

MUSIC AND AUTISM SPECTRUM DISORDER: POSSIBLE EFFECTS OF MUSIC ON THE
AUTISTIC MIND

By

Alexandra Ferro

Liberty University

A THESIS PRESENTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MUSIC EDUCATION

Table of Contents

CHAPTER ONE: INTRODUCTION.....	3
BACKGROUND	3
STATEMENT OF THE PROBLEM	5
STATEMENT OF THE PURPOSE	6
SIGNIFICANCE OF THE STUDY	7
STATEMENT OF PRIMARY RESEARCH QUESTIONS	9
HYPOTHESES	10
RESEARCH METHODS	11
DEFINITIONS OF TERMS	12
CHAPTER SUMMARY	15
CHAPTER TWO: LITERATURE REVIEW	16
INTRODUCTION	16
ASD AND MUSIC INTERVENTION	23
ORFF AND KODÁLY METHODS: AMERICAN MUSIC EDUCATION	31
ORFF AND KODÁLY METHODS: ASD	34
CHAPTER SUMMARY	38
CHAPTER THREE: METHODOLOGY	42
INTRODUCTION	42
RESEARCH DESIGN	42
RESEARCH QUESTIONS	43
HYPOTHESES	43
DATA EXAMINATION	44
CHAPTER FOUR: RESEARCH FINDINGS	45
INTRODUCTION	45
APPROACHES	45
RESOURCES	53
ASSESSMENTS	55
STUDENT EXPERIENCE	61
TERMINOLOGY IN ASSOCIATION WITH ASD	67
CULTURAL CONSIDERATIONS	68
CHAPTER SUMMARY	69
CHAPTER FIVE: CONCLUSION.....	71
INTRODUCTION	71
SUMMARY OF STUDY	71
SUMMARY OF PURPOSE.....	72
SUMMARY OF PROCEDURE.....	72
SUMMARY OF RESEARCH FINDINGS	73
STATEMENT OF LIMITATIONS.....	74
RECOMMENDATIONS FOR FUTURE RESEARCH.....	76
IMPLICATIONS FOR PRACTICE	78
CONCLUSIONS.....	79
BIBLIOGRAPHY	81

CHAPTER ONE: INTRODUCTION

Background

Autism Spectrum Disorder (ASD) is a known neurological disorder that directly affects an individual's ability to communicate and interact with others; ASD is diagnosed within the first three years of life.¹ There is no specific treatment method for ASD because it is a neurological disorder; it varies from each person affected. However, one of the most common forms of therapy or interventions used is music. Music incorporation can change in a format such as learning a specific instrument, singing, or simply dancing to promote physical activity to help brain stimulation and process the overall musical experience. According to a 2020 report from the Centers for Disease Control (CDC), ASD affects nearly one in fifty-four children in the United States, and boys are four times more likely to be diagnosed than girls.² There is no known cause of ASD other than genetics play a role; older parents are more likely to have a child diagnosed with ASD.³

Music has been a commonly used therapy or intervention for children diagnosed with ASD dating back to the mid-1940s. Those diagnosed with ASD have difficulty with social interactions, communication, and emotional expression, all of which occur naturally in the music learning and music-making process.⁴ One of the more popular music therapy forms is

¹ Alice M Hammel and Ryan M. Hourigan, *Teaching Music to Students with Autism*. Cary: (Oxford University Press, Incorporated, 2013), 24.

² "Autism Statistics and Facts | Autism Speaks". Autism Speaks, Last modified 2021.

³ Ibid.

⁴ Thomas Stegemann, *Music Therapy and Other Music-Based Interventions in Pediatric Health Care: An Overview* (Vienna, Austria: Department of Music Therapy, University of Music and Performing Arts Vienna, 2018), 4.

improvisational music therapy, specifically relating to ASD.⁵ By allowing those with ASD a more flexible approach to music learning, the students can exercise social, communicative, and problem-solving skills at a pace set by the instructor or therapist for the students' benefit.

Within philosophies on music learning, specifically concerning ASD, the Kodály method is a more widely exercised approach. Zoltán Kodály's school of thought on music learning consists of three aspects: the importance of singing, incorporation of folk music, and the use of solfège learning.⁶ Singing is a popular activity used to encourage students to participate with a group or single instructor, promoting social skills. Kodály strongly believed in using folk music or music that is culturally relevant to individuals to develop language and communication skills further. For example, in the United States, an educator would not begin teaching a group of children the nursery rhyme "Brother John" in French, known as "Frère Jacques". Before, the children were first able to master the song in English, their native language. By teaching songs and reinforcing language used in daily life, students will naturally begin to progress in their communicative and social skills.

The use of solfège is an excellent kinesthetic approach to learning music taught in two ways based on age appropriateness. First, and primarily for younger students, body solfège requires the students to use their whole body to perform the movements associated with each pitch. The second and more traditional approach of solfège is a series of hand symbols that correlate with specific pitches.

⁵ Alessandro Antonietti, Barbara Colombo, and Braelyn R. DeRocher, *Enhancing Social Skills in Autism Through Music. In: Music Interventions for Neurodevelopmental Disorders*. (Palgrave Pivot, Cham. 2018).

⁶ Natee Chiengchana and Somchai Trakamrungs, *The Effect of Kodály-Based Music Experiences on Joint Attention in Children with Autism Spectrum Disorders*, *Asian Biomedicine* 8, no. 4 (2014), 549.

The Orff method of music learning is a hands-on approach in which the goals are improvisation, movement, and exploration.⁷ The Orff method can be highly successful for students with ASD simply because the structure allows flexibility in the learning process. The goals, though music-oriented, are primarily on individual student growth. Orff instruments such as the glockenspiel, metallophone, and xylophone do not require a particular skill set or technique to play these instruments. The lack of technique or needed refined skill allows students to experiment and discover how each instrument makes sound and how they are different. By self-discovery and a guided learning approach, students will take ownership of their education and progression while exercising communicative and cognitive skills necessary for daily life.

Statement of the Problem

Historically, music education has been taught using one of four schools of thought: Dalcroze, Suzuki, Orff, or Kodály methods. Though each music learning pedagogy can display effective, one specific way may not always be the most appropriate, and adaptations may be necessary. By utilizing aspects of both Orff and Kodály methods, students with ASD will learn and experience music from a hands-on approach that will exercise brain function and develop social skills.

Music classes are often larger groups of students and can be noisy for students to process. Classes typically are mixed groups of students with and without learning disabilities which may not be the most suitable environment for students with sensory issues or need more direct attention.⁸ Depending on the severity of diagnosis, some students with ASD are with a special

⁷ Alexandra Kertz-Welzel, *Thinking Globally in Music Education Research* (Bloomington: Indiana University Press, 2018), 42.

⁸ *Ibid.*, 42.

education teacher for most, if not all, of the school day and may not get the whole experience of a music class.

Often, students with disabilities have an IEP to assist the curriculum for the grade level they are in; however, the IEP often replaces the curriculum, and students with disabilities such as ASD do not receive the same level of education as other classmates. This is due to the emphasis placed on the IEP programs and the lack of training and resources provided to teachers.⁹ Most current music curriculums were created for students without disabilities; therefore, when placed in a general music class, students with disabilities become the minority. Teachers are prepared and trained to teach students with typical learning abilities, which unfortunately creates a disadvantage for students with disabilities that may make them susceptible to fall behind in the class and ultimately become a disservice for the student.

Statement of the Purpose

This research aims to identify current issues regarding music classes and services offered for students with ASD. Music is a subject that can be taught in various ways depending on an educator's preference; however, educators need to set aside personal preferences and use methods and tactics that can be most beneficial to their needs. It is crucial to reconsider class sizes and music teaching approaches geared towards success by receiving direct instruction. Although third parties can provide music therapies, the music classroom in schools can be therapeutic to students as students are able to move, create sound, and express themselves. This

⁹ Diane Twachtman-Cullen and Jennifer Twachtman-Bassett, *The IEP from A to Z: How to Create Meaningful and Measurable Goals and Objectives*. (New York, NY: John Wiley & Sons, 2011). 30.

study will illuminate ASD, how music can benefit brain health and function, and how a significant difference can be made possible with a slight change in the classroom.

Significance of the Study

Music used as a form of intervention for students with ASD is not always accessible and could become costly. There are many existing correlations between music intervention tactics and the Orff and Kodály methods of music education that can promote a new approach to the development of students with ASD using music as a catalyst for growth as an individual developmentally and musically. This study will display the significance of music incorporation for students with ASD to further assist them in academic and social development through music exposure from a Kodály-Orff approach.

Students with ASD

Students diagnosed with ASD can benefit from a personalized approach to music learning and exploration that reinforces verbal and nonverbal language, problem-solving and social skills. By combining Orff and Kodály's approaches to music learning, students with ASD will experience two kinesthetic music intervention approaches that do not require a specific skill set. Learning music requires repetition and reinforcement. There are many different avenues of music, and an area of particular interest for everyone is nearly guaranteed. Music can help people develop friendships with others who have similar difficulties.¹⁰ Students with ASD will have an

¹⁰ Petra Kern and Marcia Humpal, eds. *Early Childhood Music Therapy and Autism Spectrum Disorders: Developing Potential in Young Children and Their Families*. (London: Jessica Kingsley Publishers, 2012), 101.

IEP of sorts that will disclose their current development, goals, and objectives for the academic year and information about their home environment.

Parents

This study may be significant to parents of children diagnosed with ASD to help them find the right hobby or therapy for their child. ASD affects every child differently. While some children are less affected by the disability, other children are impacted much more daily. Some individuals are nonverbal and suffer from anxiety and may face more challenges within their daily lives. Music instruction, whether offered at school by a music therapist or a private instructor, may help activate other life areas that may prove challenging. This study will also illuminate the current curriculum children with ASD receive and may be shocking to parents of the lapse in the education system regarding the equal treatment of children.

Music Educators

This study may be beneficial for music educators to broaden horizons on methods of music teaching. There are many schools of thought on music education and personal preference; alterations are necessary for students with learning disabilities so that a student's educational and personal growth is not stunted. The Kodály and Orff methods are relatively popular in music education, and educators should be familiar with these practices to incorporate some of the elements into their teaching style. This study's significance for music educators is an invitation to reflect on the current teaching style and review ways to alter the curriculum to benefit all students, specifically those with ASD. Creating a change in curriculum and teaching approaches is achievable by incorporating Orff, Kodály, and the SCERTS Model.

Statement of Primary Research Questions

Music is a commonly used form of therapy or intervention for those diagnosed with ASD.¹¹ Music provides many benefits for developing speech, social skills, expressing emotion, and cognitive understanding. There are many ways in which music is taught; however, for those with ASD, a flexible and individualized approach to music learning is necessary. For students, parents, and teachers, it is essential to explore music intervention options, the current education system, and areas where the curriculum and teaching approaches can benefit from being improved. This research will discover the answers to the following questions:

Research Question One: What are the current approaches to music intervention concerning students with ASD?

Research Question Two: In what ways can the current music education or intervention tactics be altered to better suit the needs of students with ASD?

Research Question One is significant to begin this study because it identifies the current standards and practices of music therapy. In therapy, ASD is approached from an Applied Behavior Analysis (ABA) recognized by the National Autism Center (NAC).¹² Within this approach, students' behavior is examined, as well as their environment and how that may influence their behavioral responses.¹³ ABA is effective concerning children diagnosed with ASD and can provide insight on how students with ASD may respond in specific environments.

¹¹ Kern, and Humpal, eds. 101.

¹² Ibid., 101.

¹³ Ibid., 103.

Research Question Two is essential concerning further research necessary to understand education and music therapy systems, question how these practices have been put in place, and then discover the areas that require revision. As more information surfaces from studies continually being conducted on ASD, it is crucial to recognize what is effective, what new techniques or approaches are available, and understand students' needs with ASD.

Hypotheses

Hypothesis One: Current approaches to music intervention concerning students with ASD include assessing the home environment, reviewing the details of IEP's and considering other related health issues, and determining the student's level of interest in music.

Kinesthetic learning is a significant factor in social, cognitive, and communication skills as it allows children to draw personal connections, learning opportunities, and opportunities for application. By encouraging musical exploration in students with ASD, students will discover both musical elements and life skills. Flexibility in the music intervention approach can either encourage the student or deter them from music altogether; if not handled with delicacy, they could revert any progress.

Hypothesis Two: Current music education or intervention tactics can be altered better to suit students with ASD in terms of music exploration, incorporation of culturally relevant songs and instruments, and promoting group or partner activities to assist in developing social and communication skills.

By combining the Orff and Kodály methods of music learning, students will have the opportunity to learn music from an individualized approach. By incorporating instruments,

singing, and kinesthetic movements, students with ASD will have the chance to explore sensory areas and further develop speech and social skills. Combining these two methods will allow educators to be more creative in teaching approaches and focus on their overall progression rather than mastering musical skills. This can only be accomplished by considering the current areas concerning IEP's, music curriculum and by advocating for more teacher resources and training.

Research Methods

For this study, the most appropriate research method is historical qualitative. A qualitative research approach focuses on exploring and desire to understand the meaning of individuals or groups that encounter similar social or human problems.¹⁴ This research process will focus on carefully reflecting data, analyzing information, and assessing the validity of the data collected in existing studies.¹⁵ ASD is a complex disorder that affects individuals in various ways; using a qualitative approach will effectively depict the effect music has concerning the ASD mind. This study's information is scientifically backed and will help further understand the disorder and the benefits music has to offer.

¹⁴ John W Creswell and J. David Creswell, *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*, 5th ed. (SAGE Publications, Inc, 2018), 3-4.

¹⁵ Creswell and Creswell, *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*, 5th ed. 179.

