INCLUDING STUDENTS WITH PHYSICAL DIFFERENCES IN SECONDARY INSTRUMENTAL MUSIC:

AN INSTRUMENTAL CASE STUDY

by

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ABSTRACT

Inclusion has numerous social benefits for all students and can improve self-efficacy in students with Special Educational Needs (SEN). However, instrumental music teachers may less frequently include students with diverse learning needs than general music teachers (Smith & Wilson, 1999; Zdzinski, 2001). The greatest obstacles to including students with physical differences in instrumental music include teacher uncertainty about how to include students with physical differences and concerns about the availability and cost of modified instruments (Nabb & Balcetis, 2010). Though one previous study explored how an elementary instrumental music teacher included three students with physical differences in music ensembles (Thornton & Culp, 2020), few similar qualitative research studies related to inclusion at the secondary level exist. Therefore, the purpose of this instrumental case study was to explore the experiences of three secondary instrumental music teachers who provide modifications and accommodations to best support students with physical differences.

This instrumental case study (Stake, 2005) focused on the issue of inclusion in instrumental music ensembles and utilized critical case sampling to locate participants whose insights and experiences could lead to logical generalizations (Patton, 2002). Using semi-structured interview protocols, I interviewed three teacher participants two times each. In addition, I collected artifacts such as photographs of each teacher's

classrooms, concert programs, and photographs of modified instruments. I also observed each participant teaching one or two times. Inductive coding methods yielded emergent themes and findings in response to the four research questions (Saldaña, 2013). The participants utilized four strategies to include students with physical differences: (a) embracing inclusive instructional approaches, (b) modifying materials and spaces, (c) prioritizing and planning ahead, and (d) collaborating with and receiving support from others. Participants felt motivated to include students because they believed that: (a) every student deserves to participate in music, (b) inclusion has an overall positive impact, (c) adaptations are necessary and important, and (d) people matter more than trophies. Multiple benefits emerged related to including students with physical differences instrumental music classes. When participating in instrumental music, teachers reported that students with SEN experienced social-emotional, psychological, and neurological benefits, and non-disabled students benefited from learning to work with individuals with physical differences. However, knowledge, organization, and transportation serve as barriers to inclusion. Collectively, these findings suggest that teachers may benefit from increased training about how to include students with physical differences, which should begin in teacher preparation programs and continue throughout their careers. Students may also benefit from more inclusive teaching situations. By removing barriers and reducing stigma, secondary instrumental music teachers can help all students to have a positive musical experience.

Chapter 1

INTRODUCTION

All students have the right to receive a well-rounded education, which includes the opportunity to participate in instrumental music (Every Student Succeeds Act 2015). The Individuals with Disabilities Education Act (IDEA) states that all students should receive instruction in the setting where they can succeed with the least number of modifications, also known as the Least Restrictive Environment, or the LRE (IDEA, 2004a). As a result of IDEA's requirement to place students in the LRE, the number of children who receive special education services in general education classrooms has increased dramatically over time. According to the National Center for Education Statistics (NCES, 2023), 7.3 million students received special education services in general education classrooms in the 2021-22 school year—an increase from 6.4 million students in the 2010-11 school year. Accordingly, the number of students with Special Educational Needs (SEN) who participate in music class has also increased (Jones, 2015).

As the number of students with SEN in the general education classroom has increased, teachers have strived to learn more about inclusive practices. Miller et al. (2022) summarized 11 studies in which teachers reported instructional strategies that they used when including students with SEN. These strategies included building relationships with students, appreciating students' strengths, empathetically supporting students, differentiating assignments and assessments to focus on multiple modalities, implementing flexible groups to allow for peer mentoring or cooperative learning, and collaborating with school personnel, families, and community members. Teachers also reported using assistive technology to accommodate students (Miller et al., 2022). Music teachers specifically include students with SEN by providing individualized instruction, frequently communicating with parents, providing positive reinforcement, utilizing peer aides, and treating students with SEN as equal to their peers while providing accommodations as needed (Wilson, 2022).

Despite music teachers' best attempts at inclusion, students with SEN continue to face many barriers to equitable participation in music classes, schools, and society at large. Although the Americans with Disabilities Act (ADA) and the Individuals with Disabilities in Education Act (IDEA) prohibit outright discrimination, many people continue to view individuals with disabilities negatively (Parker & Draves, 2018). Similarly, the special education system and the overall education system both "maintain a system of traditionalist dominance" (Cavendish et al., 2020, p. 570). Instrumental music teachers may particularly struggle to overcome these negative attitudes as limited research related to the inclusion of students with physical differences in instrumental music exists. Without awareness of best practices related to the inclusion of students with physical differences, teachers may not know how to provide equitable opportunities for all students. Thus, teachers and students in music classes, including instrumental ensembles, may reinforce (even unintentionally) negative attitudes that frame disabilities as deficits (Dobbs, 2012). However, all students, including those with physical differences, deserve opportunities to participate equitably in instrumental ensembles. Therefore, this research project explores how instrumental music teachers provide modifications and accommodations to include and support students with physical differences in their ensembles. By understanding strategies for including students with physical differences in instrumental ensembles, teachers may ensure more equitable participation for all students.

