to 0.792.

Table 18 *Results from a Factor Analysis of the Survey of Preschool Teachers and Arts Education (SPTAE): Visual Arts*

SPTAE Visual Arts Item	Factor Loading	
	1	2
Factor 1: Planning for Visual Arts		
1.4.1 [Visual arts] curriculum aligned with early childhood standards	.624*	-.092
1.4.2 [Visual arts] curriculum aligned with the National Core Arts Standards	.636*	.127
1.4.3 Instruction included collaborations with artists or arts resources in your community	.576*	.028
1.4.4 Utilized a UDL framework when planning [visual arts] activities	.835*	.106
1.4.5 Used [visual arts] materials/instruments that were accessible to all students	.769*	-.115
Factor 2: Making Art		
10.3 Provided opportunities for students to make art for self-expression.	.016	.695*
10.4 Provided opportunities for students to identify colors, shapes, lines, and subject matter in works of art.	.002	.792*
10.6 Provided opportunities for students to make art that represents familiar places or objects.	.013	.715*

*Note. UDL = Universal Design for Learning, * indicates primary factor loading, Extraction Method: Principal Axis Factoring, Rotation Method: Varimax with Kaiser Normalization, Rotation converged in 3 iterations.*

Table 19 *Total Variance Explained for Each of the Arts Area After EFA*

Total Variance Explained			
Factor	Total	% of Variance	Cumulative %
	Dance		
1	3.010*	30.104	30.104
2	2.412*	24.117	54.221
3	.964	9.639	63.860
4	.929	9.285	73.145
5	.796	7.961	81.107
6	.526	5.256	86.363
7	.485	4.848	91.211
8	.444	4.439	95.650
9	.252	2.519	98.196
10	.183	1.831	100.000
	Drama		
1	5.745*	44.189	44.189
2	2.141*	16.468	60.658
3	1.108*	8.522	69.179
4	.713	5.485	74.664
5	.624	4.804	79.468

Table 19 continued

6	.586	4.509	83.977
7	.498	3.830	87.807
8	.449	3.453	91.261
9	.349	2.684	93.945
10	.318	2.448	96.392
11	.197	1.513	97.906
12	.146	1.123	99.029
13	.126	.971	100.000
	Media Arts		
1	4.915*	61.437	61.437
2	1.180*	14.753	76.190
3	.477	5.962	82.152
4	.450	5.625	87.777
5	.355	4.440	92.217
6	.293	3.663	95.880
7	.228	2.848	98.727
8	.102	1.273	100.000
	Music		
1	2.952*	42.173	42.173
2	1.476*	21.086	63.259
3	.804	11.480	74.739
4	.619	8.838	83.577
5	.589	8.410	91.987
6	.328	4.685	96.672
7	.233	3.328	100.000
	Visual Arts		
1	2.894*	36.176	36.176
2	2.122*	26.524	62.700
3	.709	8.865	71.565
4	.641	8.018	79.583
5	.509	6.366	85.949
6	.442	5.527	91.477
7	.395	4.933	96.410
8	.287	3.590	100.000

*Note. Extraction Method: PAF, * = retained factors in final model*

3) Reliability of the Scale

Establishing Internal Consistency Reliability with EFA Data

Using results of the EFA, I evaluated the internal consistency estimates of the scale, arts area subscales, factors, and items using Cronbach's alpha (CA; see Table 20). Recommended minimum reliability estimates are 0.70 or higher (DeVillis, 2021; George & Mallery, 2003; Kline, 2005; McCoach et al., 2013; Taber, 2018). Qualitative descriptors of factor coefficients were applied from George and Mallery's (2003) guidance on describing significance. The influence of each item on the total internal consistency reliability for each arts area also was examined.

The alpha reliability estimate for the dance area was α = .675. Dance factors 1 and 2 had *acceptable* alpha coefficients of .775 and .728, respectively. For dance, eliminating any items from either factor would not increase reliability estimates.

The alpha reliability estimate for the drama area was α = .881. Drama factors 1, 2, and 3 alpha coefficients were .877, .812, and .778, respectively. For drama, eliminating item 1.2.1 (α = .889) from factor 1 and item 1.2.3 (α = .819) from factor 2 and item 7.1 (α = .793) from factor 3 would slightly increase reliability estimates but those items were retained for conceptual meaningfulness.

The alpha reliability estimate for the media arts area was α = .899. Media arts factors 1 had *good* and 2 had *excellent* alpha coefficients of .890 and .908, respectively. For media arts, eliminating item 5.3.1 (α = .933) from factor 2 would slightly increase the reliability estimate but the item was retained for conceptual meaningfulness.

The alpha reliability estimate for the music area was α = .707. Music factors 1 and 2 had *acceptable and* borderline *questionable* alpha coefficients of .778 and .697, respectively. For music, eliminating item 5.4.2 (α = .807) from factor 1 and item 1.1.2 (α = .722) from factor 2

would slightly increase the reliability estimate but the items were retained for conceptual meaningfulness.

The alpha reliability estimate for the visual arts area was α = .737. Visual arts factors 1 had *good* and 2 had *acceptable* alpha coefficients of .806 and .742, respectively. For visual arts, eliminating any items from either factor would not increase reliability estimates.

George and Mallery (2003) consider alpha values above .90 to demonstrate excellent internal consistency. The total scale had an *excellent* level of internal consistency, as determined by a Cronbach's alpha of 0.942. No items were eliminated from the EFA model based on the examination of internal consistency.

Table 20 *Psychometric Properties for the SPTAE Scales and Subscales* (*n* = 78)

Subscale	Number of items	α	Alpha descriptors (George & Mallery, 2003)
Dance Total Score	10	.675	questionable
Dance Factor 1	5	.775	acceptable
Dance Factor 2	5	.728	acceptable
Drama Total Score	13	.881	good
Drama Factor 1	7	.877	good
Drama Factor 2	3	.812	good
Drama Factor 3	3	.778	acceptable
Media Arts Total Score	8	.899	good
Media Arts Factor 1	5	.890	good
Media Arts Factor 2	3	.908	excellent
Music Total Score	7	.707	acceptable
Music Factor 1	3	.778	acceptable
Music Factor 2	4	.697	questionable
Visual Arts Total Score	8	.737	acceptable
Visual Arts Factor 1	5	.806	good
Visual Arts Factor 2	3	.742	acceptable
Total Scale	46	.942	excellent

4) Confirmatory Factor Analysis

CFA was used to test the construct validity of the *Survey of Preschool Teachers and Arts Education (SPTAE)* established a priori by the EFA model. The final EFA solution (dance 2 factors, 10 items; drama 3 factors, 13 items; media arts 2 factors, 8 items, music 2 factors, 7 items; visual arts 2 factors, 8 items) was cross validated on half of the total sample (n = 79). All CFA models were estimated using the structural equation modeling software IBM SPSS Amos 28 using the maximum likelihood estimation on covariance matrices derived from standardized estimates. The first regression coefficient of each factor was fixed to 1, as a marker variable to scale the latent variable.

Examining several measures is recommended when evaluating the quality of CFA models (Hu & Bentler, 1995). To check for model fit first, the magnitude (≥ 0.40) and significance ($p \leq 0.05$) of the path coefficients were examined (McCoach et al., 2013). According to McCoach and her colleagues (2013) standardized path coefficients should have a magnitude of at least 0.40 to indicate a strong factor loading. Items with low coefficients (0.10 or 0.20) were considered for elimination from the final instrument (McCoach et al., 2013). Items with non-statistically significant standardized paths were eliminated, this indicated that the item and factor are unrelated (McCoach etal., 2013). CFA results were examined for Heywood cases (negative error variance or standardized measurement weights above 1.0) and corrected.

Correlations between factors were examined for discriminant validity issues. According to McCoach and her colleagues (2013), factors should be correlated less than 0.85, as correlations above this may indicate that the factors are measuring the same construct. Highly correlated pairs were examined, and one item was eliminated from the model.

Next, Chi-square ($\chi 2$) was examined for non-significant ($p \geq 0.05$) fit of competing models. Other indicators which highlight different aspects of fit were examined as part of a holistic

examination of goodness-of-fit; Comparative Fit Index (CFI ≥ 0.95; Hu & Bentler, 1995, 1999), Tucker Louis Index (TLI ≥ 0.95; Hu & Bentler, 1995, 1999), Root Mean Square Error of Approximation (RMSEA ≤ 0.06; McCoach, 2003), and Standardized Root Mean Squared Residual (SRMR ≤ 0.08; Hu & Bentler, 1999). Modification indices were examined for covariances between errors on the same factor that would improve model fit (Hu & Bentler, 1999). CFA data are displayed in Table 21 for all arts areas and target levels are indicated for interpretation.

Table 21 *CFA Model Fit Statistics for the SPTAE as Specified by the EFA and Adjusted (n = 79)*

Model	$\chi 2$	df	p	$\chi 2$/df	CFI	TLI	RMSEA	SRMR
Target Level			≥ 0.05 (McCoach, 2013)	< 5 (Hu & Bentler, 1999)	≥ 0.95 (Hu & Bentler, 1995, 1999)	≥ 0.95 (Hu & Bentler, 1995, 1999)	≤ 0.06 (McCoach, 2003)	≤ 0.08 (Hu & Bentler, 1999)
				Dance				
Improved 1- Factor	4.146	4	0.387	1.037	0.998	0.996	0.022	0.0441
Heywood Corrected 2- Factor	34.892	21	0.029	1.662	0.857	0.809	0.092	0.0591
Initial 2-Factor	20.614	19	0.358	1.085	0.983	0.976	0.033	0.0913
				Drama				
Improved 2- Factor	26.379	30	0.656	0.879	1.000	1.025	0.000	0.0634
Initial 3- Factor	80.091	51	.006	1.570	.868	.830	.086	0.0903
				Media Arts				
Initial 2- Factor	13.934	21	.872	.664	1.000	1.038	.000	0.0361
				Music				
Improved 1- Factor	.000	0	-	-	1.000	-	0.332	0.0957
Initial 2- Factor	26.446	13	.015	2.034	.763	.617	.115	0.0957
				Visual Arts				
Improved 2- Factor	7.219	8	0.513	0.902	1.000	1.020	0.000	0.0957
Initial 2- Factor	12.369	9	0.193	1.374	.953	.922	.069	.0766

Dance

The two-factor base model for dance contained an item with zero variance (6.3) which was removed (Figure 3). Items 6.4 and 6.5 were highly correlated thus item 6.5 was removed from the model. The initial CFA model for dance contained a Heywood case (Figure 4). Item 6.7 had a negative error variance. To correct for the Heywood case, the marker variable was shifted to the factor and the path regression weights were given a path label. Figure 5 displays the corrected standardized measurement weights. Items 6.4, 6.7, and 6.11 all demonstrated low coefficients and non-significance, so factor one: Movement was removed from the model. Modification indices were considered, covariance was added between errors 8 and 10 and CFA was re-run.

The improved model for dance contains five items and one factor (Figure 6). The standardized measurement weights for the Planning factor range from 0.37 to 0.85 and all are significant. The $\chi 2$ is 4.146 with 4 degrees of freedom. The difference between the model and the saturated model is not statistically significant ($p = 0.387$) suggesting a good fit. The CFI (0.998), TLI (0.996), RMSEA (0.022), and SRMR (0.0441) provide evidence of a good model fit. Overall, the improved dance CFA is a good fit.