Definitions of Terms

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a neurological disorder that falls into Pervasive Developmental Disorders' medical category (PDDs). Specifically, Autism affects a person's ability to communicate or interact with others.¹⁶ Within the first three years of life, characteristics of ASD begin to show and result in a diagnosis within that time frame.¹⁷ Symptoms begin to surface around eighteen months, specifically with an aversion to eye contact, lack of or no signs of vocalization, and loss of language or social skills.¹⁸

Individualized Education Program

The Individualized Education Program (IEP) is a multifaceted document created to benefit and protect students with disabilities.¹⁹ In the early 2000s due to new laws and regulations, ASD was officially recognized as its own entity within school systems rather than categorized under other disabilities.²⁰

¹⁶ Hammel and Hourigan, *Teaching Music to Students with Autism*. 24.

¹⁷ *Ibid.*, 24.

¹⁸ *Ibid.*, 25.

¹⁹ Twachtman-Cullen and Twachtman-Bassett. 29-30.

²⁰ *Ibid.*, 30.

SCERTS Model

The Social Communication, Emotional Regulation, and Transactional Support (SCERTS) model evaluates and promotes the students' social and emotional developments concerning ASD with achievable goals.²¹

Music Intervention

Music intervention is a therapeutic tactic to assist those who struggle with mental and physical limitations or difficulties.²² Music can be used to create a sense of relaxation, promote a more positive mood, increase self-awareness, and trigger changes that allow individuals to improve or develop any lacking skills.²³

LOTS and HOTS Learning

Lower-order thinking skills (LOTS) are those of primary and general understanding of a concept or skill.²⁴ Higher-order thinking skills (HOTS) allow students to put their knowledge into action and do things such as analyze information, evaluate their progress and progress of the group or class.²⁵

²¹ Twachtman-Cullen and Twachtman-Bassett, 91.

²² Antonietti, Colombo, DeRocher, "The Reasons Supporting the Use of Music in Rehabilitation"

²³ Ibid.

²⁴ Debra Hedden, *General Music Curriculum Framework Document*, NAFME.

²⁵ Hedden.

Applied Behavior Analysis

Applied Behavior Analysis (ABA) is a form of therapy based on the science of learning and behavior. ABA is a flexible form of treatment that utilizes positive reinforcement. When a behavior is followed by something that is valued, such as a reward, the behavior will likely be repeated.²⁶

Discrete Trial Training

Discrete Trial Training (DTT) is an intervention method that utilizes elements of ABA. DTT offers skills through a structured ladder of easily taught components. The repetition of the DTT process allows children to gain mastery over necessary abilities including cognitive, communicative, and social skills.²⁷

Early Intensive Behavioral Intervention

Early Intensive Behavioral Intervention (EIBI) is a form of treatment that consists of twenty to forty hours per week of individualized instruction for children with ASD who begin treatment at the age of four years and younger. The EIBI model emphasizes instruction at home with DTT.²⁸

²⁶ "Autism Speaks"

²⁷ "Early Intensive Behavioral Intervention / Treatment", Association for Science In Autism Treatment, Last modified 2021, <https://asatonline.org/for-parents/learn-more-about-specific-treatments/early-intensive-behavioral-intervention-treatment-2/>.

²⁸ "Autism Speaks"

Early Start Denver Model

The Early Start Denver Model (ESDM) is a behavioral therapy for children with ASD between the ages of twelve and forty-eight months old and is based on methods of ABA. ESDM is based on the understanding of normal toddler learning and development stages. Parent involvement is a key aspect of ESDM.²⁹

Chapter Summary

Music intervention as a form of therapy for those diagnosed with ASD is a popular approach to further developmental skills and social interactions. There are numerous studies on the relation between music intervention, speech, social skills, and cognitive understanding. The discoveries made concerning ASD, and as more information becomes available on the disorder, music educators, parents, and therapists, must be flexible and adapt new music intervention methods. By combining Orff and Kodály's music learning methods, reevaluating the current music curriculum and IEP standards, students with ASD will learn music from a hands-on approach that will benefit students in musical development in developing skills necessary for life.

²⁹ "Autism Speaks"

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter will review the literature concerning ASD, forms of music intervention, the Orff and Kodály music education methods, and IEP programs' issues. This chapter will be categorized into four sections to answer the research questions posed in chapter one. The first section will identify ASD, the history of the disorder, and the process of diagnosis. The definitions and diagnoses of ASD have changed drastically over the years; therefore, understanding what ASD is, how it occurs, and how medical advances have illuminated the disorder's illumination treatment methods. The second section will explore music intervention and the assessments that determine if music is the best intervention for the student. Music intervention may not be suitable for all students; however, it can be very effective. It is crucial to understand this intervention's qualifiers. The third section will explore both Orff and Kodály's methods to understand their pedagogical choices and principles. Each music learning approach offers many opportunities for kinesthetic learning, and the goal is the student's overall growth rather than an acquired skill from a music class. The fourth and final section of this chapter will explore how both music learning methods have been used for students with ASD, specifically concerning the IEP's students have as an aid to their academic goals. This section provides excellent detail on the lapse in school systems as IEP's have become their curriculum in many scenarios.³⁰

³⁰ Twachtman-Cullen and Twachtman-Bassett, *The IEP from A to Z*, 30.

The History of ASD

In the early 2000s, as information became more accessible via books, press, and blogs, the increase of attention to the diagnosis led to ASD research in the United States.³¹ Though ASD was a seemingly new disorder, the origin of the diagnosis began with Leo Kanner. He introduced the term *autism* to the medical diagnostic category in 1943 after borrowing the term previously used to describe the symptoms of schizophrenia and the emotional deficiencies associated with the disorder.³² Kanner's research began with eleven children as he notated the obsessive and ritualistic behaviors, limited speech, and family dynamics. As Kanner described the disorder's symptoms from the 1950s through the 1970s, much controversy surrounded his initial research findings. Kanner hypothesized ASD occurred in children due to a lack of parental attention and nurturing. Kanner's hypothesis has since been proven false as research shows that ASD is a disorder a portion of the population is born with or is susceptible to ASD-like tendencies. Studies continue to be conducted to understand the potential causes of ASD. ASD is a lifelong disorder where treatments are available in therapy; however, there is no cure, only methods to help adapt to the diagnosis.³³ Kanner and other medical professionals used the terms *autism* and *schizophrenia* interchangeably, believing that Autism was an early form of childhood schizophrenia. After further research, medical professionals found no correlation between the two disorders once it was determined that ASD was a lifelong developmental disorder.³⁴

³¹ Chloe Silverman, *Understanding Autism Parents, Doctors, and the History of a Disorder*. Princeton: Princeton University Press, 2011. 28.

³² *Ibid.*, 31.

³³ *Ibid.*, 33.

³⁴ *Ibid.*, 36.

As technology advanced, the ability to examine the ASD brain and a non-ASD brain became possible using computed tomography (CT) in the 1970s and magnetic resonance imaging (MRI) in the 1980s.³⁵ Due to these medical advances, it was discovered in 1985 that there were physical differences in the brain's makeup, specifically within the limbic system. The neurons in this brain area were found smaller and more densely packed, with fewer Purkinje cells around the cerebellum.³⁶ A Harvard team acquired tissue from an ASD brain of a young man who had died and compared it to developmentally typical brain tissue.³⁷ Though these physical differences of the brain did not solidify a specific answer as to why someone is diagnosed or susceptible to being diagnosed with ASD, it did provide a reason to continue research on the brain and how it could potentially impact behaviors associated with ASD. These discoveries have changed how ASD has been researched and treated. There are many aspects of this disorder that are difficult to explain, such as the statistic of boys being four times more likely to be diagnosed with ASD than girls.³⁸ There are many discoveries such as the physical characteristics of the brain and how that may be related to the diagnosis of the disorder.

Process of Diagnosis

The process of diagnosing a child with ASD can be complex as it is not like other medical tests. Doctors observe the child's developmental history and behavior to make a diagnosis. ASD is typically diagnosed within the first two years of life; however, children are not

³⁵ Silverman, 39.

³⁶ Ibid., 39.

³⁷ Ibid., 39-40.

³⁸ Autism Speaks.

diagnosed in many cases until they are much older, occasionally into adulthood. The early signs of ASD include aversion to eye contact, no interest in other children or caretakers, a limited display of language skills, and getting upset by minor alterations in routines. Monitoring, screening, evaluating, and diagnosing ASD as early as possible is vital to ensure that children receive the services and support necessary to reach their full potential. Early diagnosis is possible when following three steps of developmental monitoring, developmental screening, and comprehensive developmental evaluation.³⁹

Developmental monitoring is observing how the child grows and changes over time and whether he or she meet standard developmental milestones in playing, learning, speaking, behaving, and moving. Often when parents or guardians take children to standard well visits, the doctor or nurse will inquire about the child's development. If there are any missed milestones, doctors will pursue further action in monitoring the child, as missed milestones could be signs of a potential problem.⁴⁰

The second step is developmental screening, where healthcare providers take a closer look at the child's development where either the child will complete a test or fill out a questionnaire.⁴¹ Developmental screening is more formal than developmental monitoring, though it is recommended for children to be screened if parents or doctors have any concerns regarding developmental stages. The American Academy of Pediatrics (AAP) recommends developmental and behavioral screening for all children during regular well visits at nine months, eighteen

³⁹ *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Screening & Diagnosis*, Centers for Disease Control and Prevention, Last modified 2020.

⁴⁰ Ibid.

⁴¹ Ibid.

months, and thirty months of age. Specifically, the AAP recommends all children be screened for ASD during well visits at eighteen and twenty-four months; additional screening may be required if a child presents a higher risk for ASD or if behaviors associated with ASD are present. A child is at higher risk if he or she have siblings or parents with ASD, had a low birth weight, was a preterm birth, or other scenario determined by doctors.⁴²

These screening tools do not necessarily result in a diagnosis. However, they provide clarification if the child is on track with typical developmental milestones or if the child should be referred to a specialist such as a developmental pediatrician, child psychologist, speech-language pathologist, occupational therapist, or other specialists.⁴³ The results of the formal evaluation determine if a child needs unique treatments or intervention services.⁴⁴ Observation of children during their developmental years is fundamental. This stage of life is where signs of ASD may surface, paying close attention to developmental milestones can be beneficial and allow for early interventions.

Forms of Treatment

There is no cure for ASD; however, there have been several approaches to interventions in attempts to reduce symptoms and improve cognitive ability that will maximize the child's participation in the community. ASD affects different people in different ways. For some, it is more disruptive than others, and treatments are usually multidisciplinary to target the child's needs. The best treatment depends on a child's age, strengths, challenges, and differences. It is

⁴² *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Screening & Diagnosis.*

⁴³ *Ibid.*

⁴⁴ *Ibid.*

vital to monitor children with ASD as all symptoms may not be ASD-related but could be caused by another health concern. An example is a child hitting his or her head which seemingly could result from ASD, or the child may be trying to express that he or she may have a headache or earache. The four treatment forms include behavior and communication approaches, dietary approaches, medication, and complementary and alternative medicine.⁴⁵

Behavior and Communication Approaches

Healthcare providers often use Applied Behavior Analysis (ABA), and in many schools and treatment clinics, ABA encourages positive behavior and tracks the child's progress. There are three different forms of ABA; Discrete Trial Training (DTT), Early Intensive Behavioral Intervention (EIBI) and Early Start Denver Model (ESDM). DTT is a teaching style where lessons are condensed into their simplest form, and positive reinforcement is used to reward correct responses, and incorrect answers are ignored. EIBI is suitable for children five years old or younger and uses structured approaches to build positive behaviors in a one-on-one environment under professionals' supervision. ESDM is a form of behavioral analysis that is better suited for students between the ages of twelve and twenty-four months old and focuses on increasing the child's verbal behavior.⁴⁶

⁴⁵ *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Treatment*, Centers for Disease Control and Prevention, Last modified 2020.

⁴⁶ Ibid.

Dietary Approaches

More recently, some dietary treatments have been developed that correlate to symptoms of ASD. Some individuals choose to remove certain foods from a child's diet and replace it with a vitamin or mineral supplement based on the theory that food allergies or a lack of vitamins cause ASD symptoms. In a 2017 study, trials found minimal evidence to support the use of dietary treatments for children with ASD, though some parents have reported they feel there had been a change in how their child acted and felt.⁴⁷

Medication

There is no cure for ASD though medication can help some individuals function better by managing high energy levels, difficulty focusing, anxiety, seizures, and other health concerns often associated with ASD. Medication may not be suitable for all those diagnosed with ASD as medication affects individuals differently, parents and doctors must monitor children's progress and any reactions while they are taking medicine. As parents and doctors evaluate a child's response to medication, children with ASD are often a part of some form of occupational therapy, including music therapy in many cases.⁴⁸

Complementary and Alternative Medicine

Complementary and Alternative Medicine (CAM) refers to services that are either used in addition or in place of traditional medicine practices. CAM treatments may include special diets, chelation (a treatment to remove heavy metals from the body), or mind-body medicine. These

⁴⁷ *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Treatment.*

⁴⁸ *Ibid.*

treatments have not been researched for their effectiveness; however, studies on chelation indicated some levels of harm concerning students with ASD, as many as one-third of parents of children with ASD may have tried CAM treatments. Of that, nearly ten percent may have been subjected to potentially dangerous treatments.⁴⁹

ASD and Music Intervention

As research continues on ASD, interventions such as evidence-based practices (EBP) determine how music can benefit students. Assessments determine if music intervention is the most appropriate option for students. Assessments determine developmental delays, identify the eligibility for specialized services, identify the current functioning level, determine the intensity and type of intervention provided, and monitor the progression in learning functional skills.⁵⁰ To conduct the assessments, a comprehensive team must include family members and professionals to create an authentic image of the student's environment.⁵¹

Within the medical profession, EBP and evidence-based medicine (EBM) are recognized by the American Music Therapy Association (AMTA) as an essential topic of discussion concerning ASD. However, medical doctors have contradicting opinions on EBP and EBM.⁵² During the first five years of life, children experience several developmental milestones; when these stages are not achieved, parents, educators, and medical professionals can develop the proper therapy approach. Often, musical intervention is selected.