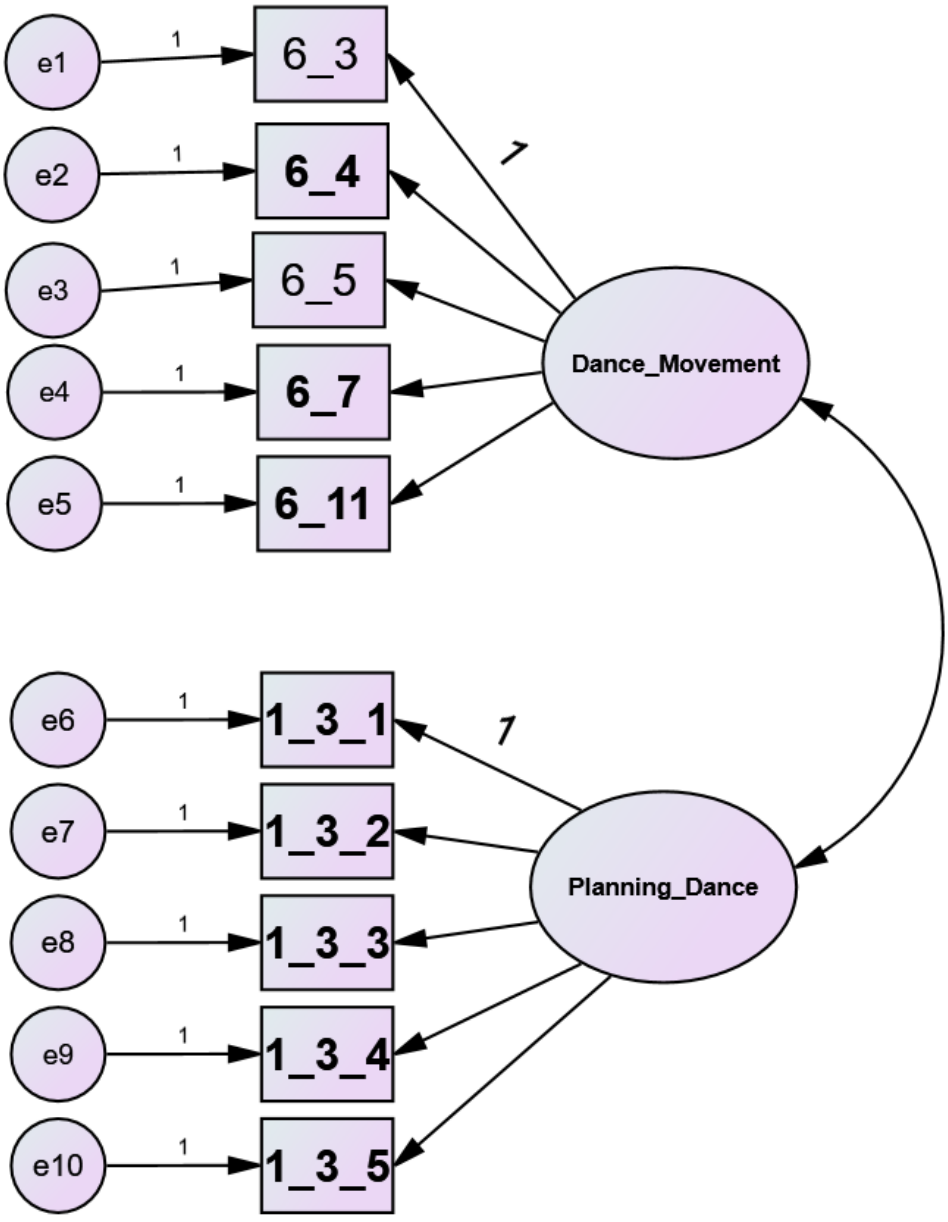


Figure 3. Two-Factor Base Model: Dance

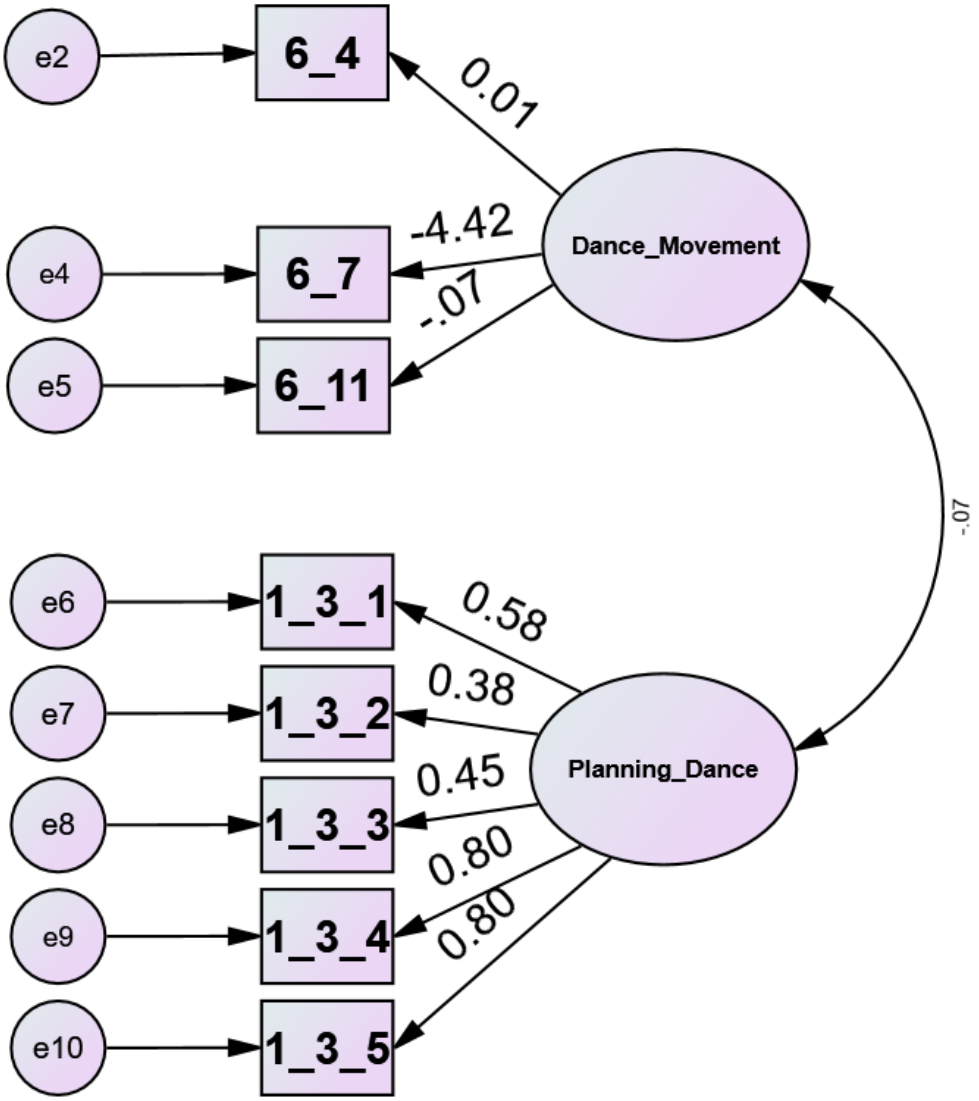


Figure 4. Initial CFA Model: Dance

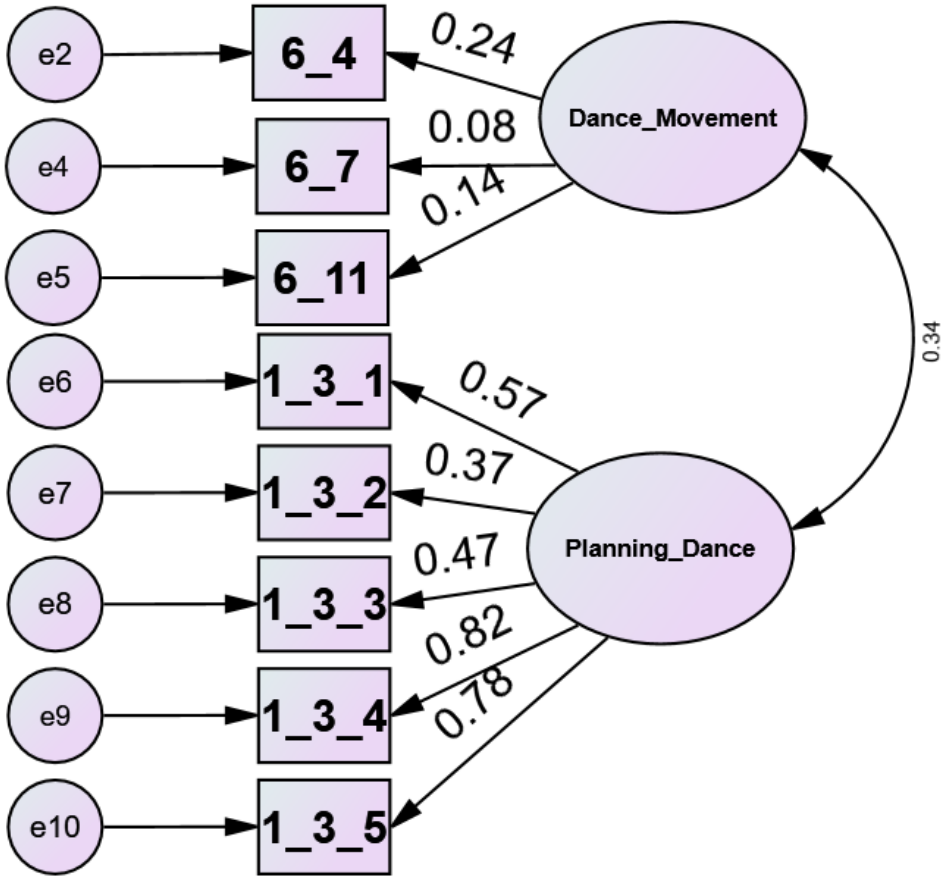


Figure 5. Initial CFA Model Corrected for Heywood Case: Dance

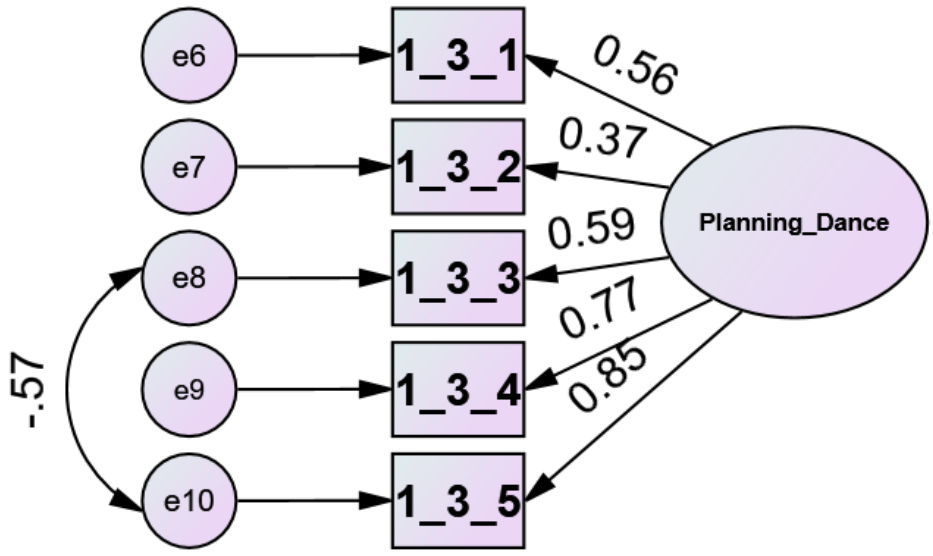


Figure 6. Improved CFA Model: Dance

Drama

The three-factor base model for drama included 13 items (Figure 7). Items 7.3 and 7.5 were highly correlated thus item 7.3 was removed from the model. Figure 8 displays the initial standardized measurement weights. The standardized measurement weights for the High-Quality Drama factor range from 0.35 to 0.85 and all are significant. The standardized measurement weights for the Accessible Drama factor range from 0.52 to 0.65 and all are significant. The standardized measurement weights for the Dramatic Play factor range from 0.45 to 0.52 and all are significant.

Correlations were examined, items 5.2.5 and 7.5, 5.2.1 and 7.5, 1.2.5 and 7.1, 1.2.4 and 7.1 were highly correlate above 0.85. The Dramatic Play factor containing items 7.5 and 7.1 was eliminated from the model. Modification indices were considered, and covariance was added between errors 8 and 10, 1 and 7, 2 and 1, 4 and 5. CFA was re-run.

The improved two factor model (Figure 9) includes standardized measurement weights ranging from 0.41 to 0.77 and all paths are significant. The correlation between the factors is acceptable at 0.68. The $\chi 2$ is 26.379 with 30 degrees of freedom. The difference between the model and the saturated model is not statistically significant (p = 0.656) suggesting a good fit. The CFI (1.000), TLI (1.025), RMSEA (0.000), and SRMR (0.0634) point to a near perfect fit. Overall, the improved drama CFA provides evidence for very good model fit.

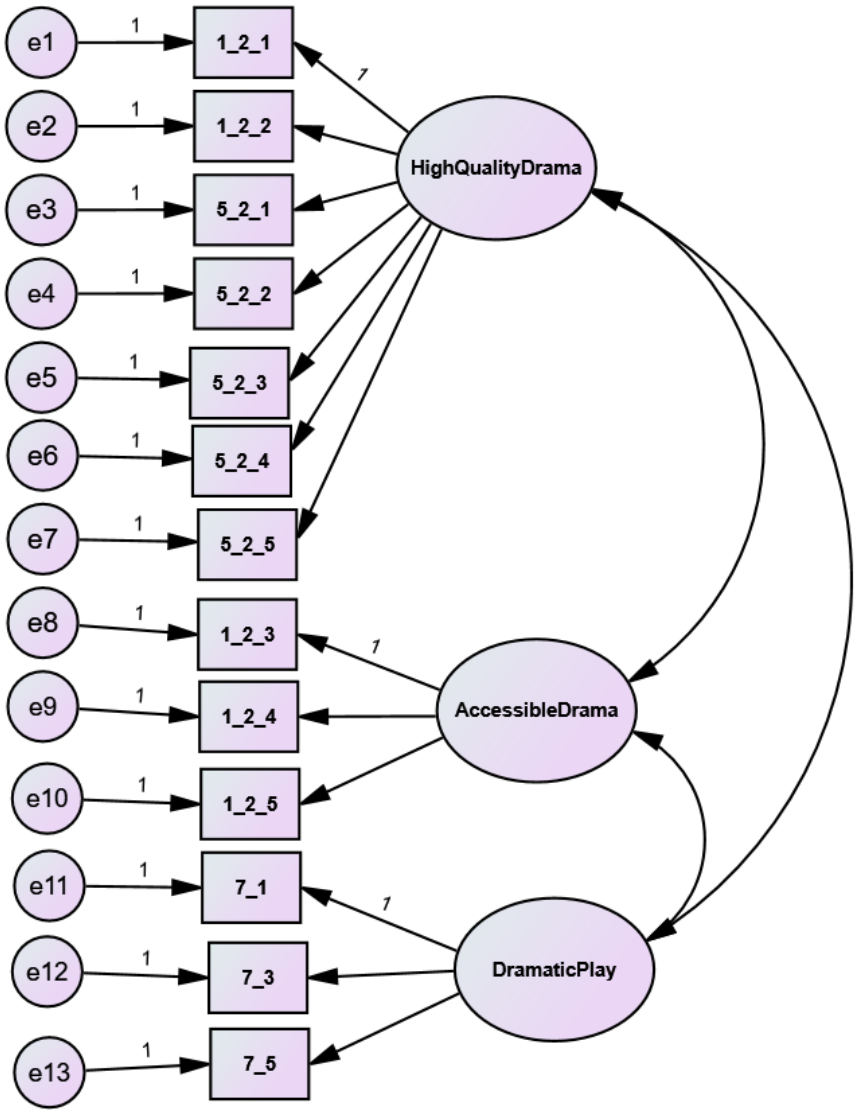


Figure 7. Three-Factor Base Model: Drama

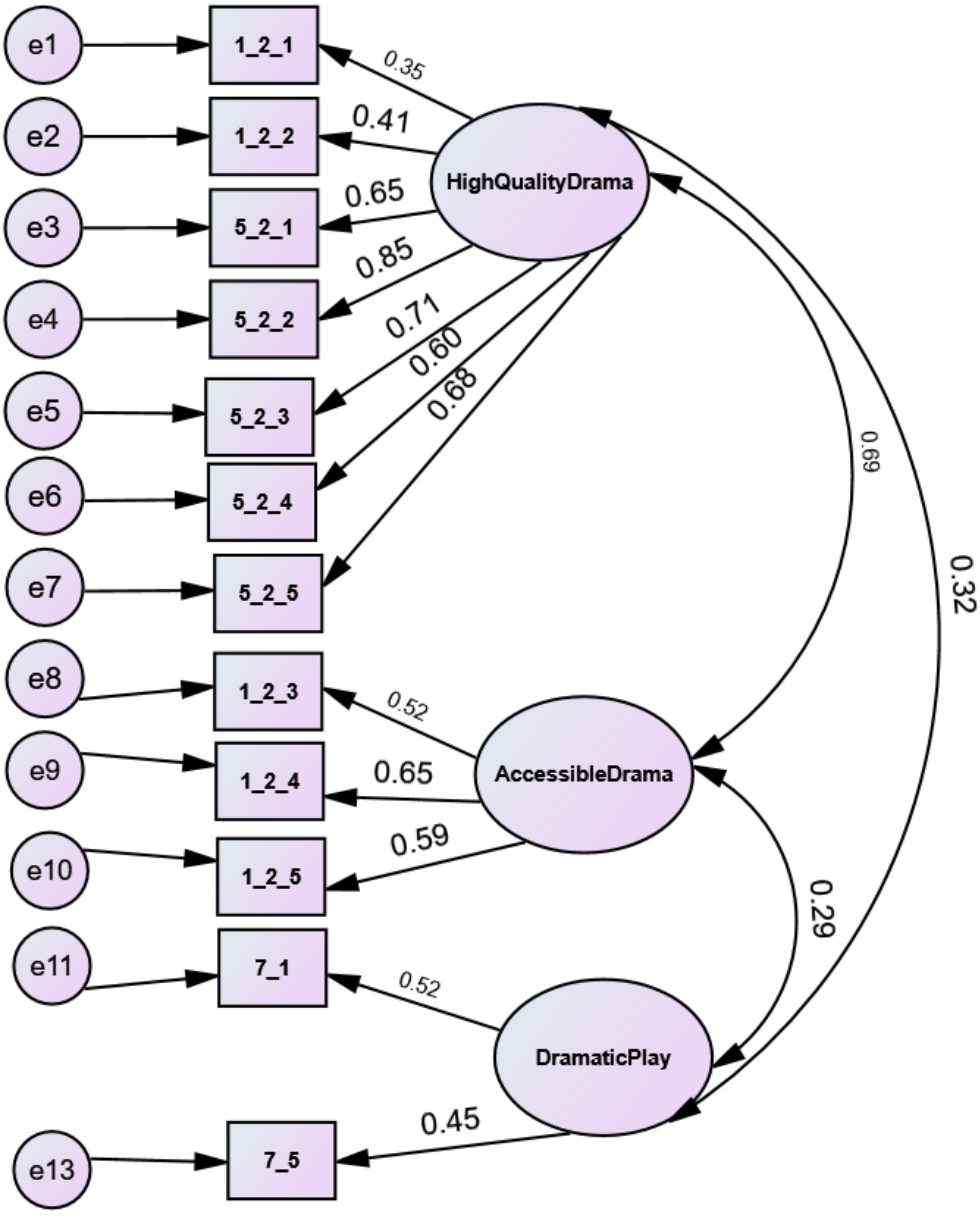


Figure 8. Initial CFA Model: Drama

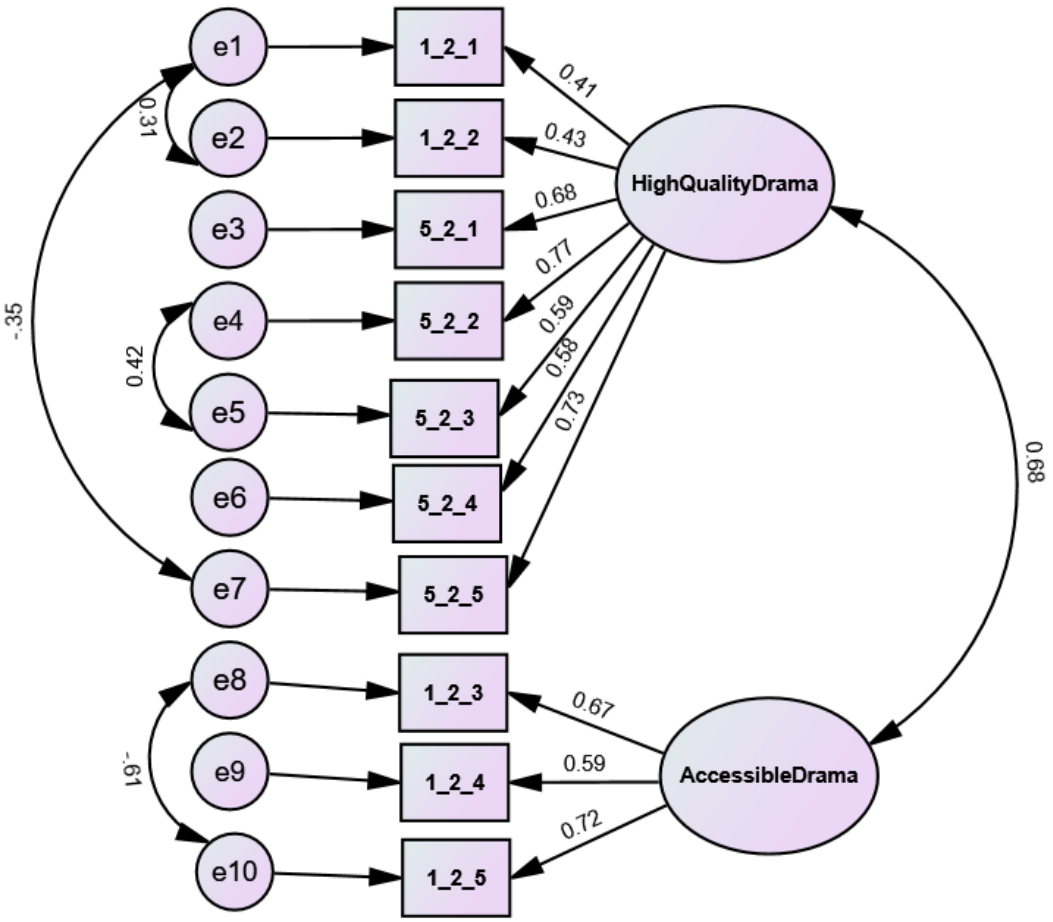


Figure 9. Improved Two-Factor CFA Model: Drama

Media Arts

The two-factor base model for media arts included 8 items (Figure 10). The initial CFA results for media arts provides evidence that the model is a good fit for the data. The standardized measurement weights are all above 0.50 (see Figure 11) and significant at the 0.001 level. The $\chi 2$ is 13.93 with 21 degrees of freedom. The difference between the model and the saturated model are not statistically significant. The CFI (1.000), TLI (1.038), RMSEA (0.000), and SRMR (0.0361) all corroborate a near perfect fit. The correlation between factor 1 planning and factor 2 methods is 0.72, which is fairly high but not surprising given the theoretical relationship between the constructs. Overall, results from the media arts CFA align with those from the EFA solution.