⁴⁹ *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Treatment.*

⁵⁰ Kern, Petra, and Humpal, Marcia, eds., 80.

⁵¹ *Ibid.*, 81.

⁵² *Ibid.*, 40.

Before assuming music intervention is suitable for those with ASD, assessments are conducted to determine appropriate goals based on several factors, including the student's current level of development, ability to communicate, identification of any sensory sensitivities, and if the student expresses an interest in music. Though music intervention is a popular form of therapy for students with ASD, these assessments determine if music intervention is the best option for each student. The evaluation happens in four phases. Within the first phase, student's Individualized Education Programs (IEP) is reviewed to determine what the student's needs are and assist in deciding which intervention may be most suitable. The IEP contains information about the student's academic goals, limitations, and detailed health information. Based on the information provided in the IEP, this first step will determine if the student would be a suitable candidate for music therapy or music intervention. The second step is a continued examination of insufficient progress, behavioral issues, or lack of responsiveness to the student's instructional approaches. The third step is an examination of if the student shows an interest in music. If the student does not find enjoyment in music and is not engaged, music may not be the most effective form of intervention and could cause a reversal of progress. The fourth and final step identifies modifications vital to support the students learning through music, meaning that music incorporation would become an addition to the student's current IEP plan.⁵³ A typical music assessment should not take longer than thirty minutes to reveal how the student responds and displays areas where the student may have sensitivity to volume and tempo changes or respond well, such as humming along, engaging, or replying with emotional expression.⁵⁴

⁵³ Kern and Humpal, eds., 84.

⁵⁴ Ibid., 90.

Once assessments have concluded, the Social Communication, Emotional Regulation, and Transactional Support (SCERTS) Model evaluates and promotes students' social and emotional development with ASD and develops achievable goals.⁵⁵ This model's social communication aspect focuses on a social partner and the interaction of singing with classmates or taking turns playing instruments and understanding nonverbal cues such as starting and ending songs or changing instruments.⁵⁶ Transactional support intends to promote meaningful social interactions organized into three categories: interpersonal support, fostering initiation, and learning support.

Interpersonal support requires responsivity to the students' requests for song or instrument, encouragement to participate in the activity, and respect of their independence; this allows students to become comfortable and express their creativity and exploration of music.⁵⁷ Instruction is possible in both verbal and non-verbal approaches. Delivering instructions by handing an instrument to the student without verbalizing the instrument's intention or giving specific directions to the student provides a balance between verbal and non-verbal instruction that requires the student to use cognitive skills to determine what to do and how to do it. Finally, learning support requires structuring activities that encourage participation by being definitive in the beginning and ending of activities and establishing a routine.⁵⁸

⁵⁵ Kern and Humpal, eds., 91.

⁵⁶ Ibid., 94.

⁵⁷ Ibid., 95.

⁵⁸ Ibid., 95.

Characteristics of Music Therapy

Students' self-esteem and confidence are vital, and when implemented from the beginning of music interventions, parents and students can be comfortable and trust in the music process.⁵⁹ By the time music therapy or intervention has been pursued, parents have likely spent long hours speaking of and hearing how their child cannot do the same things as other children of the same age. Music interventions tend to focus on what the child can do and enjoy the positive aspects of the individual. When working with skilled music interventionists, children likely will not associate them with a therapist. Music interventionists often use play approaches when working with children to gain their trust and create a positive environment. After interventionists meet with their clients, goals and treatment plans are set and discussed with parents or guardians to create a clear path towards progression in skills the children need assistance with such as speech or motor skills.⁶⁰ The initial music meetings are formatted to distinguish if music therapy would be a suitable intervention for the student. Initial sessions are typically thirty minutes in duration, and the therapist gets to know the child's likes and dislikes and determining the level of musicality.⁶¹ General music therapy standards can be categorized into eight sections, referral and acceptance of therapy, assessment, treatment planning, implementation, documentation, termination of services, continuing education, and supervision.⁶²

⁵⁹ Amelia Oldfield. *Interactive Music Therapy - A Positive Approach Music Therapy at a Child Development Centre*. London: Jessica Kingsley Publishers, 2006. 23.

⁶⁰ *Ibid.*, 23.

⁶¹ *Ibid.*, 30.

⁶² "Quality of Service, Music Therapy Standards | AMTA Standards of Practice | American Music Therapy Association (AMTA)", Musictherapy.Org, Last modified 2015.

Referral, Acceptance, and Assessment

Once students are referred to music therapists and complete their initial meetings, it is then determined by the therapist if the student would be accepted as a client. The assessment includes general categories of psychological, cognitive, communicative, social, and physiological function levels of a student to evaluate their areas of strengths and areas of need; the assessment will also determine the student's response to music, skill level, and musical preferences. Upon assessment, the music therapist may make other referrals if necessary.⁶³

Treatment, Implementation, and Documentation

The music therapist will create individual treatment plans that will help the student further develop levels of functioning. Treatment plans include creating goals that focus on the student's needs and strengths, establishing goals with estimated time frames, specifications of procedures, and making alterations, if necessary, to meet the child's needs. The therapist will maintain close communication with any individuals involved with the student, including parents and teachers, and evaluate the child's responses periodically to determine the set goals' progress. Any documentation a music therapist creates will contain information regarding assessments, treatment plans, and ongoing therapy progress.⁶⁴

⁶³ "Quality of Service, Music Therapy Standards | AMTA Standards of Practice | American Music Therapy Association (AMTA)"

⁶⁴ Ibid.

Termination of Services and Supervision

If a student fails to show any benefits of music therapy services or has attained goals, the therapist can then terminate the therapy sessions. For a music therapist to entirely terminate a client relationship, he or she must first allow time for approval, coordinate with individualized treatment plans and any other services the student may receive and summarize the student's overall progress and function level at the time of termination. At the time of termination, the therapist must comply with federal, state, and facility regulations.⁶⁵

The Importance of the IEP and PLP

The IEP referenced earlier in this chapter is an individualized education program created for students to implement academic and personal goals for the year. The IEP also contains any pertinent information about the student, such as other health conditions and details about the student's home environment.⁶⁶ As part of the IEP implemented for children, Personalized Learning Plans (PLP) are also created to form a basis for annual goals and short-term objectives specific to the student's IEP and serve as the standard when measuring the student's performance or progress.⁶⁷ The PLP is often a neglected aspect of the IEP. The PLP is to be used in the way the law intended; it must contain a statement explaining how the student's disability affects their involvement and progress within the general curriculum and must be performance-based. The goals and objectives are documented within the IEP and PLP paperwork.⁶⁸ Occasionally, the IEP

⁶⁵ "Quality of Service, Music Therapy Standards | AMTA Standards of Practice | American Music Therapy Association (AMTA)".

⁶⁶ Twachtman-Cullen, and Twachtman-Bassett. 12-13.

⁶⁷ Ibid., 16.

⁶⁸ Ibid., 18.

can constrain generating suitable PLPs. It is recommended by many educators and administrators to provide separate descriptions for each annual goal related to the specific subject matter.⁶⁹ The general curriculum's involvement and progress address the impact level of the student's disability on their ability to be involved and make progress in the general curriculum. The information included within a PLP should be based on various sources, including formal and informal assessments, teacher-clinician observation, student performance, and parental input.⁷⁰

When implementing the IEP and PLP, it is crucial for educators to consider underlying conditions students may incur as they can directly correlate to a student's performance.⁷¹ Any underlying conditions affect what the student may need to accomplish tasks and determine appropriate intervention methods. In most IEP forms, there are areas where team members may specify any accommodations or modifications necessary for the student to be successful.⁷² For example, if the student has difficulty reading or seeing the board, color-coded visual aids may help him or her to stay on track.

Successful student performance is not only based on the completion of a task but also on the ability to which the student was able to perform it independently.⁷³ Typically developing children advance towards independence naturally as they want to do things for themselves; however, students with ASD are often referred to as prompt dependent. Those with ASD often

⁶⁹ Twachtman-Cullen, and Twachtman-Bassett, 19.

⁷⁰ Ibid., 20-21.

⁷¹ Ibid., 24.

⁷² Ibid., 27.

⁷³ Ibid., 47.

cannot perform tasks without a cue or prompt to do so.⁷⁴ Due to this tendency, the IEP must specify prompt levels of students with ASD to assist in their independence and progress towards academic goals. Seven prompt hierarchies should be detailed within an IEP; independence initiated, expectant waiting, gestural cues, manual signs, visual cues, verbal cues, cue combination, and physical cues.⁷⁵ Independently initiated cues are those that the student does not receive prompts for as the student is expected to perform the task independently. Expectant waiting refers to situations when an adult takes a pause with anticipation and allows students time to respond. Gestural cues include pointing, shrugging shoulders, shaking one's head no, or nodding yes, allowing kinesthetic movement for responses. Manual signs include American Sign Language, and visual cues include representational objects such as pictures or toys to cue a student to perform a specific behavior. Verbal cues include repetitious directions, verbal instructions to complete a task, and asking the students questions to complete a task. Occasionally, students may benefit from a combination of the cues described.⁷⁶

The term generalization of skills concerning IEPs refers to the transfer of certain skills from one setting to another.⁷⁷ Specifically, students with ASD have difficulty with generalizations of skills and are crucial to their educational endeavors. Their learning styles are typically situation-specific and do not easily accommodate the generalization of skills across people, settings, and activities.⁷⁸ A mistake educators often make is treating generalization as an

⁷⁴ Twachtman-Cullen, and Twachtman-Bassett., 47-48.

⁷⁵ Ibid., 48-49.

⁷⁶ Ibid., 49.

⁷⁷ Ibid., 53.

⁷⁸ Ibid., 54.

afterthought; it is necessary to begin with the end in mind so students with ASD can continually reinforce the practice of generalization throughout the learning process rather than at the end of that process. There are four factors to consider; time, structured opportunities, creating connections, and building skill development by necessary supports.⁷⁹ Students require a great deal of time for skill development across varying settings. With adequate time structured settings are created by the educator to target skills in various targeted areas. Arguably the most crucial factor is the students' ability to create connections that over time will be helpful throughout life.⁸⁰

In practice, some considerations regarding assessments and decision-making practices, determining a student's strengths and weaknesses, not all forms of assessment are appropriate.⁸¹ Assessments are an essential aspect of learning and can be done in various ways. Dynamic assessments are those that are a context-free form of assessment that determines the level of skill development.⁸² It is recommended that teachers assess various means to allow a fair opportunity for students with ASD to display growth and progress.

Orff and Kodály Methods: American Music Education

From its origins of music education and the Western world, the American education system adapted many practices and evolved until the 1950s when a more stable system was implemented.⁸³ Two of the largest contributors to music education are Carl Orff and Zoltán

⁷⁹ Twachtman-Cullen, and Twachtman-Bassett., 57.

⁸⁰ Ibid., 58.

⁸¹ Ibid., 88

⁸² Ibid., 89.

⁸³ Michael L. Mark and Charles L. Gary, *A History of American Music Education*, 3rd ed. (Rowman & Littlefield Education, 2007), 437.

Kodály. Carl Orff developed the Orff method of music learning in the early nineteenth century based on his interest in folk music, popular song, dance, theater music, medieval, Baroque, and Renaissance music. Orff and dancer Dorothea Gunther founded the Gunther Schule in 1924 for dancers and musicians to train teachers in the new forms of movement and rhythm, and improvisation was an essential aspect of the program. The ensemble from the school traveled through Germany to perform at education conferences that generated interest in the Gunther Schule's work. During World War II, the Gunther Schule was destroyed. This unexpected end became a time where Orff reflected on his method and considered that it might be better suited for children than adults. During this time of reflection, Orff explored how speech, movement, and dance all evolved from music and could become the foundation of childhood music education.⁸⁴ Orff and his longtime associate Gunild Keetman began to test this theory in nursery schools and kindergartens; Orff published a five-volume series *Music for Children* between 1950 and 1954, which quickly caught the attention of international music educators. His books were translated into eighteen languages and adapted to coincide with each culture. The United States shares the Canadian adapted version by Doreen Hall and Arnold Walter, consisting of five volumes and a teacher's edition with music selected or explicitly composed for English-speaking children.⁸⁵

The Orff method of music learning is often referred to as an "open pedagogy" as its principles apply to any educational field. The goal of this method is for student development and success.⁸⁶ The Orff method's principles include the following: the student is the center, social

⁸⁴ Mark and Gary, *A History of American Music Education*, 438.

⁸⁵ *Ibid.*, 439.

⁸⁶ Deborah VanderLinde Blair and Kimberly McCord, *Exceptional Music Pedagogy for Children with Exceptionalities: International Perspectives* (Oxford Scholarship Online, 2015).

experience, music is experienced in all forms, the incorporation of instruments, following the process, allowing an opportunity for creativity and improvisation, and adaptability.⁸⁷ The concept of the student as the center allows the opportunity for the child to grow as an individual rather than following specific expectations. This concept is beneficial for students with ASD, where adjustments are necessary for their attainable goals. Whether it is a group class or a private lesson, Orff promotes working together to create music that will help students with ASD develop social skills and interactions with others. This method's goal is for students to experience music as the ancient Greeks intended, *musiké*, the totality of music in singing, dancing, playing instruments, and language in song.⁸⁸ This concept allows students the freedom to experience many elements of music rather than following a set goal of learning a specific instrument. This diversity provides freedom for both educator and student to explore many aspects of music that enable creativity to grow.