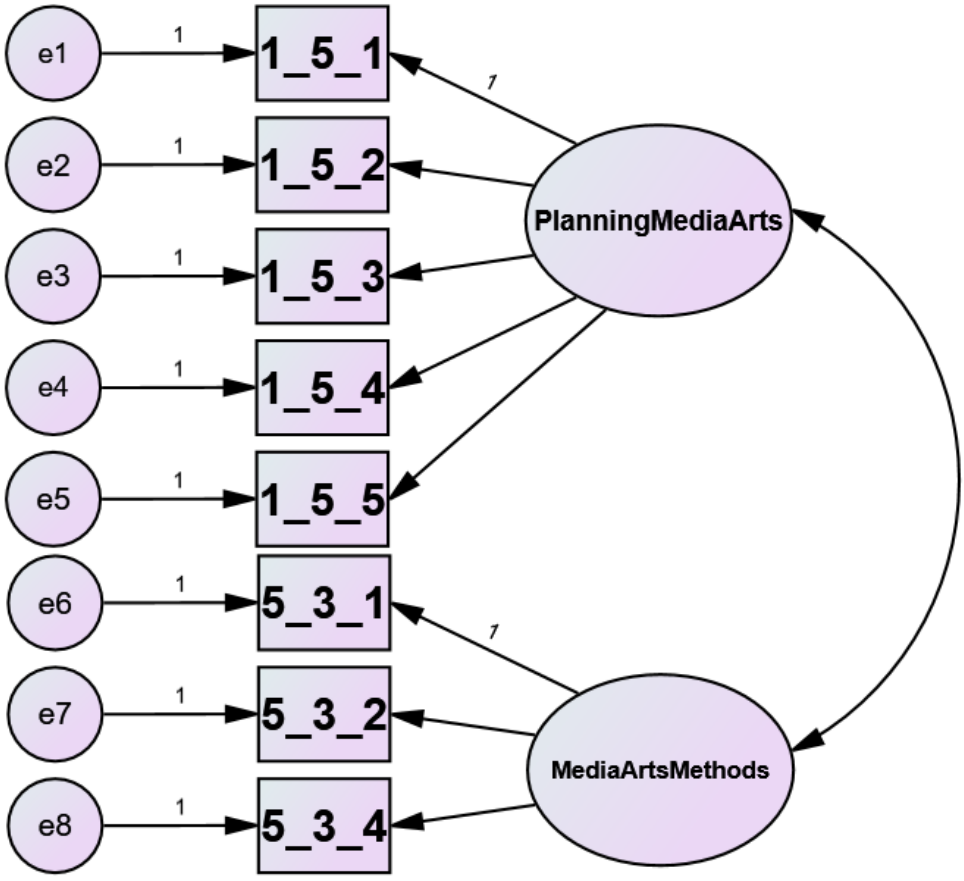


Figure 10. Two-Factor Base Model: Media Arts

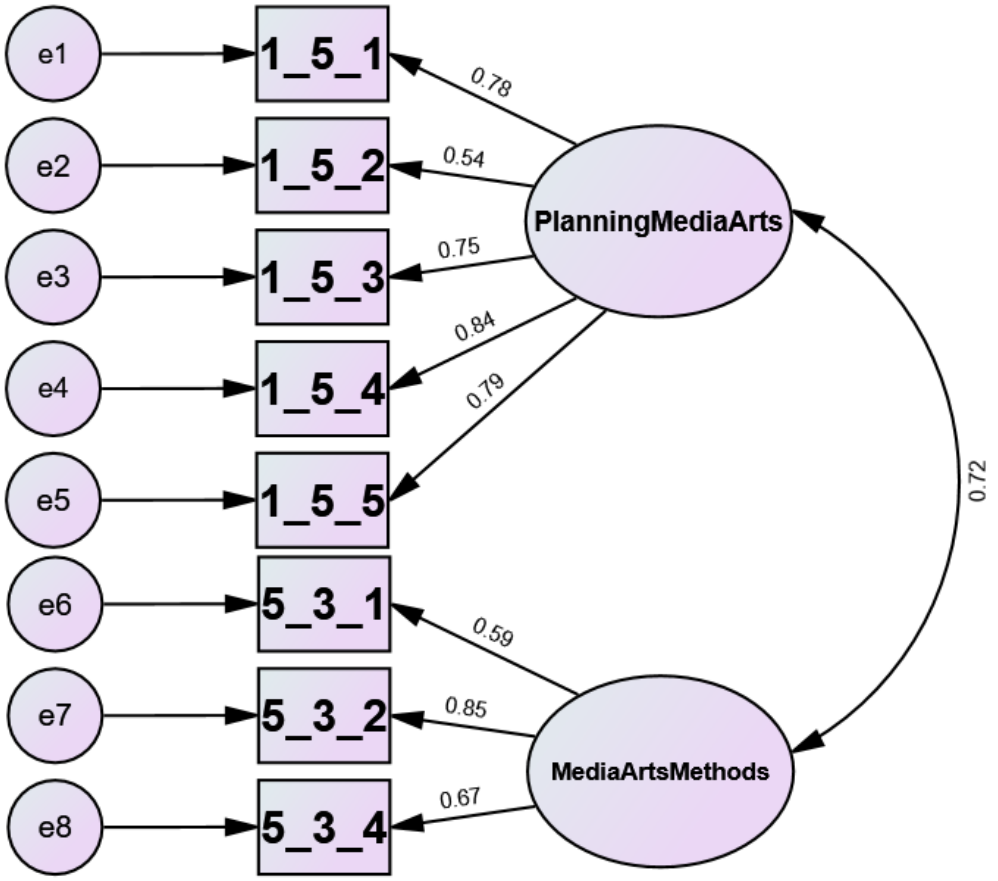


Figure 11. Initial CFA Model: Media Arts

Music

The two-factor base model for music contained 7 items (Figure 12). The initial CFA model for music does not exhibit good fit. The standardized measurement weights displayed in Figure 13 range from 0.25 to 0.71. The paths for the planning factor are significant but the methods factor paths are not significant, thus the methods factor and items were eliminated. The one-factor model was examined and items 1.1.3 and 1.1.2 were highly correlated, item 1.1.2 was eliminated. Modification indices were considered, but no change in covariance would improve fit.

The improved model (Figure 14) resulted in $\chi 2$ of 0.000 with 0 degrees of freedom, thus indicating that it is the best possible fit. The CFI (1.000) and SRMR (0.0957) point to a near perfect fit, but RMSEA (0.332) does not provide evidence for good fit. Overall, the one-factor music CFA evidence did indicate an acceptable model fit.

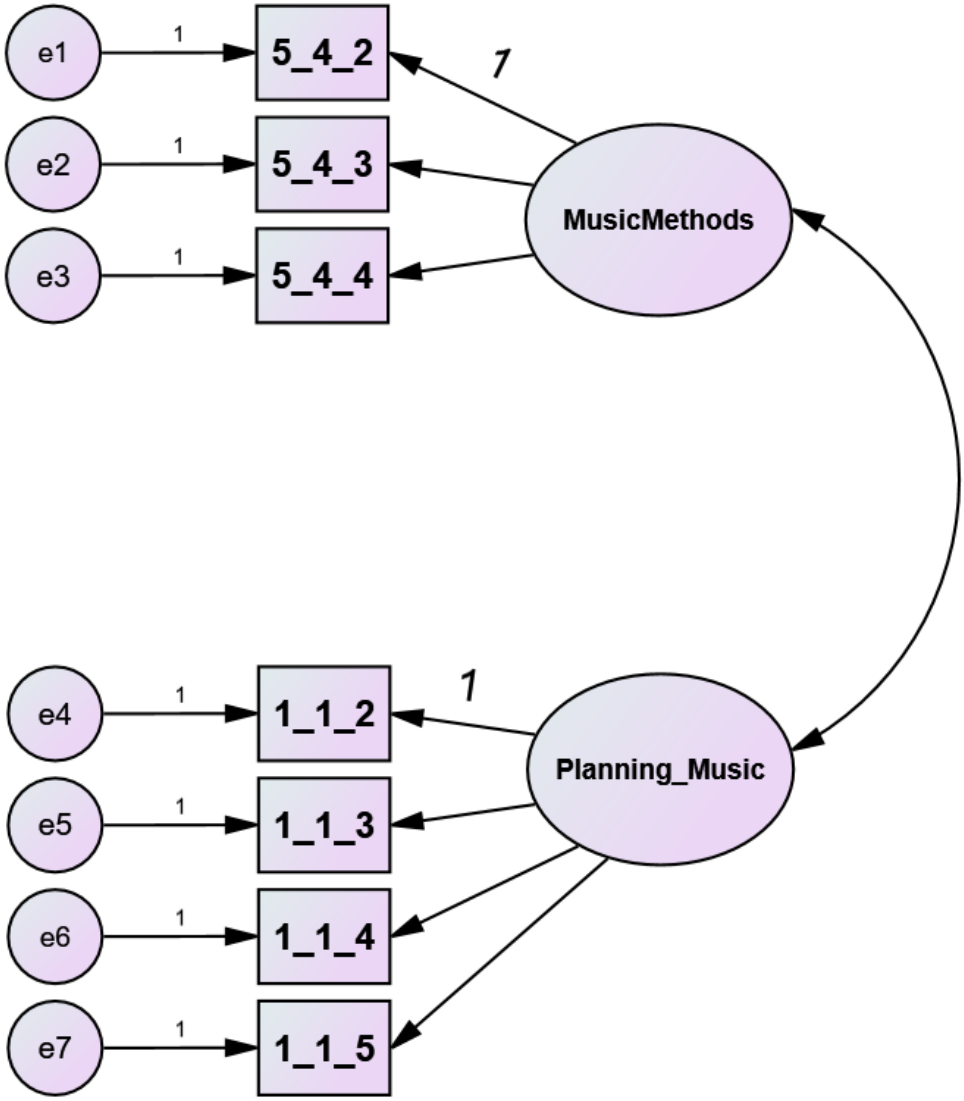


Figure 12. Two-Factor Base Model: Music

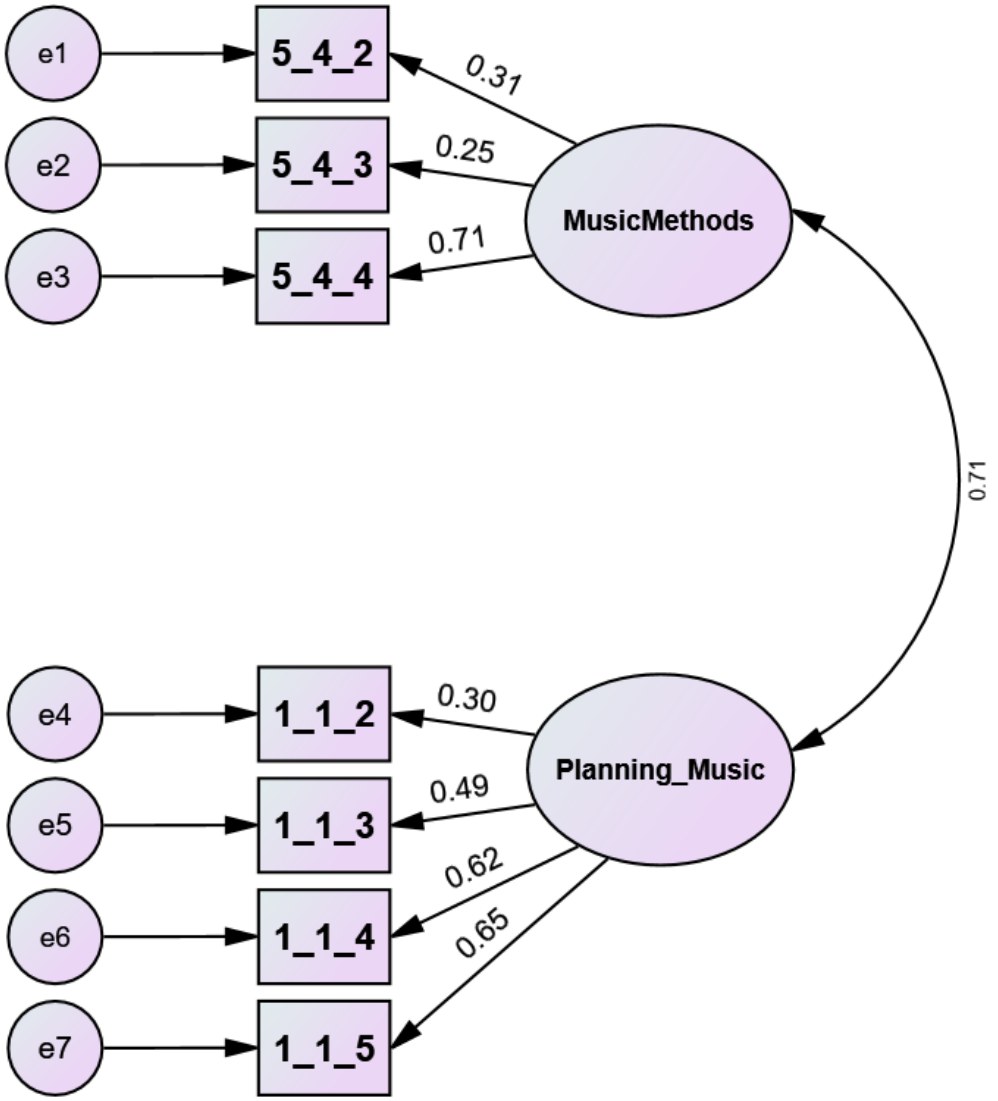


Figure 13. Initial CFA Model: Music

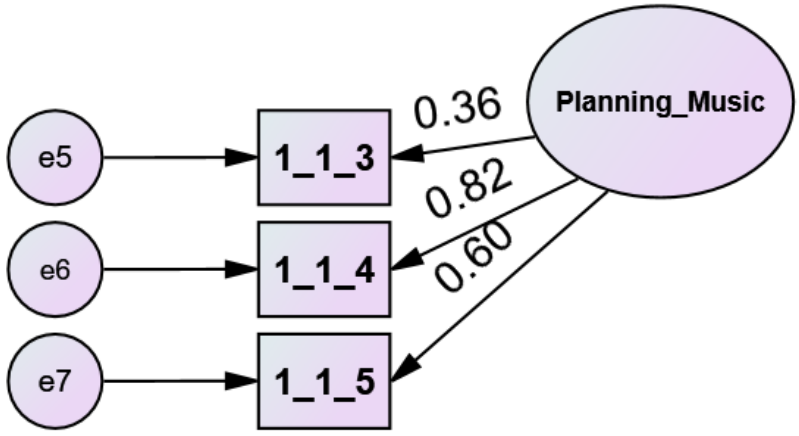


Figure 14. Improved One-Factor CFA Model: Music

Visual Arts

Data were examined prior to running CFA. Two items (10.4 *Provided opportunities for students to identify colors, shapes, lines, and subject matter in works of art*., 10.6 *Provided opportunities for students to make art that represents familiar places or objects.*) in the initial model (Figure 15) revealed zero variance in the CFA sample, thus were eliminated from the model.

The initial CFA model standardized measurement weights displayed in figure 16 range from 0.36 to 0.81 and all are significant. The $\chi 2$ is 12.369 with 9 degrees of freedom. The difference between the model and the saturated model is not statistically significant (p = 0.193) suggesting good fit. The CFI (0.953) and TLI (0.922) indicate good fit. RMSEA (0.069), and SRMR (0.0957) indicate a possible good fit. The correlation between factor 1 Planning and factor 2 Making is 0.30.

Modification indices were considered for improving the model; with covariance added between errors two and three. CFA was re-run, and the model fit improved (Figure 17). The $\chi 2$ is 7.219 with 8 degrees of freedom. The difference between the model and the saturated model is not

statistically significant (p = 0.513) suggesting good fit. The SRMR (0.0957) suggests a borderline fit while the CFI (1.000), TLI (1.020), and RMSEA (0.000) provide evidence for a near perfect fit.

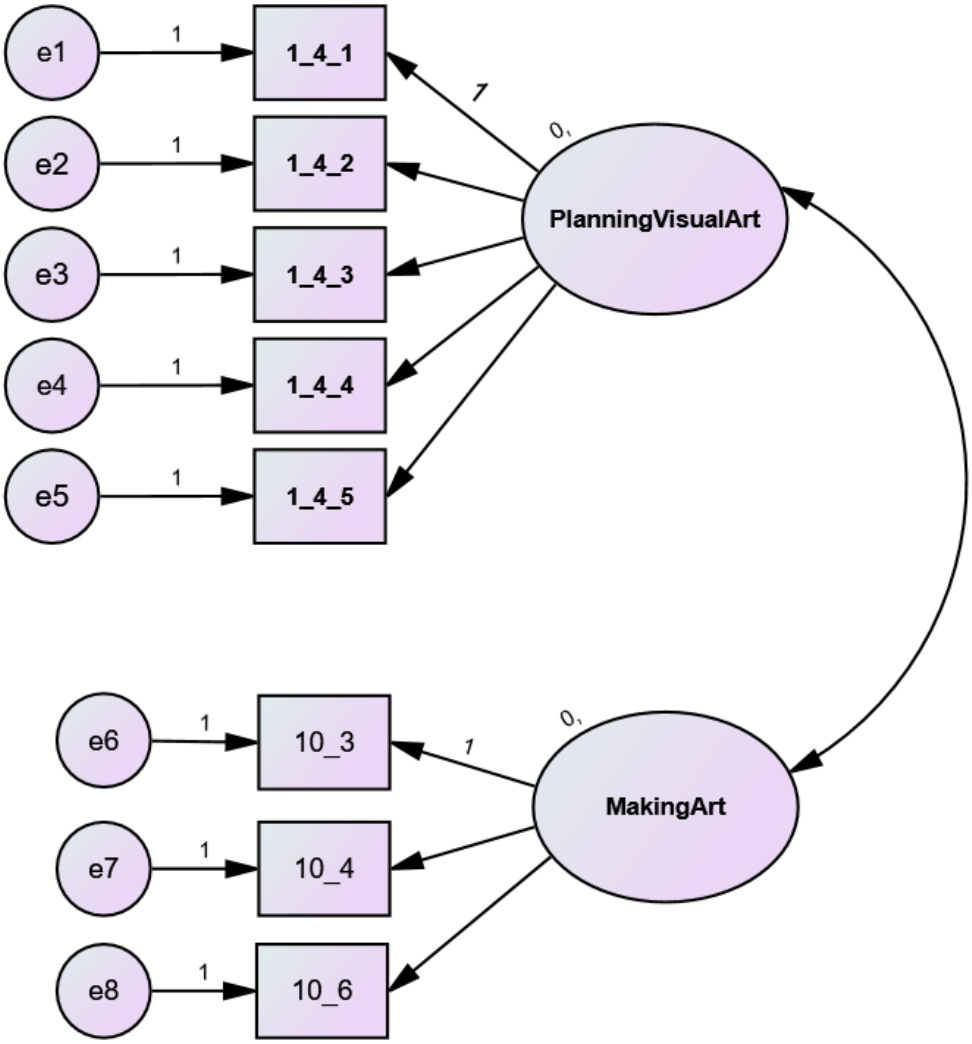


Figure 15. Two-Factor Base Model: Visual Arts

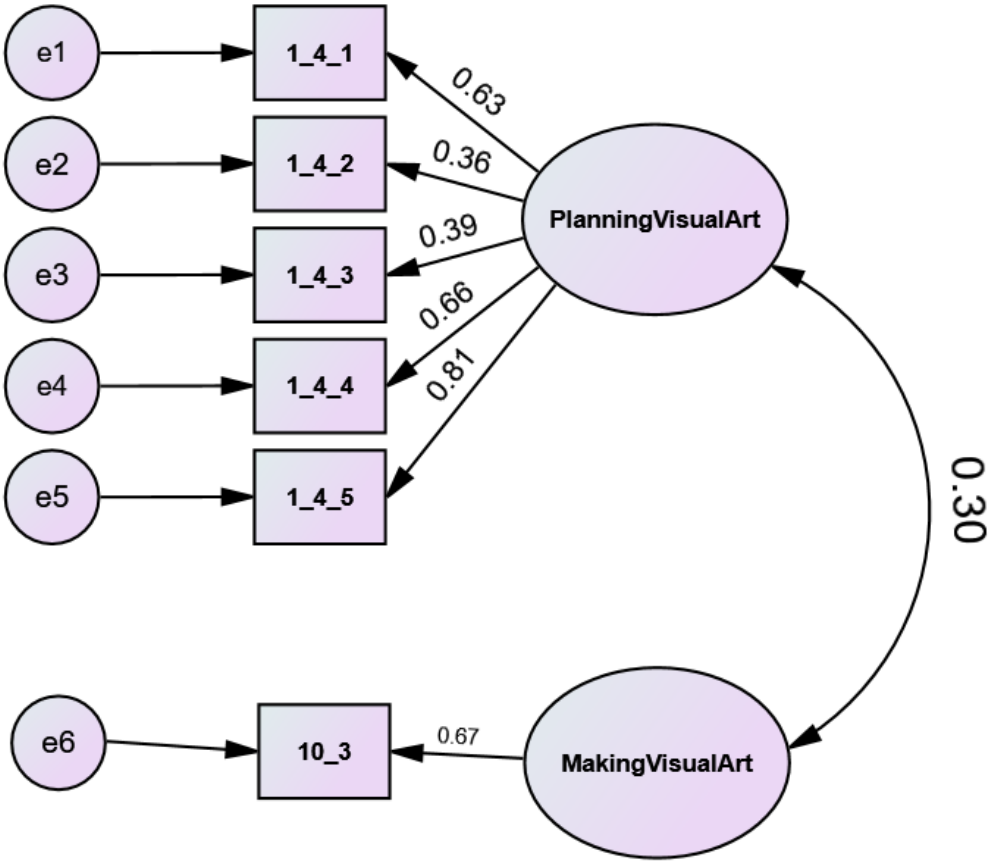


Figure 16. Initial CFA Model: Visual Arts

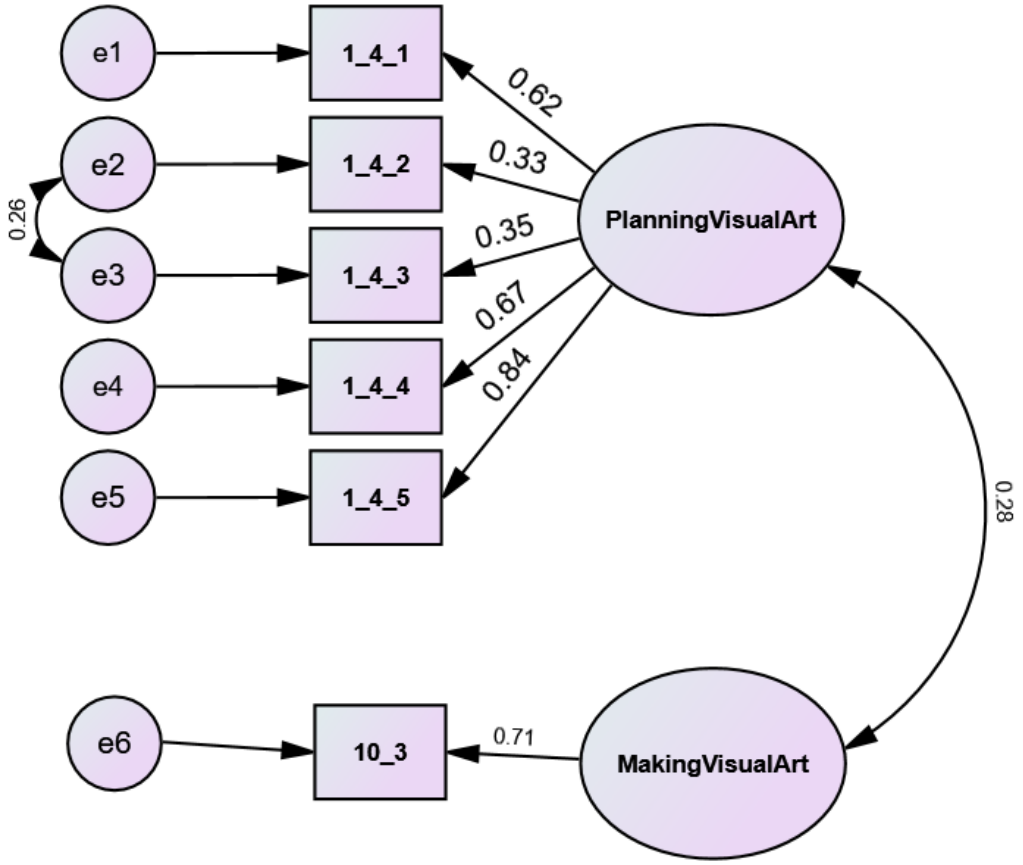


Figure 17. Improved CFA Model: Visual Arts

Establishing Internal Consistency Reliability with CFA Data

Cronbach's alpha was calculated for the scale and subscales using the CFA dataset. The influence of each item on the total internal consistency reliability for each arts area subscale was examined. For the overall reliability, the Cronbach's alpha value was 0.921, which George and Mallery (2003) interpret as an *excellent* level of internal consistency. The alpha values of the subscales ranged from .588 to .863. Alpha values and descriptors are displayed in Table 22.

Upon examination of the items for the drama and media arts subscales, deletion of any item would not improve alpha. Deleting item 1.3.2 (Curriculum aligned to national core arts standards) from the dance subscale, item 1.1.3 (Instruction included collaborations with artists or

arts resources in your community) from the music subscale, or items 1.4.2 (Curriculum aligned to national core arts standards) or 10.3 (Provided opportunities for students to make art for self-expression) from the visual arts subscale would increase alpha, but all items were considered critical to the purpose of the instrument and were consequently retained. The final version of the instrument is available in Appendix B.

Table 22 *Reliability of Final SPTAE Scale and Subscales* (*n* = 79)

Subscale	Number of Items	α	Alpha Descriptors (George & Mallery, 2003)
Dance	5	.733	acceptable
Drama	10	.809	good
Media Arts	8	.862	good
Music	3	.588	poor
Visual Arts	6	.664	questionable
Total Scale	32	.921	excellent

5) Descriptive Statistics

Summary of Demographic Variables

Descriptive statistics for grouping variables are described for the pilot study of Indiana preschool teachers (*n* = 157). Most survey respondents were early childhood general education teachers (87%) from preschools situated within early childhood centers (71%) rather than elementary schools. Half of the respondents had a bachelor's (35%) or master's degree (16%). Respondents represented a range of teaching experience from 1 to 35 years as a preschool teacher. See Table 23 for a complete summary of participant demographics.

Table 23 *Demographic Variables Indiana Preschool Teachers (n = 157)*

Variable	*n*	percent
Job Title		
Early childhood general education teacher	136	86.6
Early childhood special education teacher	18	11.5
Both	3	1.9
Location of Preschool		
Elementary school	45	28.7
Early childhood center	112	71.3
Number of Students with Disabilities Taught		
No students with disabilities	27	17.2
1-2 students with disabilities	50	31.8
3-5 students with disabilities	37	23.6
6 or more students with disabilities	43	27.4
Years of Experience		
1-3 years	29	18.5
4-5 years	31	19.7
6-10 years	36	23.0
11-19 years	30	19.1
20-35 years	31	19.7
Highest Level of Education		
High school diploma or equivalent	14	8.9
Child Development Associate Credential (CDA)	28	19.8
Associate degree	35	22.3
Bachelor's degree	55	35.0
Master's degree	25	15.9
Doctorate degree	-	-
Mode of 2020-2021 Instruction		
In-person	92	58.6
Online	7	4.5
Hybrid	58	36.9

Preschool Arts Instruction in 2020-2021

About 40% of the respondents described their mode of instruction as online or hybrid for the 2020-2021 school year. 51% of respondents had three or more students with disabilities in the class and only 17% had no students with disabilities in their class. Teachers most often described themselves as the person solely responsible for arts instruction across the five arts disciplines in preschool and they most often provide that instruction daily. Approximately 20% of teachers reported that their students never receive instruction in media arts and 75% report providing daily

music instruction. Forty percent of teacher described including dance and music in their teaching primarily to enhance or explore activities, routines, and/or transitions. For drama 37% and visual arts 41% of teachers describe fully integrated the arts with learning in other subjects including both arts and non-arts objectives. Less than 10% of preschool teachers responding teach any of the arts as a discrete subject. See Tables 24 - 26 for summary instructional grouping variables.