Zoltán Kodály was a Hungarian composer, ethnomusicologist, and educator who created the Kodály method of music learning, which is popular worldwide.⁸⁹ Kodály believed that music was a right for everyone to experience. Kodály has said that music is the right of every citizen to be taught the basic elements of music, to be handed the key with which he can enter the locked world of music.⁹⁰ With music, one's whole future life is brightened; this is such a treasure in life

⁸⁷ Blair and McCord, *Exceptional Music Pedagogy for Children with Exceptionalities: International Perspectives*.

⁸⁸ Ibid.

⁸⁹ Michael Houlihan and Philip Tacka. *Kodály Today: A Cognitive Approach to Elementary Music Education*. Oxford: Oxford University Press, Incorporated, 2015. E-book Central. 15.

⁹⁰ Megan M. Sheridan, *The Kodály Concept in the United States: Early American Adaptations to Recent Evolutions*. *Journal of Historical Research in Music Education* 41, no. 1 (2019), 55-72.

that helps us over many troubles and difficulties. Music is nourishment, a comforting elixir. Music multiplies all that is beautiful and of value in life.⁹¹ The Kodály method is built on five principles: the importance of culture, children as performers, critical thinking, creativity, and active listening.⁹²

This method became popular and was adapted for use in the United States by Tibor Bachmann, Lois Choksy, Mary Helen Richards, and Denise Bacon. In 1974 the Organization of American Kodály Educators (OAKE) was formed to promote this method and support its addition in American school schools.⁹³ In the 1960s and 1970s, European methods of music learning were included in American schools. To separate the differences between American and European education conditions, American educators began to take what they believed to be the best parts of various methods and incorporate them into their curricula.⁹⁴

Orff and Kodály Methods: ASD

In 2004 under the Individuals with Disabilities Education Act (IDEA), students with disabilities were granted certain rights, one of which was the right to be placed in their least restrictive environment (LRE).⁹⁵ This means that students with disabilities should be placed into general class settings as much as possible; ideally, students could be in general classes for full days, though realistically, which is not always possible. Some students need to be in a more

⁹¹ Sheridan, *The Kodály Concept in the United States*, 19.

⁹² *Ibid.*, 29.

⁹³ Mark and Gary, 439.

⁹⁴ *Ibid.*, 440.

⁹⁵ Garrett, McKenzie E., *Orff Schulwerk and Autism: Unlocking the Gifts of Students with Autism in the Music Classroom through Orff Schulwerk*, Eastern Kentucky University, 2020. 21.

contained setting for some subjects. One foundation of the Orff Method is to focus on the student's innate ability rather than focusing on a student's disability; the goal is not to fix a disability but rather expand on what the students can do.⁹⁶ The Orff method is a process that allows students to learn through discovery. Children already know how to sing, speak, dance, and play, so Orff used these methods as educational tools to develop skills. Orff aimed to develop refined exploration, imitation, improvisation, and music literacy in a musical context. As a result, children develop skills to think critically, engage socially, and express emotions.⁹⁷

Typically, imitation is not a skill that students with ASD excel in, and educators must approach teaching using imitation with caution. Imitation for students with ASD does not look the same as for students who do not have a disability; imitating a rhythm through clapping involves a much larger skill set for students with ASD. For imitation to be an effective learning strategy for students with ASD, the educator must allow time between functions of auditory and motor skills for the students to imitate. In a diverse classroom setting containing students with and without disabilities, repetition is beneficial for all students as aural activities allow students to reflect on what they are hearing and process the task before repeating it. Task analysis is essential in imitation for students with ASD, as other students may accomplish a task within the first few times. Task analysis allows students with ASD appropriate experience and critical thinking to accomplish the objectives of the lesson.⁹⁸

Experimentation and learning through discovery are significant aspects of Orff's learning. Students with ASD work well individually; therefore, incorporating and encouraging exploration

⁹⁶ Garrett, *Orff Schulwerk and Autism*, 21.

⁹⁷ *Ibid.*, 21-22.

⁹⁸ *Ibid.*, 22-23.

allows students with ASD many opportunities to prove to themselves and others their innate musical skills. This process is arguably one of the most beneficial for students with ASD. The students are able to explore their abilities while providing the educator an opportunity to assess how well the student is able to apply musical concepts from class. An example of experimentation is a classroom set up with various Orff instruments and the class's objective to have all students play each instrument, choose which one was their favorite, and explain why. In this scenario, students will rotate or take turns with instruments; as students experiment with different instruments and rotate around the room, the teacher can observe students and how they are experimenting. To conclude this activity, it can either be in the format of a class discussion or a written response as to what the students thoughts were relating to the instruments; a written assignment allows students with ASD time to reflect on their experience without having to verbalize the experience to the entire class.⁹⁹

The expression concept can be integrated into the classroom by exploring low and soft sounds on an Orff instrument and keeping in mind any auditory sensitivities students with ASD may encounter. When exploring musical instruments and various dynamics from soft, *piano*, to loud, *forte*, offering resources such as earplugs or headphones may be helpful for students with ASD. A suitable lesson for elementary level music classes would separating the class into two groups, one with instruments that will alter the dynamics played while the remaining students in the class move as correlating animals: for example, soft as a mouse or loud like an elephant. Activities such as this allow students to experiment, imitate, and improvise while learning musical concepts such as dynamics.¹⁰⁰

⁹⁹ Garrett, *Orff Schulwerk and Autism*, 23-24.

¹⁰⁰ *Ibid.*, 25-26.

The Kodály approach is a widely practiced method of music education within music therapy. This method is based on singing activities that provide benefits to a child's social development.¹⁰¹ Kodály believed that singing was the most direct learning method; singing also expands children's vocabulary and understanding through song.¹⁰² A study was conducted by Mahidol University and approved by the Ethics Committee to investigate the effects of Kodály music experiences for children with ASD.¹⁰³ This study observed how Kodály methods impacted three separate children with ASD and their behaviors. The study concluded that all students avoided eye contact during activities, had difficulty concentrating, and struggled with social interactions. Within therapy and intervention sessions, the Kodály method's approach required appropriate adaptations for each participant; in doing so, the children responded positively and became comfortable in the environment to understand the expectations. As these sessions continued, the students displayed confidence while demonstrating their abilities in singing, playing instruments, reading music, and moving to music.¹⁰⁴ The goal of singing activities was to encourage students' social development and refine their social skills. Kodály strongly believed in the importance of folk music introduced to children at a young age. By doing this, students would be learning music in the same way they would learn how to speak. Kodály believed it was essential for the students to learn folk songs in the native tongue. Doing so increases the student's knowledge and understanding. Songs should be practiced repeatedly until the student feels confident to perform with other students. With solfège, associating hand signs and symbols

¹⁰¹ Chiengchana and Trakarnrung, 547.

¹⁰² Ibid., 548.

¹⁰³ Ibid., 548.

¹⁰⁴ Ibid., 552.

as a visual aid helps learn the concept of high versus lower or deeper sounds. The participants in this study responded well to solfège learning and demonstrated better attention and more eye contact during these activities; learning was best accomplished when visual aids or kinesthetic movements were involved.¹⁰⁵

The Orff and Kodály methods have some differences, though the ultimate goal is for the student's overall progress. The Orff method allows students to explore singing and instrumentation, whereas the Kodály method focuses heavily on singing and solfège practices. By combining Orff and Kodály methods, students will receive a well-rounded music education experience. Students with ASD will benefit as the learning approaches promote repetition, social engagement, and the development of communicative and cognitive skills.

Chapter Summary

The continued research of ASD has clarified the disorder and treatment methods available. It is essential when interacting with and teaching ASD students to understand ASD and remain current with the medical discoveries. In the 1980s, medical technology continued to advance and led to MRI and CT machines, making it possible to discover physical differences between an ASD brain and a non-autistic brain.¹⁰⁶ This discovery prompted more research on the brain's composition and how biological differences may explain developmental delays and difficulty with social interactions. It was not until the early 2000s that information regarding ASD was easily accessible in books, press, and blogs that led to further research.¹⁰⁷

¹⁰⁵ Chiengchana and Trakarnrung, 553.

¹⁰⁶ Silverman, 39-40.

¹⁰⁷ Ibid., 28.

Diagnosis of ASD is compiled of a series of observations regarding certain milestones at different ages and whether those are met; if they are not, more observations are required by medical professionals. There are no cures to ASD; however, following a diagnosis, several treatment options include applied behavioral analysis (ABA), dietary modifications, medication, and complementary and alternative medicine (CAM). Specialists and doctors are essential concerning which approach best suits a child with ASD, including occupational therapies including music.¹⁰⁸

Music intervention is successful when deemed appropriate for the student. Students must first be assessed to determine their current level of development, communication skills, sensory sensitivities. Second, an interest in music must be prevalent. Finally, there must be a review of the most recent IEP to ensure that they are eligible for music intervention.¹⁰⁹ The SCERTS Model used in music therapy is a way to evaluate and promote social and emotional development in students with ASD and attainable goals. The SCERTS Model goals share similarities with both the Kodály and Orff methods of music education, and the most significant connection is the student's overall growth as an individual.

Understanding specific elements of the IEP and PLPs for students with disabilities is essential for parents and educators to determine appropriate goals and record progress made during the course. The IEP serves as a larger scale of goals. Simultaneously, the PLP notates individual goals per subject and any other underlying conditions associated with ASD that directly affect a student's academic performance. Assessments are essential as they serve as indicators of student progress; however, for students with ASD, it is also important to promote

¹⁰⁸ *Screening and Diagnosis / Autism Spectrum Disorder (ASD) Treatment.*

¹⁰⁹ Kern, Petra, and Humpal, Marcia, eds, 84.

independence across various aspects of life and activities. Teachers should create social situations for students with ASD to practice independent elements, rather than telling them what to do. Allowing students to take their time to process the situation and produce an appropriate response. There are many ways students with ASD can be evaluated; frequent assessing by observation will provide the most relevant result of a student's growth.

The Orff method of music learning was a method intended for adults, but it was reimagined and better suited for children after World War II.¹¹⁰ The Orff method's foundation includes movement, rhythm, and improvisation, all of which are appropriate for young learners to help them understand musical elements. The Orff method is a proper approach to music education for students with ASD as it follows a structure but allows room for flexibility. The Orff method allows the student to explore musical elements and encourages working together, developing or further developing social and communication skills.

The Kodály method of music education is a popular approach worldwide. Its main goals are based on the belief that music is the right of everyone, not only those who are musically talented or of higher social standing.¹¹¹ This method is based on five principles: the importance of culture, children as performers, critical thinking, creativity, and active listening.¹¹² Kodály principles can be beneficial to students with ASD concerning visual aids and kinesthetic movements; for example, solfège can help learn musical elements and gain comfortability with social interactions with others.

¹¹⁰ Mark and Gary, 437.

¹¹¹ Houlahan, Micheal, and Tacka, Philip. 15.

¹¹² Ibid., 15.

These elements work together to advance music intervention methods for students with ASD. As medicine continues to develop and new technology unveils how the brain and ASD are related, these discoveries will promote a more profound understanding of the disorder and the many benefits music can offer. This chapter provides a general knowledge of ASD, the process of diagnosis and treatments offered, medical aspects of music as a therapy, and the Orff and Kodály music education methods. Through this research, connections are made between the SCERTS Model, the Orff, and Kodaly methods and how elements can be combined to create a well-rounded music education curriculum and experience for students with ASD and ways in which aspects of therapy can be incorporated into a general music classroom.

CHAPTER THREE: METHODOLOGY

Introduction

ASD is a complex diagnosis and cannot be simply be defined because of its multifaceted characteristics sharing medical and psychological discoveries. The most effective way to research ASD is from a qualitative historical approach to evaluate previously discovered information and draw new conclusions from exploring information from studies conducted over many years. This study's goal is to gain a deeper understanding of ASD, how music is currently used as an intervention, and how incorporating elements of the Orff and Kodály methods can help students diagnosed with ASD and their developmental growth. The research collected for this study is from published work relating to the topic.

Research Design

A qualitative historical research approach was selected as the research design for this study. Qualitative research focuses on examining the issues related to the research topic in students with ASD. Information will be gathered from existing studies and examined thoroughly to draw connections between behavioral responses, commonalities in various research approaches, and methods that worked or did not work. Qualitative research primarily focuses on individual experiences by collecting and analyzing data expressed in words and images using open-ended questions.¹¹³ Many overlaps are discovered by collecting various research on ASD, music intervention, and the Orff and Kodály music learning methods.

¹¹³ Clark Plano, Vicki L. and Nataliya V. Ivankova. *Why a Guide to the Field of Mixed Methods Research: Introducing a Conceptual Framework of the Field*. In *Mixed Methods Research: A Guide to the Field*, (Thousand Oaks, CA: SAGE Publications, Inc. 2016), 3-30.

Research Questions

Research questions were developed and serve as the foundation for this research to understand students with ASD and how current music incorporation modes can be improved by utilizing the Orff and Kodály methods.

The research questions addressed in this study are the following:

Research Question One: What are the current approaches to music intervention concerning students with ASD?

Research Question Two: In what ways can current music education or intervention tactics be altered to better suit the needs of students with ASD?