Table 24 *Instructional Grouping Variable- Arts Integration*

	Frequency (%)				
Arts Discipline	Dance	Drama	Media Arts	Music	Visual Arts
Mean (SE)	2.62 (1.15)	2.78 (1.12)	3.02 (1.43)	2.59 (1.02)	2.59 (1.09)
I used the arts to celebrate or decorate. I consider my activities more craft than art.	21 (13.4)	17 (10.8)	25 (15.9)	18 (11.5)	30 (19.1)
I used the arts to enhance or explore activities, routines and/or transitions.	64 (40.8)	50 (31.8)	41 (26.1)	64 (40.8)	39 (24.8)
I fully integrated the arts with learning in other subjects including both arts and non-arts objectives.	44 (28.0)	58 (36.9)	39 (24.8)	50 (31.8)	64 (40.8)
I taught the arts as their own subjects.	10 (6.4)	14 (8.9)	10 (6.4)	15 (9.6)	14 (8.9)
I did not include arts learning.	18 (11.5)	18 (11.5)	42 (26.8)	10 (6.4)	10 (6.4)

Table 25 *Instructional Grouping Variable- Arts Instructors*

	Frequency (%)				
Arts Discipline	Dance	Drama	Media Arts	Music	Visual Arts
Mean (SE)	2.78 (2.06)	2.92 (2.11)	3.30 (2.20)	2.69 (1.98)	2.78 (2.00)
I was solely responsible for instruction.	87 (55.4)	83 (52.9)	71 (45.2)	88 (56.1)	84 (53.5)
A certified arts teacher was solely responsible.	2 (1.3)	2 (1.3)	2 (1.3)	2 (1.3)	3 (1.9)
A teaching artist was solely responsible.	1 (0.6)	2 (1.3)	4 (2.5)	2 (1.3)	2 (1.3)
I co-taught or shared the responsibility for instruction with an arts teacher or teaching artist.	6 (3.8)	4 (2.5)	7 (4.5)	9 (5.7)	10 (6.4)
I co-taught or shared the responsibly for instruction with another teacher or related service provider(s).	47 (29.9)	47 (29.9)	35 (22.3)	48 (30.6)	47 (29.9)
My students received no arts instruction.	14 (8.9)	19 (12.1)	38 (24.2)	8 (5.1)	11 (7.0)

Table 26 *Instructional Grouping Variable- Frequency*

	Frequency (%)				
Arts Discipline	Dance	Drama	Media Arts	Music	Visual Arts
Mean (SE)	1.79 (1.64)	2.73 (2.30)	3.48 (2.66)	1.50 (1.26)	1.80 (1.47)
Daily	105 (66.9)	67 (42.7)	50 (31.8)	118 (75.2)	93 (59.2)
2 to 3 times a week	27 (17.2)	37 (23.6)	33 (21.0)	25 (15.9)	40 (25.5)
Once a week	11 (7.0)	14 (8.9)	16 (10.2)	5 (3.2)	11 (7.0)
					(table continues)
2 to 3 times a month	4 (2.5)	10 (6.4)	11 (7.0)	4 (2.5)	5 (3.2)
Once a month	2 (1.3)	5 (3.2)	11 (7.0)	-	2 (1.3)
Once a semester	-	5 (3.2)	1 (.6)	1 (.6)	-
Once a year	1 (.6)	2 (1.3)	3 (1.9)	1 (.6)	1 (.6)
Never	7 (4.5)	17 (10.8)	32 (20.4)	3 (1.9)	5 (3.2)

Summary of Response Variables

A summary of the number and percentage of how participants responded to each of the variables is presented in Table 27 along with the mean and standard deviation for each variable. Most participants responded “yes” to all dance, drama, music, and visual arts variables except for item 1.3.3 (dance), 1.2.3 (drama), 1.1.3 (music), 1.4.3 (visual arts) asking if instruction included collaborations with artists or arts resources the community, where most participants responded “no.”

Most participants responded, “yes” to all media arts variables except for item 5.3.1 asking if they assess student learning in media arts and question 1.5.3 asking if instruction included collaborations with artists or arts resources the community, where most participants responded “no.” The majority of participants indicated ‘NA’ meaning they did not provide any media arts instruction in response to question 1.5.2 asking if they align their media arts with the National Core Arts Standards.

Table 27 *Descriptive Statistics for Items Retained After EFA* (*n* = 157)

Item	Mean	SD	2 Yes *n* (%)	1 No *n* (%)	0 NA *n* (%)
	Dance				
6.3 Provided opportunities for students to engage in locomotor and non-locomotor movements upon request	1.99	.113	155 (98.7%)	2 (1.3%)	-
6.4 Provided opportunities for students to identify different parts of their body using dance, movement, or drawing	1.99	.113	155 (98.7%)	2 (1.3%)	-
6.5 Provided opportunities for students to identify directions, speed and force using dance or movement	1.98	.137	154 (98.1%)	3 (1.9%)	-
6.7 Provided opportunities for students to dance with props (e.g., ribbons, scarfs)	1.91	.286	143 (60.6%)	14 (5.9%)	-
6.11 Provided opportunities for students to learn dance and movement related vocabulary	1.96	.207	150 (95.5%)	7 (4.5%)	-
1.3.1 [Dance] curriculum aligned with early childhood standards	1.73	.616	128 (81.5%)	15 (9.6%)	14 (8.9%)
1.3.2 Curriculum aligned with the National Core Arts Standards	1.18	.854	74 (47.1%)	38 (24.2%)	45 (28.7%)
1.3.3 Instruction included collaborations with artists or arts resources in your community	1.15	.639	45 (28.7%)	90 (57.3%)	22 (14.0%)
1.3.4 Utilized a UDL framework when planning [dance] activities	1.49	.704	96 (61.1%)	42 (26.8%)	19 (12.1%)
1.3.5 Used [Dance] materials/instruments that were accessible to all students	1.82	.564	141 (89.8%)	3 (1.9%)	13 (8.3%)

Table 27 continued

	Drama				
1.2.1 [Drama] curriculum aligned with early childhood standards	1.61	.722	118 (75.2%)	17 (10.8%)	22 (14.0%)
1.2.2 [Drama] curriculum aligned with the National Core Arts Standards	1.13	.863	70 (44.6%)	38 (24.2%)	49 (31.2%)
5.2.1 Assessment of student learning [in drama]	1.52	.501	81 (51.6%)	76 (48.4%)	-
5.2.2 Regularly integrated [drama] into activities, routines and/or transition	1.69	.465	108 (68.8%)	49 (31.2%)	-
5.2.3 Regularly made use of a [drama] center or station in your routine	1.73	.444	115 (73.2%)	42 (26.8%)	-
5.2.4 Regularly include [drama] during whole group instruction	1.63	.484	99 (41.9%)	58 (24.6%)	-
5.2.5 Planned for students to work towards IEP goals/objectives during or using [drama] activities	1.55	.499	86 (54.8%)	71 (45.2%)	-
1.2.3 [Drama] instruction included collaborations with artists or arts resources in your community	1.09	.634	39 (24.8%)	93 (59.2%)	25 (15.9%)
1.2.4 Utilized a UDL framework when planning [drama] activities	1.36	.776	85 (54.1%)	43 (27.4%)	29 (18.5%)
1.2.5 [Drama] materials/instruments that were accessible to all students	1.69	.687	128 (81.5%)	9 (5.7%)	20 (12.7%)
7.1 Provided opportunities for students to use nonrepresentational props, puppets, or costumes	1.91	.286	143 (91.1%)	14 (8.9%)	-
7.3 Provided opportunities for students to produce character voices or animal sounds.	1.95	.221	149 (94.9%)	8 (5.1%)	-
7.5 Provided opportunities for students to express emotions or identify emotions.	1.97	.176	152 (96.8%)	5 (3.2%)	-

Table 27 continued

Media Arts					
5.3.1 Assessment of student learning [in media arts]	1.39	.489	61 (38.9%)	96 (61.1%)	-
5.3.2 Regularly integrated [media arts] into activities, routines and/or transition	1.51	.502	80 (51.0%)	77 (49.0%)	-
5.3.4 Regularly include [media arts] during whole group instruction	1.52	.501	82 (52.2%)	75 (47.8%)	-
1.5.1 Curriculum aligned with early childhood standards	1.38	.881	102 (65%)	13 (8.3%)	42 (26.8%)
1.5.2 Curriculum aligned with the National Core Arts Standards	.93	.907	59 (37.6%)	28 (17.8%)	70 (44.6%)
1.5.3 Instruction included collaborations with artists or arts resources in your community	1.00	.716	40 (25.5%)	77 (49%)	40 (25.5%)
1.5.4 Utilized a UDL framework when planning arts activities	1.27	.835	81 (51.6%)	37 (23.6%)	39 (24.8%)
1.5.5 Arts materials/instruments that were accessible to all students	1.53	.821	116 (73.9%)	8 (5.1%)	33 (21.0%)
Music					
5.4.2 Regularly integrated [music] into activities, routines and/or transition	1.92	.267	145 (92.4%)	12 (7.6%)	-
5.4.3 Regularly made use of a [music] center or station in your routine	1.87	.341	136 (86.6%)	21 (13.4%)	-
5.4.4 Regularly include [music] during whole group instruction	1.94	.245	147 (93.6%)	10 (6.4%)	-
1.1.2 Curriculum aligned with the National Core Arts Standards	1.29	.834	84 (53.5%)	35 (22.3%)	38 (24.2%)
1.1.3 Instruction included collaborations with artists or arts resources in your community	1.24	.634	55 (35.0%)	85 (54.1%)	17 (10.8%)

Table 27 continued

1.1.4 Utilized a UDL framework when planning arts activities	1.54	.665	99 (63.1%)	43 (27.4%)	15 (9.6%)
1.1.5 Arts materials/instruments that were accessible to all students	1.87	.477	146 (93.0%)	2 (1.3%)	9 (5.7%)
Visual Arts					
1.4.1 [Visual arts] curriculum aligned with early childhood standards	1.84	.513	142 (90.4%)	5 (3.2%)	10 (6.4%)
1.4.2 [Visual arts] curriculum aligned with the National Core Arts Standards	1.25	.854	82 (52.2%)	33 (21.0%)	42 (26.8%)
1.4.3 Instruction included collaborations with artists or arts resources in your community	1.19	.652	51 (32.5%)	85 (54.1%)	21 (13.4%)
1.4.4 Utilized a UDL framework when planning [visual arts] activities	1.53	.685	100 (63.7%)	40 (25.5%)	17 (10.8%)
1.4.5 Used [visual arts] materials/instruments that were accessible to all students	1.80	.571	139 (88.5%)	5 (3.2%)	13 (8.3%)
10.3 Provided opportunities for students to make art for self-expression	1.99	.113	155 (98.7%)	2 (1.3%)	-
10.4 Provided opportunities for students to identify colors, shapes, lines, and subject matter in works of art	1.98	.137	154 (98.1%)	3 (1.9%)	-
10.6 Provided opportunities for students to make art that represents familiar places or objects	1.97	.158	153 (97.5%)	4 (2.5%)	-

Note. SD = Standard Deviation, NA= Did not provide any arts instruction.

CHAPTER 5. DISCUSSION

The aims of this pilot study were to 1) develop, evaluate, and validate a new survey instrument designed to gather information about the availability, quality, and accessibility of arts education in preschool settings and 2) describe the preliminary results gathered from field-testing the instrument with preschool teachers serving students with and without disabilities. The development of an instrument to assess arts education at the preschool level is warranted, as research suggests arts education in preschool is important for the development of all children (Gromoko & Poorman, 1998; Horowitz, 2018; Jindal-Snape & Vettraino, 2007; Kaviani et al., 2014; Menzer, 2015). Existing instruments have focused on availability and quality of arts education in K-12 learning environments (Parsad & Spiegelman, 2011; Silk et al., 2015). Therefore, little is known about arts instruction at the preschool level. There is a lack of research on access (opportunities) and accessibility (quality of access) of arts education for students with disabilities (Anderson et al., 2017). Therefore, the Survey of Preschool Teachers and Arts Education (SPTAE) was developed explicitly to fill this assessment void.

Key Findings

Survey Development, Evaluation, and Validation

What evidence exists for the content validity, construct validity, and internal consistency reliability of the Survey of Preschool Teachers and Arts Education (SPTAE)?

In sum, this study employed rigorous methodological procedures for the development of the Survey of Preschool Teachers and Arts Education. Content validity was established with a panel of experts in the field of early childhood education. Pilot results from a state-wide

administration of the instrument provide evidence of the construct validity of the scale. From a psychometric perspective the SPTAE appears to demonstrate sound measurement properties. EFA resulted in 5 subscales with 11 latent factors. The EFA solution was subjected to CFA with a separate sample. The model confirmation resulted in an improved final solution for each arts area; dance a one-factor structure including 5 items; drama, a two-factor structure including 10 items; media arts, a two-factor structure including 8 items; music, a one-factor structure including 3 items; and visual arts, a two-factor structure including 6 items. Overall, CFA results suggest the final model was a good fit to the data. The final model included 5 subscales, one for each of the arts areas, 8 factors, and 32 items. The EFA and CFA data sets demonstrated excellent overall reliability.

The SPTAE is the first credible and valid instrument designed to measure access and accessibility of arts education in preschool. This instrument can serve as a model for measurement of accessibility in the arts and can gather important evidence for advocating for accessibility of arts instruction. Since little is known about access to arts instruction in preschool, the SPTAE fills an enormous void. Data gathered with the SPTAE will help to establish a baseline understanding of the level of access to arts education experienced in preschool which will impact advocacy and policy efforts in preschool arts education for all students.

Preschool Access to the Arts

How are preschool teachers who serve students with disabilities self-reporting teaching each of the arts disciplines (i.e., dance, drama, media arts, music, visual arts)?

To begin to answer this research question, first I described how and with what frequency preschool teachers are teaching the arts, as this is an unknown in the literature. Teachers most often described themselves as the person solely responsible for arts instruction across the five arts

disciplines in preschool and they most often provide that instruction daily. Preschool teachers reported that a certified arts teacher was solely responsible for arts instruction (in all 5 arts areas) in about 1% of responding preschool classrooms which is contradictory to the criteria for high-quality school based arts programs in the literature and the recommendations of professional arts education organizations who indicate that the arts should be taught by a certified arts teacher or a teaching artist (Burt et al., 2009; National Art Education Association, 2014; Seidel et al., 2009). Personnel findings not aligning with the expectations of high-quality arts programing may be due to a shortage of certified arts teachers or limited preschool budgets to allocate for arts education personnel.

Another indicator of high-quality arts experiences, discussed in chapter 2, is to include artists or arts resources from the community in instruction. This survey gathered information about the 2020-2021 school year which was affected by the COVID-19 pandemic. Across all 5 arts areas, most teachers reported that instruction did not include collaborations with artists or arts resources in the community. Opportunities for collaborative arts experiences may have been affected by pandemic conditions or teachers may not have considered virtual collaborations when responding to this item.

Music (75%) and dance (67%) were the arts disciplines that were most likely to be included in daily instruction. The McDonald (1980) study found similar results where 69% of preschool teachers self-reported providing instruction in dance, drama, music, and visual arts. While the national FRSS study measured availability and quality of arts education in K-12 schools, it is worth noting that in contrast to preschools, K-12 schools most often provide instruction in music and visual arts taught by certified arts educators and rarely provide instruction in dance or music (Parsad & Spiegelman, 2011). Music and dance may be taught more often than drama, media arts,

and visual arts because they are viewed as requiring fewer resources or because preschool teachers can easily incorporate them into their daily routines.

The findings of this study are like those of Nardo (2006), who reported that 40% of preschool teachers described including dance and music in their teaching primarily to enhance or explore activities, routines and/or transitions. Like Nardo, who found that preschool teachers often used music in ways to enhance learning in another subject, rather than fully integrating the arts, 65% teachers in this study reported using music to enhance or explore activities, routines and/or transitions. So, while teachers are reporting using the arts in preschool often, it may be in superficial ways rather than utilizing an arts integrated approach with arts learning goals. Findings from this study shed light on these practice gaps. Future research may investigate these gaps more directly and lead us to recommendations for the preparation of of preschool teachers to implement arts education.

Most teachers indicated that they aligned arts curriculum with standards, which is an indicator of high-quality arts education (Burt et al., 2009). Teachers were more likely to align their curriculum to early childhood standards rather than NCAS (2015). The Indiana Early Childhood Foundations (2017) include creative arts, but they are not as robust as the NCAS and do not describe all five arts areas. Aligning instruction with state standards is an expectation of the teaching profession but not all states are aligned with the national standards for arts education. Having knowledge of the NCAS standards might be limited to those teachers with a background in arts education.

Media arts was the arts discipline that teachers reported teaching the least. Approximately 20% reported that their students never receive instruction in media arts, and most (61%) do not assess student learning in media arts. In the pre-pilot study, this was the arts area with which

teachers were the least familiar, as it is relatively new as a distinct discipline and not included in the Indiana Early Childhood Foundations. Indiana should consider the NCAS in future revisions of early childhood foundations that guide preschool teachers. Expanding the description of creative arts to include media arts would likely result in more preschools experiencing this arts discipline.

Preschool Accessibility of the Arts

To answer the second part of this research question, teachers reported the number of students with disabilities they taught to gather data on students with disabilities taught in inclusive and self-contained settings. Most survey respondents were early childhood general education teachers (87%) with 3 or more students with disabilities in class (51%). These data suggest that students with disabilities in inclusive preschool classes likely receive arts instruction daily.

In chapter 2, UDL and assistive technology were discussed as models for ensuring accessible arts education for all students. A little more than half of teachers responded that they utilized a UDL framework when planning across the five arts areas. 61% of teachers reported using a UDL framework when planning dance, 54% for drama, 52% for media arts, 63% for music, and 64% for visual arts. While Simeonson et al. (2001) did not collect data on students with disabilities in preschool, they did examine the participation of students with disabilities in the arts and found that less than half of students with disabilities fully participate in arts classes. Findings from this study are consistent, suggesting that there may be some unexplored barriers to access and full participation in arts education for students with disabilities in preschool settings. As emphasized by the pre-pilot teacher interviews, the are many children at the preschool level that are yet to be identified with a disability making the practice of planning for accessibility through UDL even more important.

Most teachers reported having arts materials and instruments in their classrooms that were accessible to all students across all five arts areas. Ninety percent of teachers reported having accessible dance materials, 82% for drama, 74% for media arts, 93% for music, and 89% for visual arts. While it is encouraging to hear teachers report having accessible arts materials and instruments, most teachers who responded to this survey were general education teachers and data were collected on the number of students with disabilities served but not the intensity of student needs. The availability of adaptive arts equipment or tools, assistive technology, or specialized instructional strategies that make arts learning accessible for some students with disabilities needs further investigation.

Limitations

Regarding the limitations of this study, given that the data for EFA and CFA were collected at the same time and the data set was randomly split, the instrument was not revised before conducting CFA. CFA result may have differed had the instrument been revised. The data were collected from a single state with a limited sample size, which may limit the generalizability of the results. Participants were recruited from preschool programs that served vulnerable populations of students (special education, low income) in a state that does not have expanded universal preschool. Hence, these results may not generalize to all preschool settings. Only 11% of the respondents identified as an early childhood special education teacher; therefore, the perspective of these teachers is limited in the results. Furthermore, this study was conducted during a world-wide pandemic which may have influenced participation and results.

Recommendations for Future Research

While previous research has focused on K-12 arts education implementation, these results provide a snapshot of the state of arts education in Indiana preschools. A comprehensive examination of arts instruction in preschool was absent in the literature.

This study validated a new instrument for gathering data on implementation and the accessibility of arts education in preschool. Possible future studies include using the SPTAE with a nationwide sample of preschool teachers or in a state with universal preschool to compare results and extend the validation of the instrument. This instrument should also be used in a post-pandemic school year to gather data on pandemic effects.

This study contributes by bringing new understanding of how the arts are taught in preschool and how teachers provide accessible arts experiences for students with disabilities. Future studies should explore possible barriers to and participation in arts activities for preschool students with disabilities based on their level of needs or supports. Since this sample included a limited number of early childhood special education teachers, focusing on their perspectives might highlight new knowledge.

Since Indiana has very limited public preschool offerings, future applications of this instrument could gather data from privately funded preschools with play-based learning philosophies such as Montessori, forest schools, Reggio Emilia, or Waldorf. This would provide data for the comparison of public and private arts opportunities for students with disabilities.

Concluding Summary

Prior to this study, little was known about how the arts were taught in preschool. This study explored how students with and without disabilities are taught dance, drama, media arts, music, and visual arts in preschool. The SPTAE was developed, evaluated, and validated for

measuring the opportunities and accessibility of arts education in preschool. This study contributes to the limited literature describing teaching arts education in preschool to all students and presents a valid and reliable instrument. This instrument and data gathered with this instrument may benefit professionals in early childhood education, arts education, and special education. The SPTAE was designed to gather data on arts education in preschools. Gathering such data at the state level may lead to advocacy for improve policy, curriculum, and child outcomes related to preschool arts education.

APPENDIX A. SPTAE VERSION 1.0

SURVEY OF PRESCHOOL TEACHERS AND ARTS EDUCATION

Respond to all questions for the 2020-21 school year.
Do not include names of persons on this form.

Directions: Answer the following questions about who taught the arts to your students during the 2020-21 school year. Respond to the questions for each arts discipline (dance, drama, media arts, music, visual arts). Make sure to review the definitions provided at the beginning of the survey.					
Arts Education Personnel Arts education personnel refers to the type of teacher responsible for instruction in each of the arts disciplines.	**Dance**	**Drama**	**Media Arts**	**Music**	**Visual Arts**
1. Who instructed your students in the arts?	[answer for each discipline] Me Certified arts teacher Teaching artist Co-taught with arts teacher or teaching artist No instruction				
Directions: Answer the following questions about the arts curriculum used during the 2020-21 school year. Respond to the question for each arts discipline (dance, drama, media arts, music, visual arts). Make sure to review the definitions provided at the beginning of each section of the survey.					
Arts Education Curriculum Arts education curriculum includes the frequency and description of planned interactions of students with the content, materials, resources and the process for evaluating arts education objectives.	**Dance**	**Drama**	**Media Arts**	**Music**	**Visual Arts**
2. How often were the arts included in the curriculum?	[answer for each discipline] Daily, 2-3 times a week, Once a week, 2-3 times a month, Once a month, Once a year, never				
3. Did your school or district have a written, sequential curriculum guide in any of the arts disciplines?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
4. Was your arts curriculum aligned with your state's Early Learning Guidelines?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

5. Was your arts curriculum aligned with the National Core Arts Standards?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
6. Did you assess student learning in the arts?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
Directions: Answer the following questions about how you taught the arts to your students during the 2020-21 school year. Respond to the question for each arts discipline (dance, drama, media arts, music, visual arts). Make sure to review the definitions provided at the beginning of each section of the survey.					
Approach to Arts Education Approach to arts education describes how opportunities to engage in arts learning are provided.	**Dance**	**Drama**	**Media Arts**	**Music**	**Visual Arts**
7. Was your arts instruction expanded or enhanced through collaborations with artists or arts resources in your community (e.g., performances at the school, classroom guests)?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
8. Did you integrate the arts into activities, routines and/or transitions *(e.g., using the song "The Ants Go Marching," to teach both music and math related concepts)*?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
9. Did you include an arts center or station in your class?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
10. Did you include the arts during whole group instruction *(e.g., circle time, morning meeting)*?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
11. Did you incorporate open-ended or process-focused activities where students explore the arts?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
12. Did you use structured and/or sequenced instruction during arts	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO

activities *(e.g., direct instruction, explicit, systematic instruction)*?					
13. Did you teach students to follow directions to make a predetermined end product**?**	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
14. Did you utilize a Universal Design for Learning (UDL) framework when planning arts activities? (e.g., flexible planning for a variety of learners)	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
15. Did students take arts related field trips either virtual or in-person? (e.g., museums, galleries, performances)?	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
16. Did students in your class use arts materials/instruments that were accessible to all students, including those with disabilities? (e.g., assistive technology or adaptive arts equipment/ tools when needed)	YES/NO	YES/NO	YES/NO	YES/NO	YES/NO
17. Which best describes your arts instruction during 2020-21?	[answer for each discipline] -I used the arts to celebrate or decorate. I consider my activities more craft than art. -I used the arts to enhance or explore activities, routines and/or transitions. -I fully integrated the arts with learning in other subjects including both arts and non-arts objectives. -I taught the arts as its own subject. -I did not include arts learning.				