Hypotheses

To provide the best education and opportunity for advancement and personal growth for students with ASD, educators must ask these questions and discover ways in which approaches to music must evolve led to the following hypotheses:

Hypothesis One: Current approaches to music intervention concerning students with ASD include assessing the home environment, reviewing the details of IEP's and considering other related health issues, and determining the student's level of interest in music.

Hypothesis Two: Current music education or intervention tactics can be altered to better suit the needs of students with ASD in terms of music exploration, incorporation of culturally relevant

songs and instruments, and promoting group or partner activities to assist in developing social and communication skills.

Data Examination

The data that will be examined for this research included scholarly sources from three separate categories: books, journal articles, and medical studies concerning ASD. After reviewing the research questions and their ability to be answered using a qualitative historical approach, sources were carefully selected to benefit this research. Multiple sources provide a balanced and diverse selection of articles, books, and scholarly online publications regarding the research topic.

CHAPTER FOUR: RESEARCH FINDINGS

Introduction

This chapter will present and discuss the research findings relevant to music and ASD. As more children are diagnosed with ASD each year, the demand for more extensive research continues to rise.¹¹⁴ Discoveries made through research bridge the gap between ASD and developmental skills and the ways music intervention can work together to develop those skills further. After addressing the first Research Question (RQ1) and Hypothesis (H1), the literature suggests that some approaches, resources, and assessments may be limited concerning those who qualify for intervention. Regarding the second Research Question (RQ2) and Hypothesis Two (H2), research reveals a lapse in student experiences that may be possible to fill by more inclusive music intervention approaches and necessary alterations made to current IEP and curriculum standards.

Approaches

Concerning RQ1, the current approaches to music intervention for students with ASD are only for those who qualify for additional assistance based on IEP's.¹¹⁵ Only students diagnosed with a certain severity level would be considered for music intervention. Speech and music are common comparisons relating to language and the structural similarities of pitch, duration, timbre, intensity, accents, and inflection.¹¹⁶ ASD is a condition in which social encounters are

¹¹⁴ Kern, Petra, and Humpal, Marcia, eds. 84.

¹¹⁵ Ibid., 84.

¹¹⁶ Michael Thaut, *Rhythm, Music, and the Brain: Scientific Foundations and Clinical Applications*. London: Taylor & Francis Group, 2005. 1.

difficult or unattainable as ASD is a behavioral disorder that makes things such as speech, understanding, and expressing verbal and nonverbal communication skills.¹¹⁷ Teachers should consider the IEP, yearly objectives and goals, and assessments to decipher if a student qualifies for a music intervention.

Elements of an IEP

The intention of an IEP is to create a plan that will assist a student's academic experience and provide him or her with the resources necessary to succeed. An educator's responsibility is to focus on the course content and the needs of students with an IEP. It is essential that teachers understand the nature of their student's disability and the range of disabilities in each class to provide necessary materials and instruction.¹¹⁸

Part of the IEP process is for teachers to document the students' performance both academic and behavioral. This sort of assessment and observation differs from typical tests given in class, instead of observing how the student is performing academically, the student is being observed by how they adapt to certain environments, how he or she are interacting with peers, and his or her ability to follow directions. Occasionally, administration or special education teachers may ask for specific examples of the student's behavior during class to include within the IEP paperwork.¹¹⁹

¹¹⁷ Antonietti, Colombo, DeRocher.

¹¹⁸ Vicki Caruana. *Success with IEPs: Solving Five Common Implementation Challenges in the Classroom (ASCD Arias)*. Alexandria: Association for Supervision & Curriculum Development, (2017). 4-7.

¹¹⁹ Ibid., 9-11.

A key element of an IEP is the individualization for each student. Depending on the disability and specific needs of the student, either a modification or accommodation is necessary. A modification is needed when students have more severe circumstances that limit their learning ability through traditional means. An example is a fifth-grade student working at a first-grade level, the instructional materials would be modified to match his or her cognitive level. Accommodations are made for students who have a recognized disability but are served in general education and inclusive classrooms; this is most common. Accommodations alter pacing, the physical environment, materials, and testing adaptations.¹²⁰

It was not until 1990 that the *Individuals with Disabilities Education Act (IDEA)* granted status to ASD as an individual disability category under the law, allowing students with ASD to receive educational services under the category that is most related to their disability. In 2004 the IDEA altered some elements regarding student progress and expectations, which raised concerns that the new standards were unrealistic for students to hold. For example, Steedman (Summer, 2005), when discussing the NCLB (No Child Left Behind) goal of narrowing the gap between children with disabilities and their typically developing peers, states: "If a disabled child is already several academic years behind his nondisabled peers, the only way to 'narrow the gap' is for the disabled child to make more than one year's academic growth one year."¹²¹

¹²⁰ Caruana. 22-25.

¹²¹ Twachtman-Cullen and Twachtman-Bassett, 33.

Objectives and Goals

In 2004 the IDEA made a controversial decision to remove the requirement of short-term objectives and assessments within an IEP unless the students are required to take alternative testing.¹²² With this alteration, the attention to and record of student progress marked by short-term objectives or assessments can become compromised with the inconsistency of recording progress or regression. Short-term objectives can be viewed as stepping-stones towards achieving a goal. Simultaneously, evaluations serve as milestone accomplishments, yet both serve the same purpose of progression towards a goal.¹²³

The annual goal within an IEP is a measurable statement of what the team hopes to accomplish within the academic year regarding instruction by a series of short-term objectives or assessments that will help the student reach their goals. These were written very thoughtfully with great attention to observable outcomes and measurable performance by the students. Over time, these objective notes led some individuals to stray from instruction as they could not adequately state measurable objectives or terms.¹²⁴ Objectives must be practical, clear, and consistent to indicate progress. For education to be effective, there must be a noticeable difference in the students' performance. If there is no noticeable change in performance, it is essential to determine where the lapse is and make those alterations.¹²⁵ The most effective way for objectives to be clear is for educators to ask the question, "What does the student need to do

¹²² Twachtman-Cullen and Twachtman-Bassett., 82.

¹²³ Ibid., 83.

¹²⁴ Ibid., 85.

¹²⁵ Ibid., 87-88.

to demonstrate mastery of the goal or objective?"¹²⁶ This provides clarity in student expectations. Objectives should be addressed consistently, and educators must remain diligent in notating progression of skills and overall student growth.

Students with ASD benefit from personal goals as they may display different strengths and abilities in certain areas and difficulties in other areas.¹²⁷ Determining goals for the year is a vital element of ASD-friendly education. Teachers should carefully consider which goals to address and the number of goals set per year. Too many goals may be stressful, and not enough goals could become tiresome.¹²⁸ Occasionally, goals focus on the deficiencies associated with ASD; however, this approach can negatively impact students' self-esteem.

IEP Related Assessments

Once the elements of an IEP and academic goals and objectives are understood, assessments can be addressed clearly. Standardized tests can determine annual goals and short-term objectives; however, for students with disabilities, knowledge does not necessarily result in an application. Though a student may recite the meaning for a test, it does not mean he or she knows exactly how that translates it in a real-life situation. The Autism Diagnostic Observation Schedule (ADOS) was designed to aid with the diagnosis of ASD by providing a precise measure of functional communication. By coding behavior categories such as shared enjoyment in interaction, conversation, and coordination of eye contact with other means of

¹²⁶ Twachtman-Cullen and Twachtman-Bassett, 89.

¹²⁷ Jordan, Roberts, Hume, 543.

¹²⁸ Ibid., 544.

communication.¹²⁹ Another way to measure functional skill levels is through the Behavior Rating Inventory of Executive Functioning (BRIEF). This scale has both a version for teachers and parents to measure eight executive functions to measure specific areas and function levels within a subscale. It is crucial to consider the student's individualized needs and use the appropriate options to gain the most accurate and comprehensive compilation of a student's function level regarding informal and formal assessments.¹³⁰

Challenges

Teachers face many challenges in implementing standards and assessments, particularly concerning students with disabilities and how the standards affect them differently than students without disabilities. Once IEP's are created for students and retain details on individualized skills, the IEP is based on annual goals rather than goals from the curriculum, thus making the IEP the curriculum for the student. Often, IEP development focuses on the student's deficits with the disability and works to identify and analyze skills and transform them into teachable units, based on the thought that learning is hierarchical. Multifaceted goals are essential for three reasons: first, educators must be aware of what their students are expected of and can demonstrate at a state and local assessment level each year; second, IEP's should represent the various academic achievements towards more advanced levels of the curriculum; third, teachers must set goals that are not confined to reflect expectations of a limited period.¹³¹

¹²⁹ Twachtman-Cullen and Twachtman-Bassett, 110-111.

¹³⁰ Ibid., 111-112.

¹³¹ Nolet, Victor, and Margaret J. McLaughlin. *Access to the General Education Curriculum: Why It Is More Important Than Ever Before*. In *Accessing the General Curriculum: Including Students with Disabilities in Standards-Based Reform*, 2nd ed., Thousand Oaks, CA: Corwin Press, 2005.

The challenges teachers face, such as a lack of resources or teaching materials, can determine the curriculum's content. It is appropriate to alter and what the student is expected to. When faced with such challenges, it is vital that teachers alter the expectations of the students and create lesson plans that can be found effective with the resources available. Students with learning disabilities such as ASD are assumed to be taught less of the curriculum content and expected to learn less than fellow peers. This is a large discrepancy found within IEP programs. The purpose of course content and achievement standards are to define what is critical to knowledge for each grade level; this provides educators a general guide for instruction and adds personal elements and activities educators may choose. A team must then come together to limit what the student learns to reduce it to the material that is deemed easiest for the student to learn.¹³²

Changes for Curriculum

To ensure students are afforded the same rights to education despite learning disabilities, it takes an intentional focus to rework a curriculum that does not limit the student; educators must determine what alterations will accommodate the students' needs. Both general and special educators must collaborate for a successful curriculum for students with and without disabilities. Making functional changes to curriculum standards, every teacher's responsibility is to clearly understand and articulate the curriculum and student performance expectations. It should be the goal that every student is expected to achieve higher academic goals but are not berated if

¹³² Nolet, and McLaughlin.

students are not doing well; it is the educators' responsibility to help all students progress academically.¹³³

To assist students with ASD in the classroom, the use of visual aids is helpful to develop and exercise cognitive and problem-solving skills. The Theory of Mind (ToM) is one's ability to process information from another's perspective; in other words, students with ASD struggle to understand others' emotions. For example, if someone were to ask a child with ASD what a friend or family member would like for their birthday, the child may answer instead with what he or she would like instead.¹³⁴ Students with ASD also have difficulty understanding and interpreting others' emotions; an example of this would be a student with ASD may not understand a peer's emotions, whether happy, angry, or sad, by watching their body language.¹³⁵

Many music classes are heavily designed to emphasize motor skills, integration, symbolization, and physical energy.¹³⁶ Students with disabilities characteristically lack some of the qualities such as motor skills or physical energy; therefore, educators must be aware of their students' limitations when placed in a general music class and the individual learning styles of their students with disabilities to better prepare for successful participation.¹³⁷ Therapist and researcher Michael Thaut has claimed that students with ASD often respond well to music and typically possess remarkable musical capabilities.¹³⁸

¹³³ Nolet, and McLaughlin.

¹³⁴ Hourigan and Hammel, 22.

¹³⁵ Ibid., 22.

¹³⁶ Meredith B Dayoub. *Music for Caroline: Including Students with Autism in The Elementary General Music Classroom*. Columbus, GA: Columbus State University, 2016.12-13.

¹³⁷ Ibid., 13.

¹³⁸ Ibid., 15.

Resources

There are many online resources available concerning ASD, such as Autism Speaks and the Organization for Autism Research (OAR), that provide many resources and information regarding ASD. These online websites provide information regarding ASD and kits for students with and without ASD to understand the diagnosis. These organizations continue research on ASD, and the websites are continually updated with the most up-to-date information available. There are also many events listed on each site that present opportunities to be a part of webinars, opportunities for donations, participate in running marathons to raise awareness, and more.

Organizations such as National Association for Music Education (NAfME) provide music educators various resources on their online site and annual conventions. NAfME offers music educators suggestions to create meaningful curricula that include singing, moving, listening, performing, composing or improvising, and music literacy. Two terms often used within the curriculum are scope and sequence. The scope the element that encompasses students' broad skills and competencies on a large scale; the sequence is how concepts are introduced and refined throughout a course. NAfME provides a guide for writing a music curriculum covering the philosophy, goals, concepts, learning types, and assessments.¹³⁹

Goals for General Music Programs

Before any music education is implemented, it is crucial for educators to understand their music education views and which pedagogical school of thought matches. Pedagogical stances can be determined by asking a series of questions. What is the rationale of a music class and why

¹³⁹ Hedden.

is it important that students learn about music; What are the things that a student is able to accomplish in a music class that is not possible in any other subject area; What are the goals of a music class. These are several questions one may ask themselves to determine what their pedagogical stance is pertaining to music.