Directions: Which of the following statements, if any, describe the way you taught each of the arts disciplines during the 2020-21 school year? Mark yes if the statement describes arts learning in your classroom and mark no if it does not. Make sure to review the definitions provided at the beginning of the survey.
Instructional Practices

Instructional practices refers to descriptions of how and what essential arts skills and concepts teachers emphasize within each of the five arts disciplines including standards-based activities, use of materials/instruments, instructional goals, and teacher-student as well as peer interactions.		
MUSIC I provided opportunities for students to…	**Yes**	**No**
18. …dance or move to music (e.g., *head, shoulders, knees and toes*).		
19. ... learn why music is performed.		
20. … play musical instruments *(e.g., maracas, tambourine, xylophone, rhythm sticks).*		
21. … listen and respond to different types of music *(e.g., classical, jazz, hip hop, blues).*		
22. … listen and respond to music from various cultures.		
23. … sing rhymes, songs or chants.		
24. … respond to changes in music.		
25. … express themselves musically.		
26. … preform or record musical ideas.		
27. … indicate musical preferences.		
28. … describe what they like about music they make.		
29. … sing or make musical sounds together.		
30. … apply my feedback about the musical sounds they make.		
31. …hear me sing and/or play a musical instrument.		
32. … experience books that have lyrics or musical patterns (e.g., *Wheels on the Bus*).		
33. …use *iconic or visual representation of musical ideas.*		
DRAMA/THEATRE. I provided opportunities for students to…	**Yes**	**No**
34. … use nonrepresentational props, puppets or costumes during dramatic play or guided drama *(e.g., pretending a paper plate is a hat).*		
35. … use gestures and words expressively during dramatic play or guided drama.		
36. … produce character voices or animal sounds during dramatic play or guided drama.		
37. … make up original ideas, events or characters during dramatic play or guided drama.		

38. … express emotions or identify emotions in dramatic play or guided drama.		
39. … indicate preferences in dramatic play, guided drama or theatre performances.		
40. … engage in child-led or free dramatic play.		
41. … respond to teacher's questions during dramatic play or guided drama.		
42. … identify and describe characters during dramatic play or guided drama.		
43. … connect their own experiences to similar experiences or characters in stories.		
44. … use gestures and words to expressively tell a short story.		
45. … engage in dramatic play together.		
46. … participate in dramatic play with adults.		
47. … participate in guided drama experiences *(e.g., process drama, story drama, creative drama, narration, guided imagery).*		
48. … learn about using their imagination.		
DANCE- Student Engagement I provided opportunities for students to…	**Yes**	**No**
49. … make-up dances or movements to music.		
50. … express ideas, thoughts or emotions through movements.		
51. … engage in locomotor (walk, jump, run, hop) and non-locomotor (bend, twist, balance) movements upon request.		
52. … identify different parts of the body using dance, movement or drawing.		
53. … perform dances.		
54. … identify directions, speed and force using dance or movement *(e.g., up, down, backwards, turning, fast/slow, heavy/light).*		
55. … start and stop body movements in response to musical, tactile or visual cues *(e.g., freeze dance).*		
56. … dance with props *(e.g., ribbons, scarfs).*		
57. … indicate preferences in dance.		
58. … share dance movements learned from their personal experience or their culture.		
59. … view dance performances and ask questions.		
60. … talk about how dancing or viewing dance makes them feel.		

61. … dance with adults.		
62. … dance with each other.		
63. … imitate teacher dance movements.		
64. … imitate dance movements observed in performances.		
65. … hear how dancing or viewing dance makes me feel.		
66. … learn through improvisational dance experiences.		
67. … learn dance and movement related vocabulary *(e.g. spinning, twirling, jumping, swaying).*		
VISUAL ARTS I provided opportunities for students to…	**Yes**	**No**
68. … explore color and mark-making (lines, shapes, textures, symbols) to communicate meaning.		
69. … explore, experience and play with art materials.		
70. … make art for self-expression.		
71. … identify colors, shapes and lines found in the school.		
72. … identify colors, shapes, lines and subject matter in works of art.		
73. … use a variety of art materials (paint, clay, glue) to make art.		
74. … make drawings or paintings of familiar places or objects.		
75. … express their preferences in artwork.		
76. … use messy art materials in my class.		
77. … share stories about the art they make in my classroom.		
78. … learn the difference between images and objects.		
79. … make art together.		
80. … share art materials with each other.		
81. … appreciate and describe famous works of art.		
82. … talk about what they see, think and feel in response to artwork.		
83. … learn about art from different time periods.		
84. … learn about art from various cultures.		
85. … learn art related vocabulary (e.g., lines, shapes, colors, textures).		
86. … to display their student artwork.		
87. … to learn about the purpose of art museums and galleries.		
MEDIA ARTS I provided opportunities for students to…	**Yes**	**No**

88. … to explore, experience and play with digital tools for artmaking (e.g., camera, video camera, audio recording equipment, imaging software)		
89. … plan media arts projects.		
90. … present their media artworks to an audience.		
91. … combine art forms (e.g., puppets and video).		
92. …make media artworks together.		
93. … engage in media artworks creation with adults.		
94. … talk about what they see, think and feel in response to a media artwork.		

Survey Participant Demographics Survey

Respond to all questions for the 2020-21 school year.

95. Which best describes your job title/position?
    Early Childhood Teacher
    Early Childhood Special Education Teacher

96. Which choice best describes where your school is located?
    [drop down choices of states, territories, BIE]

97. What age(s) of children do you currently teach? Check all that apply.
    3-year-olds
    4-year-olds
    5-year-olds

98. Which best describes your preschool program?
    Early Childhood Program primarily serving typically developing children

    Inclusive Early Childhood Program serving both children with and without disabilities

    Early Childhood Special Education Program serving only children with disabilities

99. Including this school year, how many years have you been employed as a preschool teacher in private and public schools?
    1-5 years
    6-10 years
    11-15 years
    16-20 years
    21+ years

100. Please indicate your highest level of education.
    High School Diploma
    Child Development Associate Credential (CDA)
    2-year college degree (Associate degree)
    4-year college degree (Bachelor's degree)
    Graduate degree (Master's degree)
    Terminal degree (Ph.D., Ed.D., or equivalent degree)

APPENDIX B. SPTAE FINAL INSTRUMENT

SURVEY OF PRESCHOOL TEACHERS AND ARTS EDUCATION

Directions: This instrument is intended for general education and special education teachers who taught preschool (3- to 5-year-olds) during the 2020-21 school year. If you had another primary teaching assignment during the 2020-21 school year, do not continue. This instrument asks you to reflect on arts opportunities you provided to your students during the 2020-21 school year. While participation in this survey is voluntary, your cooperation is critical to make the results of this survey comprehensive, accurate, and timely. Your answers may be used for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose. Please read the following definitions carefully before completing the survey. This survey takes approximately 20 minutes to complete.

Arts education includes instruction in any of the arts disciplines which includes dance, drama, media arts, music, and visual arts.

Arts integration is a part of arts education where a teacher combines or uses the arts when teaching another subject. It is sometimes referred to as interdisciplinary or cross-curricular teaching. An example of arts integration would be asking students to move like a bug when learning about insects to enhance learning in both dance and science.

Dance instruction is teaching students to use their bodies to express ideas, respond to music and convey feelings. Dance might include free movement, guided movement, or experiencing dance performances.

Drama instruction is teaching students to tell stories and communicate through action and/or dialogue. Drama might include dramatic play, guided dramatic experiences or experiencing theater.

Media Arts instruction is teaching students to use current and emerging technologies in arts-making. Taking pictures with an iPad and painting on a smartboard are both examples of teaching using media arts.

Music instruction is teaching students to combine voice and/or instruments to create melodies and pleasing sounds. Music instruction includes making music, listening to music, or learning about music.

Preschool includes the education and care of children ages three to five years old.

Visual Arts instruction is teaching students to create, critique, apply meaning, and respond to the visual arts such as painting, drawing, or sculpting.

Directions: This instrument asks you to reflect on arts opportunities you provided to your students during the 2020-21 school year. Please choose the response that best describes the arts opportunities you provided during the 2020-21 school year.

During the 2020-2021 school year…
(NA = I didn't provide any arts instruction.)

	Dance	Drama	Media Arts	Music	Visual Arts
	Yes No NA	Yes No NA	Yes No NA	Yes No NA	Yes No NA
was your arts curriculum aligned with early childhood standards such as state early learning guidelines?	Q1.3.1	Q1.2.1	Q1.5.1		Q1.4.1
was your arts curriculum aligned with the National Core Arts Standards?	Q1.3.2	Q1.2.2	Q1.5.2		Q1.4.2
did your arts instruction include collaborations with artists or arts resources in your community (e.g., performances or classroom guests either in-person or virtual)?	Q1.3.3	Q1.2.3	Q1.5.3	Q1.1.3	Q1.4.3
did you utilize a Universal Design for Learning (UDL) framework when planning arts activities? (e.g., providing multiple means of engagement, representation, action, and expression to plan for a variety of learners).	Q1.3.4	Q1.2.4	Q1.5.4	Q1.1.4	Q1.4.4
did your students use arts materials/instruments that were accessible (adaptive equipment/ tools or assistive technology when needed)?	Q1.3.5	Q1.2.5	Q1.5.5	Q1.1.5	Q1.4.5

Mark yes or no in response to the following questions about arts instruction during the 2020-21 school year.

	Dance	Drama	Media Arts	Music	Visual Arts
	Yes No	Yes No	Yes No	Yes No	Yes No
During the 2020-21 school year, did you assess student learning in the arts?		Q5.2.1	Q5.3.1		
During the 2020-21 school year, did you regularly integrate the arts into activities, routines and/or transitions (e.g., combining music		Q5.2.2	Q5.3.2		

learning and goals with learning in another subject)?					
During the 2020-21 school year, did you regularly make use of an arts center or station in your routine?		Q5.2.3			
During the 2020-21 school year, did you regularly include the arts during whole group instruction (e.g., circle time, morning meeting)?		Q5.2.4	Q5.3.4		
During the 2020-21 school year, did you plan for students to work towards IEP goals/objectives during or using arts activities?		Q5.2.5			

Visual Arts

Directions: For the following questions, mark the response(s) that best describes the way you included **visual arts** instruction during the 2020-21 school year.

Visual arts instruction is teaching students to create, critique, apply meaning, and respond to the visual arts such as painting, drawing, or sculpting.

Mark yes if the statement describes the way you included dance instruction during the 2020-21 school year and mark no if it does not.

	Yes	No
Q10.3 I provided opportunities for students to make art for self-expression.		

Which best describes how you included the arts in your teaching during the 2020-21 school year? Check all that apply.

	I used the arts to celebrate or decorate. I consider my activities more craft than art.	I used the arts to enhance or explore activities, routines and/or transitions.	I fully integrated the arts with learning in other subjects including both arts and non-arts objectives.	I taught the arts as their own subjects.	I did not include arts learning.
Q2.1.1 Dance					
Q2.1.2 Drama					
Q2.1.3 Media Arts					
Q2.1.4 Music					
Q2.1.5 Visual Arts					

During the 2020-21 school year, who instructed your students in the arts? (Including both arts subjects taught on their own and any arts integration). Check all that apply.

	I was solely responsible for instruction.	A certified arts teacher was solely responsible.	A teaching artist was solely responsible.	I co-taught or shared the responsibility for instruction with an arts teacher or teaching artist.	I co-taught or shared the responsibly for instruction with another teacher or related service provider(s).	My students received no arts instruction.
Q3.1.1 Dance						
Q3.1.2 Drama						
Q3.1.3 Media Arts						
Q3.1.4 Music						
Q3.1.5 Visual Arts						

During the 2020-21 school year, how often did you include the arts? (Including both arts subjects taught on their own and any arts integration instruction).

	Daily	2 to 3 times a week	Once a week	2 to 3 times a month	Once a month	Once a semester	Once a year	Never
Q4.1.1 Dance								
Q4.1.2 Drama								
Q4.1.3 Media Arts								
Q4.1.4 Music								
Q4.1.5 Visual Arts								

D1 Which best describes your job title/position?

Early Childhood General Education Teacher
Early Childhood Special Education Teacher

D2 Where is your school located? Please list the state, the District of Columbia, a United States territory, or Indian Nation.

[enter text]

D3 Which best describes the location of your preschool?
Preschool program within an elementary school
Preschool program within an early childhood center

D4 How many students identified with disabilities did you teach/serve during the 2020-2021 school year?

0
1
2
3
4
5
6 to 10
More than 10

D5 Including this school year (2021-2022), how many years have you been employed as a preschool teacher?

[enter text]

D6 Please indicate your highest level of education.

High School Diploma or equivalent
Child Development Associate Credential (CDA)
Associate degree (e.g., AA, AE, AFE, AS, ASN)
Bachelor's degree (e.g., BA, BBA, BFA, BS)
Master's degree (e.g., MA, MBA, MFA, MS, MSW)
Doctorate degree (e.g., PhD, EdD)

D7 Which best describes how you provided instruction during the 2020-21 school year? Check all that apply.

In-person instruction
Online instruction
Hybrid instruction (mix of in-person and online instruction)

Other: _____

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