Once these questions have been posed, educators can then envision their long-term and short-term goals for the academic year and make any changes necessary for a successful year. For elementary grade levels, lesson plans that are grade-appropriate and age-appropriate are crucial. Elementary ages span from five to ten years old, and eleven is a significant age gap with very different cognitive development levels. Age appropriateness determines the overall scope to be set from music class entry levels to more advanced class content. Within this stage, it is recommended to list goals and objectives for each month of the school year to ensure a cohesive flow between months and grade levels. For each grade level, once the goals and objectives are determined, instructional approaches should be considered as some students learn best through visual means, others through physical or verbal engagement. By providing variations of lessons throughout the course will be beneficial and provide multiple approaches to concepts and maximize students' learning potential.¹⁴⁰

Forms of Learning

Students typically learn in one of two ways, lower-order thinking (LOTS) or high-order thinking (HOTS). LOTS skills refer to acquiring simple facts and knowledge, such as the piano is an instrument. In contrast, HOTS skills allow students to apply the knowledge they have acquired, analyze, self-correct, and evaluate progress. When creating curriculum, assessing each

¹⁴⁰ Hedden.

grade levels goals for the year will determine which forms of LOTS and HOTS learning will likely occur as well as the quantity of each learning approach within a class. The quantity can be determined for how frequently each form of learning is used and then make any changes necessary to utilize both LOTS and HOTS learning to integrate singing, moving, listening, composing, performing, and understanding music literacy.¹⁴¹

Active learning in music education can lead to meaningful experiences that transfer into other aspects of life. Engagement in singing, moving, listening, performing, and music literacy are excellent ways to get students involved in the learning process. At this stage, it is the educator's responsibility to choose literature that will be logically chosen to prepare students to continue to build their content knowledge and is comprehensive in sequence.¹⁴² Creating cohesive lesson plans reinforce concepts and provide students opportunities to review older material before moving on to new topics.

Assessments

Assessments are indicators of a student's level of understanding and indicate the areas in which the student does not understand individually or collectively as a class. Testing by various approaches offers more accurate data as to where the students' understanding is.¹⁴³ Many clinical assessments are conducted on ASD and music therapy to determine the students' strengths and

¹⁴¹ Ibid.

¹⁴² Hedden.

¹⁴³ Ibid.

weaknesses. Music offers many forms of assessing students' social engagement, non-verbal communication, musical behavior, and the students' activity in a music setting.¹⁴⁴

When conducting assessments for students with ASD in a class setting, educators must consider which standards to use in assessments and intrapersonal assessments may prove helpful.¹⁴⁵ Students with ASD may not test well but may show adequate understanding in a different setting of the same content. Students with ASD may have difficulty communicating what they have learned, making accurate assessments difficult; a process-oriented assessment could be beneficial to students with ASD. Various assessment formats allow more to be taken into consideration regarding a student's efforts and achievement in a class.¹⁴⁶

Stability and structure in the environment for students is vital. It creates a sense of security for the students that allows them opportunities to demonstrate communication and creativity. Assessments scales have been developed to focus on various aspects of music therapy processes, including musical interaction, responsiveness, engagement, motor and visual skills, and improvised music analysis. The analysis of improvised music serves as raw data for therapists to identify pertinent information that will lead to conclusions about a student's personality, pathology, and presentation. The information is obtained through a spontaneous and creative process. A specific assessment tool used by music therapists is the Improvisation Assessment Profile, a method created by Bruscia in 1987, which focuses on musical elements as a basis for analyzing change or lack of change in children. In Bruscia's complete tool, she

¹⁴⁴ T. Wigram and C. Gold, *Music Therapy in the Assessment and Treatment of Autistic Spectrum Disorder: Clinical Application and Research Evidence*, 536-537.

¹⁴⁵ Jordan, Roberts, Hume, 544.

¹⁴⁶ *Ibid.*, 544.

defines six profiles to further investigate when interpreting the child's musical production: autonomy, variability, integration, salience, tension, and congruence.¹⁴⁷ The two profiles that best suit students with ASD are the autonomy and variability profiles. The autonomy profile correlates with relationships formed between the improvisers, meaning one participant is a leader, and the other is a follower.¹⁴⁸ Students with ASD respond well to this sort of assessment as any improvements in a group or partner activity can be monitored through this profile; typically, students with ASD present higher scores in this setting. The variability profile evaluates how the student creates or responds to play or activity patterns and whether it is a rigid response or with ease. Typically, students with ASD have more rigid responses, though over time they can be assessed for the improvements made in their flexibility measured in this profile. Assessment is made possible without formal testing formats that could be overwhelming to students.¹⁴⁹

Lynn Brennan, an independent behavioral consultant with over thirty years of experience teaching people of all ages with ASD, has said that teachers of students with ASD must have “good teaching skills on steroids.”¹⁵⁰ To effectively instruct those with ASD, an established and refined pedagogical practice must already be established when working with an ASD population. In assessment, several factors must be taken into account including the length of class time, frequency of class gathers, class size, and whether the class is mixed with students that have

¹⁴⁷ Wigram and Gold, 537-538.

¹⁴⁸ Ibid., 538.

¹⁴⁹ Ibid., 538-539.

¹⁵⁰ Rhoda Bernard and Alice Hammel. *Good Teaching on Steroids: Assessments of Music Teaching and Learning with Students on The Autism Spectrum*. Berklee College of Music, 2017. 2.

learning disabilities and those that do not. Described below are three practical music teaching vignettes that utilize different assessment strategies during a music class period.

Vignette: Melody Activity

In a music class that meets once a week for forty-five minutes, reviewing material from previous classes helps remind the students what they have learned and prepare them for a new topic or add to what they have already learned. Listing the class agenda for the day on a board for all students allows everyone to see what the class will entail. Students who need more individualized plans or assistance from the teacher have personal agendas at their desks to review their personal goals for the class. As the teacher takes class attendance for a melody-based lesson, singing each student's name in a mi-sol pattern and having the student respond with the same singing pattern singing "I am here," prepares students for the class and gets specific intervals or pitches in their heads. A simple activity used to take attendance in a mixed classroom setting allows students to respond in a call and response format. However, it can also provide more time for students such as those with ASD to respond. By the end of this activity, students singing voices have been warmed up and prepared for class, as well as a review or introduction to solfege. Once attendance is taken, this can turn into a class activity, and the solfege hand symbols can be incorporated to expand on a solfege lesson. The assessment can be notated by how well a student can repeat pitches and how well students can coordinate hand symbols with appropriate pitches.¹⁵¹

¹⁵¹ Bernard and Hammel, 4-5.

Vignette: Rhythm Activity

In this example, the class comprises ten students with ASD where drums are used weekly to promote an opportunity for students to develop musical and communication skills. This class is set up in a way that meets the specific needs of students with ASD. Before the class begins, the teacher will arrange the chairs in a circle and have written on the board the class's expectations for students to view and be aware of what to expect.¹⁵² As students enter the room, they are greeted and handed a percussion instrument before the teacher explains each activity the students will partake in for the class period. Once the activities are described to students, they are asked to identify the instrument they have and are encouraged to speak to their classmates and make eye contact with other students. This allows for an assessment opportunity that incorporates both musical knowledge and social development. When educators promote teamwork, communication, and offer encouragement to the students' social skills can be expanded in this class setting. At the end of a class period, spending a few minutes of reflection or discussion allow students an opportunity to expand their self-reflective and cognitive skills. It is a good teaching tactic to ask students what they worked on or learned, how they did it, and how they can become better at it. This helps students process the musical and nonmusical elements of an activity and their learning.¹⁵³ This is another stage in which the teacher can make notations regarding the student's answers and their performance in the assessment activities.

¹⁵² Bernard and Hammel, 5-6.

¹⁵³ Ibid., 6.

Vignette: Form Activity

In this third scenario, the class is comprised only of students with ASD that meet multiple times a week where a wide variety of musical elements are taught. The activities and daily agenda are written on the board for students to see and know what to expect from the class period, all materials used are placed in the front of the classroom. Once the class is settled, the teacher explains each activity and when necessary, some students are provided a personal agenda at their desks or stations to view and keep close to them during the class period. A visual aid of multiple shapes is posted on the board so students can begin the activity. The first step is to examine the shape and explain what they see, utilizing their problem-solving skills. Once any patterns have been identified, students can create new patterns of the shapes on the board; this activity represents the AABA musical form through shapes. After a few rounds of creating new patterns with the shapes, this activity will transition into a lesson on musical form. Students can then experiment with creating patterns by singing, clapping, snapping, or stomping their feet. This allows ample time for students to experiment with their bodies and different sounds. During this part of the lesson, the teacher can make notes about each student's participation before the class listens to a piece of music organized in AABA form.¹⁵⁴

Similarities of Vignette's

In each of the vignettes, there are several similarities in classroom management. One of the most notable similarities is that the entire schedule is listed on the board for the students to see. The teachers describe the activities planned for the class. Second, the teachers ask the students questions about the activities they partook in, allowing students to exercise their

¹⁵⁴ Bernard and Hammel, 7.

cognitive thinking and communication skills as each vignette encouraged students to converse with peers. Finally, each class began with interactive activities where student participation was required and ended with the students taking time to reflect on the activities, what they did, and why. An important aspect to consider in these vignettes is that each class focuses on different musical elements, the classes meet differently throughout the week, and not all classes are created specifically for students with ASD. With teachers having established a firm foundation in their pedagogical approaches, students effectively learn and grow as individuals. Assessments can take place in many different forms, these examples display casual forms of assessment that can take place consistently in the classroom.

Student Experience

Concerning RQ2, students with disabilities such as ASD do not receive the same education as peers and are generally held to a lower standard of expectations. There is a lapse in the curriculum, IEP model, and music intervention systems where the student's overall academic and musical experience is less than satisfactory. Changes towards effective instruction and inclusivity makes it possible for students with ASD to be held to achievable standards and placed on a successful path.

Effective Instruction

Effective instruction is achievable through six steps: individualized services and support, systematic instruction, understandable and structured learning environments, specific curriculum content, functional approach to problem behavior, and family involvement. Studies have shown individualized services and supports promote more engagement in academic and social activities

which can be achievable when things such as the use of pictures are used in place of verbal instructions.¹⁵⁵ Rather than having instructional time be spent on trying to understand directions, utilizing tools such as using pictures as directions can be beneficial for students with ASD. By using pictures as directions students will simultaneously exercise problem-solving skills and spend more time learning than trying to understand written directions. Similarly, individualized services and support systematic instruction involve creating goals based on individual students' assessments and creating specific instructional procedures to promote success. The key to success is to thoughtfully select goals and instructional methods and remain diligent in evaluating and measuring the students' performance. When teachers create understandable and structured environments, students will understand better transitions between activities or assignments and decipher what information is necessary. It is significant for students with an IEP and ASD, as these students often struggle with understanding social expectations. By utilizing visual aids in place of verbal instruction and timers to serve as indicators of beginning and ending activities are helpful tools. Designating areas in the classroom and home for specific activities and clearly defined and organized workspaces are all tools that will greatly assist students with ASD in the classroom and learning environment. The clarity of an educator's verbal and nonverbal communication is essential when teaching students with ASD. Verbal and nonverbal communication are often areas in which students with ASD struggle, therefore, educators must be very clear in their communication. Encouraging students to respond and join in activities will, over time, increase the students' independence and progression of those communicative skills. Assessing students' behavioral patterns are equally important as evaluating

¹⁵⁵ Tristram Smith, *Making Inclusion Work for Students with Autism Spectrum Disorders: An Evidence-Based Guide*, (New York: Guilford Publications, 2011), 20.

the students' academic level to establish a functional approach to any problematic behavior. Results of assessments are determined by identification of three factors in students: First, identify the triggers in the environment that may precede particular action or responses, also known as antecedents. Second, identify the consequences and events that immediately follow both good and bad behaviors. Third, identify the setting events meaning the events or situational factors that influence how the student responds to antecedents and consequences, an example would be a lack of sleep or being immersed into an unfamiliar environment which may make the student respond in a certain way. A behavioral plan can help the student avoid behavioral problems in the learning environment by monitoring the students' behavior. For all students, it is vital to collaborate with families, especially for students with ASD. Children are diagnosed at an early age, so families are accustomed to their child's specific needs and can provide support and assistance in working with the student.¹⁵⁶

Studies have shown that forty to fifty percent of school-aged students with ASD have a combined cognitive deficit. It is helpful to know and understand ASD statistics and implications as it helps create appropriate environments for students and encourages them to be engaged and find meaning in music. Establishing a classroom environment appropriate for students with ASD eliminates the opportunity for behavioral and cognitive interruptions and assists in easier classroom management.¹⁵⁷

Transitions can be challenging to navigate for students with ASD and can cause anxiety. Transitions include completing one class activity and beginning another or moving from one classroom to another. To assist in these transitions and alleviate anxiety, it may be helpful to play

¹⁵⁶ Smith, 21- 22.

¹⁵⁷ Hourigan, and Hammel, 26.

music during transitions, direct verbal cues that an activity is coming to a close, explain precisely what is expected, display written class schedules, and allot time to adjust one activity to the other.¹⁵⁸

Considerations for Instruction

For effective instruction, there likely will not be a single approach that will be suitable for students with ASD. There are certain considerations to make when teachers are creating lesson plans suitable for students with ASD. Incremental instruction can be beneficial for students as teachers categorize lessons into smaller and more manageable portions that will not overwhelm students but help them understand the content.¹⁵⁹ Visual supports are beneficial regardless of the instructional method and typically result in positive outcomes for students with ASD; this is considered an evidence-based practice.¹⁶⁰ Maintenance of skills is a critical consideration for students with ASD, as these students may not be able to display correct responses without direct instruction spontaneously. Beginning interventions at an early age are beneficial and focus on basic skills and how to integrate them into adaptive contexts such as sorting forks and knives or matching socks.

¹⁵⁸ Dayoub, 18.

¹⁵⁹ Rita Jordan, Jacqueline M. Roberts, and Kara Hume, eds. *The SAGE Handbook of Autism and Education*. (London: SAGE Publications, 2019). 277.

¹⁶⁰ *Ibid.*, 225.

Inclusivity

Regarding the students' experience, it is evident that students with learning disabilities, including ASD, are not offered the same opportunities as students without learning disabilities. Often, students with ASD are placed in classes with other students to expose the children with ASD to those without and help develop social and communicative skills. In the scenario, a child with ASD could revert the progress they made up to that point. Children with ASD often have fewer friends and can times find themselves in insolation from other children their age. These students are at higher risk of falling further behind in developing social skills and missing out on developing friendships that could provide a sense of security and emotional support. Schools often offer services such as social skills groups that are often ineffective for students with ASD. Schools lack specific curriculum that focuses on difficulties associated with ASD and systematic approaches to instruction using intervention tactics explicitly developed for students with ASD.¹⁶¹

Educators must be patient with their students with ASD and sensory needs as these students will need time to adjust to their new surroundings. A music class can be an ideal setting for students to engage in other students' activities and strengthen their social skills.¹⁶² Assigning rotating helpers in class may help during activities that require all student's participation; typically, when other students are asked to assist students with disabilities, they can take ownership over their education. The use of classroom helpers can assist the teacher by shifting some of the educator's responsibility of ensuring all students get the attention and help they may

¹⁶¹ Smith, 273.

¹⁶² Dayoub, 16.

need. Classroom helpers also allot the opportunity for students with ASD to interact with other students and learn from them.¹⁶³

Subtle controversies lie around the term disability used for individuals diagnosed with ASD and some ASD activist groups believe there is a difference between disability as a social position and disability as a medical condition. A defect would consist of lacking an arm or leg, or impairment to sight, hearing, mental ability, and the like, lacking something physical. A disability is a social process that turns an impairment into something deemed as unfavorable by societal standards. Within a classroom setting, teachers will be made aware of their students and accommodate disabilities and reduce impairments by incorporating visual aids for students who cannot see or offer braille resources for students who may need them.¹⁶⁴

Typical play for children includes creativity, imaginative play, and communication. However, for children with ASD, these do not come naturally and require practice to utilize these in context with other children. Many children with ASD gravitate towards play that offers repetitious motions and playing with objects that produce cause and effect actions. There is evidence that the pretend play of children with ASD is less advanced than in children without ASD. The tendency for children with ASD is to play apart from other children. This could be stemmed from an innate aversion or reinforced by other children not sharing similar interests and are unresponsive to certain behaviors. A child may have an aloof social playstyle if they tend to be withdrawn or avoid other children, children with passive play styles are indifferent to other children and tend to follow even if they do not engage in play. The varying play styles of children with ASD are unique to each individual. A critical aspect of play culture offers students

¹⁶³ Dayoub, 17.

¹⁶⁴ Ibid., 10.

natural opportunities to socialize that cannot be duplicated in adult years. This creates a challenge and opportunity for parents, teachers, and therapists to encourage children to play to develop the social and communication skills of those with ASD and generate genuine friendships between children.¹⁶⁵

Terminology in Association with ASD

There is controversy surrounding the diagnosis of ASD. Some will say something like “a child with ASD” rather than “autistic child” because it emphasizes the child’s identity outside of his or her diagnosis. This approach is known as person-first language. It is often recommended as a respectful approach when referencing ASD or any other disabilities or health-related issues. For ASD activists, the preferred term is “autistic,” an identity-first language, as ASD is part of who they are. Many ASD activists view the saying “with autism” offensively as implies that being diagnosed with ASD is a negative thing that has happened to a person rather than being a part of who they are. Generalizations such as high or low functioning ASD, or children with Asperger’s disorder are an outdated generalizations as of 2013 when the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) combined Asperger’s disorder under the term ASD.¹⁶⁶

ASD is a neurological developmental condition that is considered a disorder that incurs lifelong consequences. ASD directly affects how a person experiences and understands the world around him or her. Whether those who support an identity-first or person-first language, each party's primary purpose is to emphasize the person's value and worth. To better understand the

¹⁶⁵ Jordan, Roberts, and Hume, eds., 140.

¹⁶⁶ "Terminology: “Autistic,” “With Autism” And “Asperger’s.” Child Mind Institute, Last modified 2021.

distinction of the two schools of thought on proper terminology, person-first language utilizes nouns such as “person” before any other identifiers. Opponents believe that this approach is most respectful as it identifies the person by recognizing and edifying the person’s identity as an Autistic Person rather than ignoring an essential aspect of the persons’ identity in favor of political correctness.¹⁶⁷

Cultural Considerations

Cultural considerations are an important aspect when determining appropriate curriculum for students with ASD as cultures vary. Different cultural beliefs may influence how parents of children with ASD and their families access services for their children. In a qualitative study of several African American families with children diagnosed with ASD, there were commonalities in concerns, including distrusting health care providers, concerns that their child may not receive equal treatment, and a lack of acceptance by their community.¹⁶⁸ In another qualitative study of Saudi Arabian parents of children diagnosed with ASD, approximately three-quarters of the parents reported that the reasoning for their child’s disability was a result of the ‘evil eye’ which causes the disability. This is widely believed in most Asian countries and the Middle East. As some cultures are unaware of ASD interventions, it can be difficult for families to advocate for their child's needs. There are three strategies for educators to discuss with families when creating plans for the student. First, it is essential to discuss the family’s views to understand better their beliefs related to the disability. Second, when using a strengths-based approach to identify the family’s strengths and resources to assess the child’s existing and emerging skills. Finally,

¹⁶⁷ Lydia Brown, *Identity-First Language*, Autistic Self Advocacy Network, Last modified 2021.

¹⁶⁸ Jordan, Roberts, and Hume, eds. 225.

educators must be cautious in approach and be aware of their cultural assumptions and biases.¹⁶⁹ Utilizing these strategies will enable better connections between teachers and families from diverse backgrounds in creating appropriate academic and personal goals for the student. Open communication with parents is a vital aspect of the student's educational progress.

Chapter Summary

IEP's play a significant role in deciding which students need additional services. Students with a more involved IEP may qualify for other services such as music interventions or placement into smaller classes. It was not until the 1990s, under the IDEA, that ASD finally gained its independence as a disability that would no longer be categorized as a different disability. This change in the 1990s, ASD was not recognized as its own disorder and was often categorized under other existing disabilities that had similar characteristics. In 2004 the IDEA altered the expectations of an IEP regarding the appropriate progress of students with disabilities and ASD, which ultimately raised concerns that the new standards were unrealistic. The IDEA removed short-term objectives and assessments and relied heavily on standardized tests. This creates an issue because a student with ASD may answer correctly; however, knowledge does not necessarily equate to the application of the concept in a real-life situation.

Teachers face many challenges regarding students with disabilities, IEP's, and the curriculum. Teachers need to create attainable goals for their students by following three steps: first, teachers must be aware of their students' capabilities and expectations. Second, the IEP should serve as a representation of academic achievements that lead to more advanced curriculum levels. Third, the created goals should not reflect a confined set of expectations in a

¹⁶⁹ Jordan, Roberts, and Hume, eds, 226.

limited period. When educators follow these steps and are aware of current curriculum issues, students with ASD will not be taught less of the curriculum than students without disabilities.

There is much controversy surrounding the way ASD is to be referenced and which way is politically correct. There are two languages used, identity-first or person-first language.¹⁷⁰ Person-first language incorporates nouns such as “person” before any other identifiers and is believed by some that this is the most respectful way to refer to someone with ASD.¹⁷¹ Identity-first language is commonly used among ASD activists, where the preferred term when referencing someone with ASD is “autistic” because ASD is a characteristic of someone, not a label.¹⁷²

¹⁷⁰ "Terminology: “Autistic,” “With Autism” And “Asperger’s.”

¹⁷¹ Brown.

¹⁷² "Terminology: “Autistic,” “With Autism” And “Asperger’s.”

CHAPTER FIVE: CONCLUSION

Introduction

This final chapter summarizes the study, including the purpose, procedure, and research findings. Limitations of this study are acknowledged including elements such as research methods used in existing studies, politically correct terminology, and the general music curriculum outline. Recommendations for future research are suggested within this chapter. Finally, the chapter concludes with implications of practice this study may entail for students with ASD, educators, and parents.

Summary of Study

Many studies have been conducted concerning ASD and music intervention. The research on ASD is primarily qualitative or quantitative, there are not many published studies that have conducted their research using a mixed-methods approach. There are significant amounts of research concerning how music effects the ASD mind, however, research of combining Orff and Kodály methodologies in music intervention tactics are scarce. There have been many accommodations made to student IEP plans that further benefit students with ASD; however, many schools do not have the resources to make some of the changes necessary to current curriculum standards. Music as an intervention is a commonly explored option for students with ASD that assists in various developmental skills such as speech development, cognitive understanding, social skills, and fine motor skills. By utilizing Kodály and Orff elements of music learning within intervention practices, students are able to learn kinesthetically and grow as an individual. Less emphasis of music talent is required, but rather the overall growth of the

student is the goal. This qualitative historical study was conducted to evaluate the history of ASD and its diagnosis, the progression of research, and students' academic expectations and realities.

Summary of Purpose

Following qualitative historical research standards, sources were gathered to uncover patterns, medical discoveries, and lapses in the education system. The use of an IEP for students with disabilities should provide helpful information; however, changes made within the last decade drastically altered the original purpose of the IEP in its assistance to the curriculum and, in most cases, has taken the place of the curriculum.¹⁷³ This unintentional substitution is a great misfortune to students with disabilities as they will not receive the same education as their peers, and less is expected of their academic performance. The research questions formulated for this study were designed to evaluate the current approaches to music intervention and how they can be to better suit the needs of students with ASD. This study may be significant to teachers, parents of children with ASD, and those diagnosed with ASD as curriculum reform and reevaluating the current state of the IEP become necessary for students to succeed academically and personally.

Summary of Procedure

Sources used in this study have met the expectations of scholarly research standards, and historical qualitative document analysis was considered to discover patterns, scenarios, lapses of information, and context between sources. Previous work experience with students with ASD, educational principles, and music learning pedagogy alongside scholarly documents aided this

¹⁷³ Nolet and McLaughlin.

procedure. Evaluation previously researched in both the medical and educational field provided perspective and inspiration for continued research. Reflection on information documented in previous research and various advocacy groups enhanced this study. This study establishes the foundation of music intervention for students with ASD using Orff and Kodály music learning methods and reason to reevaluate how IEP's are implemented.

Summary of Research Findings

The research findings support the initial hypothesis that challenges educators and parents to evaluate the students' home lives, review of details enclosed within an IEP, and determine the best form of therapy for the student and if music is the proper path for them. This research's findings also reveal the many areas in which the current IEP standards and curriculum need to be reimagined. Many forms of the current curriculum formatting and legalities concerning IEP's for students pose issues where students who have an IEP learn less of the curriculum for their grade requirement. As research continues for those with ASD and necessary changes are made to intervention and academic tactics, students will be better prepared for life and social situations. Alteration of some of the curriculum and classroom setups will allow students with ASD to have more individualized attention from the teacher and fewer distractions in the classroom.¹⁷⁴

Many issues have been highlighted in this study's research findings. Teachers are not trained or equipped with necessary resources for students with ASD. One of the most prominent issues is the importance placed on standardized assessments. Due to the IEP program's changes to remove extra paperwork deemed unnecessary, there is now a lapse in the goals and objectives created for students with an IEP. This change directly affects long- and short-term goals for the

¹⁷⁴ Twachtman-Cullen and Twachtman-Bassett, 11.

student and alters how he or she learns the curriculum for his or her grade levels and often do not receive the same content instruction as peers without an IEP.¹⁷⁵

Research on Orff and Kodály music learning methods can be beneficial for educators to incorporate some elements into their classroom. Each method utilizes kinesthetic learning approaches and permits many opportunities for exploration, though the goal is not based on talent level but on the overall growth of the student. The combination of hands-on learning and flexibility in class activities allows students with ASD opportunities to participate in group activities, learn by imitation, and expand their social skills. General music teachers are not equipped with the resources or training for students with disabilities; however, they can alter curriculum and lesson plans to include more elements of Orff and Kodály methods. Often, students with ASD are immersed in music classes with students that do not have learning disabilities and become the minority in the class. It depends on the teacher whether these students succeed by the methods they choose to teach from and how students are assessed. Incorporating things such as additional visual aids, less formal approaches to assessments, and emphasis on the student's growth rather than musical ability will determine how the student can succeed. This will create an environment where a general music classroom can benefit for a student's developmental growth where cognitive abilities may flourish.

Statement of Limitations

Limitations within this research study were unavoidable, personal experience and prior knowledge may have influenced the review of data, observations, and conclusions. When drawing conclusions concerning the research, the following items should be considered:

¹⁷⁵ Twachtman-Cullen and Twachtman-Bassett, 19.

1. **Orff and Kodály studies separately.** This study consists of limited research related to the Orff and Kodály methods of music learning concerning ASD. There are research studies on the topics separately; however, there is very little research that compiles ASD, Orff, and Kodály music practices into one study.
2. **Variety of research findings.** Many existing studies consist primarily of mixed methods and qualitative research. Studies in relation to ASD and music consist mostly of qualitative research. It is important to also have quantitative information to add to the variety of perspectives and research findings to incorporate in future studies.
3. **Lack of research participants.** This study is qualitative historical and did not incorporate live participants to test the theories posed in this study; all conclusions are assumed and determined by creating conclusions from previously conducted studies.
4. **Politically correct terminology.** Over the years, there have been many changes to words and references to ASD and those with similar disabilities; as words or phrases can be offensive, it is crucial to be aware of those modifications. Older studies may contain words or phrases that would be deemed offensive; therefore, it is essential to be aware that the time research was published and understand how it was written.
5. **General education music curriculum.** Information was gathered from NAFME concerning the general guidelines for creation of a music curriculum. These guidelines are not specified for students with disabilities. It is a general format for educators to build upon; individual curriculums are left to the teacher to create how they deem appropriate for his or her students. This excludes any state and national standards for music education.

Recommendations for Future Research

Over the past decade, there has been a rise in ASD awareness and the approach to using music as an intervention. More research is needed to focus in on music intervention practices, whether learning to play piano, drums, guitar, or singing lessons, to discover the most effective intervention tactic. There is a need to revisit pedagogy and discover which music learning method best suits students with ASD. There is an evident lapse within the educational experience students with ASD encounter compared to students without learning disabilities. As interest in ASD continues to rise and more research and information become available, music integration will prove to be beneficial and promote refined skills necessary for life. The following are recommendation for future research regarding ASD and music intervention:

1. Continued research through qualitative, quantitative, and mixed-method studies on music educations' four primary pedagogies, Orff, Kodály, Dalcroze, and Suzuki. Each of these approaches offers many musical benefits. Studies conducted in qualitative, quantitative and mixed-methods research are needed to further explore the effects of music learning in each pedagogy.
2. It is necessary to evaluate the music curriculum within elementary grade level, specifically, the curriculum for students with disabilities such as ASD. Curriculums are designed for grade-appropriate content. However, curriculum needs to be reevaluated after further research, ensuring that the newly formulated curricula will further improve individual experiences and translate to developing cognitive and communicative skills.
3. Evaluation of class format is vital and directly correlates with student's success. The commonality between the Orff and Kodály methods of music learning is that the

primary goal is for the student's overall growth as individual and class size is vital. Interaction with peers is an integral part of developing social skills; however, when class sizes are large, students do not receive the same attentiveness when a class is small.

4. Teachers are not equipped with tools or resources to fairly teach students with disabilities such as ASD. The creation of a curriculum is not an easy task. When considering one or multiple aspects in a student's IEP can be daunting for teachers; however, it is necessary. More tools and resources should be made available to educators by continuing research and hopefully result in educators' proper training.
5. Recreating IEP plans for students. It is evident that the IEP has replaced the actual curriculum for students. Students with IEP's are not receiving the same education as their peers and ultimately are expected of less of their academic performance.¹⁷⁶ The IEP can be beneficial to students and teachers when used how it was initially intended. The system needs to be recreated, and new levels of accountability should be set in place for teachers and administration.
6. Incorporate live participants for research. This study was limited and unable to test the theories of implementing both Orff and Kodály elements in music curriculum for students with ASD. It would benefit future studies to have several test groups to prove the theory presented. One test group could combine Orff and Kodály elements while two other groups are specific to either Orff or Kodály.

¹⁷⁶ Dayoub, 16.

Implications for Practice

This study's outcomes may be beneficial to parents, educators, and students concerning ASD and music education and intervention tactics. The findings have implications that educators and administrators should consider when creating music classes and preparing a curriculum for general music classes that include students with disabilities. It is vital to discover a balance between student's IEP's and curriculum intentions per grade level. A desire to transform the learning experience for students with ASD and allow students the opportunity to experience musical exploration will take time, further research, and many trials incorporating various elements from different music pedagogies.

There are many misconceptions surrounding students with ASD. Misconceptions include the following: music classes can be too loud for students with ASD and could cause a sensory overload for the student; students with ASD have a slower learning pace than other students and can hold the class behind; students with ASD are not capable of understanding the content within a curriculum. These misconceptions are untrue. Students with ASD are intelligent and capable of academic success when given the appropriate resources. As research continues on ASD, the educational approaches should evolve as well. Many changes are needed within the education system concerning students with disabilities. A specific music curriculum for students with disabilities may be beneficial for teachers and students. Teachers could then have the tools and proper materials for students with disabilities. It is also important to determine appropriate class sizing and creating lesson plans that are compatible for students with disabilities.

There are many challenges faced by educators. Often times, it is the teacher's responsibility to rework the existing curriculum to become compatible for students, and often left personal research regarding conditions students in their class may have to understand what they

can do to better assist their students during class. This research indicates that teachers are often left with the decision of if they want to consult a student's IEP or ignore it to comply with the existing curriculum. Though IEP plans are created for students that need them, there is no true way for specific learning plans to be monitored by anyone other than believing teachers are being compliant. In theory, there should not be any issues with how the IEP and curriculum are designed to work together, however, some teachers do not wish to be inconvenienced for the minority of the class. There should be more accountability means set in place so the only option for students with IEPs is for the teacher to comply and provide accurate information on the student's performance in class.

Conclusions

Many considerations must be taken into account when creating an appropriate music curriculum for students with ASD. The importance of the IEP in school settings determine how students receive interventions and goals for their performance. The correlation of music and further development of skills such as cognitive thinking, social interactions, and communication continue to be researched in relation to ASD.

The IEP has replaced the curriculum for those with disabilities and has become a disadvantage as these students do not receive the same education as their peers. Understanding ASD, its history, and new information available from studies and organizations will all assist in the recreation of music curriculum and how it is introduced to students with ASD. If educators, parents, and activists work together to create change in music intervention tactics and school curriculum, that are many benefits for students with ASD.

A curriculum that heavily focuses on an Orff-Kodály combination method of music learning for those with ASD does not currently exist; however, with further research and educator willingness, an Orff-Kodály curriculum is made possible. The current education curriculum is designed for students that do not have disabilities and are categorized into what administration and state legislators deem as age-appropriate content. Concerning students with ASD, age-appropriate content does not always come to fruition, which then subjects students to falling behind in the course or not having music exposure. By exposing students to an Orff-Kodály music learning approach student will experience learning by exploration of kinesthetic movements. Students with ASD can then be given a fair opportunity to participate in music classes and experience individual growth.

Bibliography

- Antonietti, Alessandro, Barbara Colombo, Braelyn R. DeRocher *Enhancing Social Skills in Autism Through Music*. In: *Music Interventions for Neurodevelopmental Disorders*. Palgrave Pivot, Cham. 2018. https://doi-org.ezproxy.liberty.edu/10.1007/978-3-319-97151-3_3
- Antonietti A., Colombo B., DeRocher B.R. *The Reasons Supporting the Use of Music in Rehabilitation*. In: *Music Interventions for Neurodevelopmental Disorders*. Palgrave Pivot, Cham. 2018. https://doi-org.ezproxy.liberty.edu/10.1007/978-3-319-97151-3_1
- "Autism Speaks," Autism Speaks, Last modified 2021. <https://www.autismspeaks.org/>.
- "Autism Statistics and Facts | Autism Speaks," Autism Speaks, Last modified 2021. <https://www.autismspeaks.org/autism-statistics>.
- Bernard, Rhoda, and Alice Hammel. *Good Teaching on Steroids: Assessments Of Music Teaching And Learning With Students On The Autism Spectrum*. Berklee College of Music, 2017.
- Brown, Lydia. *Identity-First Language*. Autistic Self Advocacy Network, Last modified 2021. <https://autisticadvocacy.org/about-asan/identity-first-language/>.
- Bruscia, Kenneth E., *Case Examples of Music Therapy for Autism and Rett Syndrome*. Gilsum: Barcelona Publishers, 2012. ProQuest E-book Central.
- Caruana, Vicki. *Success with IEPs: Solving Five Common Implementation Challenges in the Classroom (ASCD Arias)*. Alexandria: Association for Supervision & Curriculum Development, 2017. ProQuest E-book Central.
- Creswell, John W, and J. David Creswell. *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*. 5th ed. Thousand Oaks: SAGE Publications Inc., 2018.
- Chiengchana, Natee, and Somchai Trakarnrung. *The Effect of Kodály-Based Music Experiences on Joint Attention in Children with Autism Spectrum Disorders*. *Asian Biomedicine* 8, no. 4. 2014: 547-555. doi:10.5372/1905-7415.0804.326.
- Conway, Collen M. *Approaches to Qualitative Research: An Oxford Handbook of Qualitative Research in American Music Education*. Volume 1. New York, New York: Oxford University Press, 2021.
- Dayoub, Meredith B. *Music for Caroline: Including Students with Autism in The Elementary General Music Classroom*. Columbus, GA: Columbus State University, 2016.

- "Early Intensive Behavioral Intervention / Treatment". Association for Science In Autism Treatment, Last modified 2021. <https://asatonline.org/for-parents/learn-more-about-specific-treatments/early-intensive-behavioral-interventiontreatment-2/>.
- Garrett, McKenzie E., *Orff Schulwerk and Autism: Unlocking the Gifts of Students with Autism in the Music Classroom through Orff Schulwerk*, Eastern Kentucky University, 2020.
- Hammel, Alice M., and Hourigan, Ryan M. *Teaching Music to Students with Autism*. Cary: Oxford University Press, Incorporated, 2013. ProQuest E-book Central.
- Hartwig, Kay-Ann, ed. *Research Methodologies in Music Education*. Newcastle-upon-Tyne: Cambridge Scholars Publisher, 2014. ProQuest E-book Central.
- Hedden, Debra, *General Music Curriculum Framework Document*, NAFME
- Houlahan, Micheal, and Tacka, Philip. *Kodály Today: A Cognitive Approach to Elementary Music Education*. Oxford: Oxford University Press, Incorporated, 2015. E-book Central.
- Hourigan, Ryan M., and Alice M. Hammel. *Understanding the Mind of a Student with Autism in Music Class*. *Music Educators Journal* 104, no. 2. 2017. 21-26. <https://www.jstor.org/stable/26588614>.
- Jordan, Rita, Roberts, Jacqueline M., and Hume, Kara, eds. *The SAGE Handbook of Autism and Education*. London: SAGE Publications, 2019. ProQuest E-book Central.
- Kern, Petra, and Marcia Humpal, eds. *Early Childhood Music Therapy and Autism Spectrum Disorders: Developing Potential in Young Children and Their Families*. London: Jessica Kingsley Publishers, 2012. ProQuest E-book Central.
- Kertz-Welzel, Alexandra. *Thinking Globally in Music Education Research*. Bloomington: Indiana University Press, 2018.
- Mark, Michael L., and Charles L. Gary. *A History of American Music Education*. 3rd ed. Rowman & Littlefield Education, 2007.
- Nolet, Victor, and Margaret J. McLaughlin. *Access to the General Education Curriculum: Why It Is More Important Than Ever Before*. In *Accessing the General Curriculum: Including Students with Disabilities in Standards-Based Reform*, 2nd ed., Thousand Oaks, CA: Corwin Press, 2005. <http://dx.doi.org.ezproxy.liberty.edu/10.4135/9781483329253.n2>.
- Oldfield, Amelia. *Interactive Music Therapy - A Positive Approach: Music Therapy at a Child Development Centre*. London: Jessica Kingsley Publishers, 2006.
- "Organization for Autism Research | Helping Families Today." *Researchautism.Org*, Last modified 2021. <https://researchautism.org/>.

- Plano Clark, Vicki L., and Nataliya V. Ivankova. *Why a Guide to the Field of Mixed Methods Research?: Introducing a Conceptual Framework of the Field*. In *Mixed Methods Research: A Guide to the Field*, 3-30. Thousand Oaks, CA: SAGE Publications, Inc., 2016.
- "Quality of Service, Music Therapy Standards | AMTA Standards of Practice | American Music Therapy Association (AMTA)." Musictherapy.Org, Last modified 2021. <https://www.musictherapy.org/about/standards/>.
- Robb, Sheri L., Debra S. Burns, and Janet S. Carpenter. *Reporting Guidelines for Music-Based Interventions*. Music and Medicine, Last modified 2013.
- Screening and Diagnosis | Autism Spectrum Disorder (ASD) *Screening & Diagnosis*. Centers for Disease Control and Prevention, Last modified 2020. <https://www.cdc.gov/ncbddd/autism/screening.html>.
- Screening and Diagnosis | Autism Spectrum Disorder (ASD) *Treatment*, Centers for Disease Control and Prevention, Last modified 2020. <https://www.cdc.gov/ncbddd/autism/treatment.html>
- Silverman, Chloe. *Understanding Autism: Parents, Doctors, and the History of a Disorder*. Princeton: Princeton University Press, 2011. ProQuest E-book Central.
- Sheridan, Megan M. *The Kodály Concept in the United States: Early American Adaptations to Recent Evolutions*. *Journal of Historical Research in Music Education* 41, no. 1.: 55–72. <https://doi.org/10.1177/1536600618787481>. 2019
- Smith, Tristram. *Making Inclusion Work for Students with Autism Spectrum Disorders: An Evidence-Based Guide*. New York: Guilford Publications, 2011. ProQuest E-book Central.
- Stegemann, Thomas, Monika Geretsegger, Eva Ohan Quoc, Hannah Riedl, and Monika Smetana. *Music Therapy and Other Music-Based Interventions in Pediatric Health Care: An Overview*. Vienna, Austria: Department of Music Therapy, University of Music and Performing Arts Vienna, 2018.
- "Terminology: “Autistic,” “With Autism” And “Asperger’s” | Child Mind Institute." Child Mind Institute, Last modified 2021. <https://childmind.org/guide/parents-guide-to-autism/terminology-autistic-with-autism-and-aspergers/>.
- Thaut, Michael. *Rhythm, Music, and the Brain: Scientific Foundations and Clinical Applications*. London: Taylor & Francis Group, 2005.

Twachtman-Cullen, Diane, and Twachtman-Bassett, Jennifer. *The IEP from A to Z: How to Create Meaningful and Measurable Goals and Objectives*. New York, NY: John Wiley & Sons, Incorporated, 2011.

VanderLinde Blair, Deborah, and Kimberly McCord. *Exceptional Music Pedagogy for Children with Exceptionalities: International Perspectives*. Oxford Scholarship Online, 2015.

Wigram, T., and C. Gold. *Music Therapy in the Assessment and Treatment of Autistic Spectrum Disorder: Clinical Application and Research Evidence*, 2005.