Terminology

Given the impact language can have on one's perception of students' impairments (Adamek & Darrow, 2018; Adamo, 2012; Wilson, 2022), researchers should seek to select terminology that is equitable and nuanced when writing about or discussing students with SEN (Goffman, 2017). Best practices in terminology and language evolve over time. However, teachers should make intentional language choices to avoid minoritizing students with SEN and prevent their diagnoses from overshadowing other attributes or aspects of students' identities (Adamek & Darrow, 2018). In this thesis, I utilize language that aligns with the Stanford Disability Initiative's language guide (Rahman, 2019). I also adopt the term physical differences when describing individuals with physicalities that require adaptations, in recognition of the fact that some individuals identify as having an impairment but not a disability (Wendell, 2017). Although I could have used the term physical impairment, the term physical difference also allows for the inclusion of individuals who may not require adaptations in non-musical learning environments, and therefore identify as neither disabled nor impaired. Furthermore, some individuals require adaptations without having a diagnosable impairment. Therefore, the term physical differences allows me to be responsive to the identities of the greatest number of people. Moreover, given the frequent association between disabilities and deficits (Ellis, 2009), I chose to use the term physical differences to align with the social model of disability, which focuses on the processes that disable individuals and stipulates that individual differences do not need to be cured. See Chapter 3 for more information about the social model of disability.

Additionally, in keeping with the precedent set by Wong and Chik (2016) and Tometten et al. (2021), I utilize the term Special Educational Needs (SEN) when generally discussing individuals who receive special education or related services. Notably, when referencing historical legislation, I maintain the language used within those acts. I also maintain the original terminology used when directly quoting participants. See Appendix A for a more complete listing of terminology.

Identity and Physical Differences

Selecting and utilizing terminology respectfully also plays a significant role in respecting and valuing everyone's unique identity. Identity has cultural implications and impacts individual's quality of life (Meekosha & Shuttleworth, 2017). Siebers (2008, 2017) documented that people perceive specific attributes of identity negatively, or as a defect, when considering minority identities. The potential negative perception of minority identities is especially true when discussing physical differences, as modern society displays a strong preference for non-disabled bodies (Siebers, 2017). When discussing societal perception of disability, Siebers (2017) asserted that "ability is the ideological baseline by which humanness is determined. The lesser the ability, the lesser the human being" (p. 315). However, individuals with physical differences who maintain a positive view of their physicality often "lead more productive and happier lives" (Siebers, 2017, p. 316). Embracing the social model provides psychological benefits for many individuals with SEN such as improving self-esteem, contributing to a positive collective identity, and removing feelings of blame and invalidity (Shakespeare, 2017). Similarly, the perspective of the social model helps to explain the need for change and improve the public perception of individuals with SEN (Shakespeare, 2017).

However, not all individuals with physical differences interpret their identities in the same way. For example, two individuals with the same diagnosis may have different attitudes towards their disability and/or wish for their disability to be referred to in different ways, which further highlights the importance of selecting respectful terminology (Rahman, 2019). Some individuals may identify with their impairment, but resist being considered disabled (Meekosha & Shuttleworth, 2017). Others might resist labels altogether in order to avoid the stigma and try to pass as non-disabled (Coleman-Brown, 2017). Stigmas are undesired differences that often lead to downward social mobility, occur as the result of cognitive processing (Coleman-Brown, 2017), and are "made up of a discrepancy between the . . . perceived identity and the actual identity of the stigma's bearer" (Goffman, 2017, p. 133). Using person-first language, or coding people by attributes instead of sorting them into categories can help reduce stigma (Coleman-Brown, 2017). Some individuals are satisfied with their quality of life and do not desire a cure; other individuals with SEN "experience physical or psychological burdens that no amount of social justice can eliminate" (Wendell, 2017, p. 161), and would therefore welcome a cure in addition to eliminating ableism. All of these factors influence how individuals, including those with physical differences, identify. Language and terminology also influence the field of special education.

Overview of Special Education Legislation

The field of special education has evolved significantly since the beginning of the 20th century. By acknowledging the history of special education, I seek to provide context for how students with SEN, and in particular students with physical differences, participate in instrumental ensembles with their non-disabled peers today. I also wish to acknowledge the challenges that students with physical differences still face.

The first special education classes in America were established in the early 1900s (Deiner, 1999). However, students with SEN were usually taught in separate schools or classrooms. By the 1920s, students with physical differences began attending classes in the public schools, but they still did not participate in the same classes as their non-disabled peers (Deiner, 1999). Many consider the historic 1954 court case Brown v. Board of Education of Topeka—which found that separate was not equal—as the origin of discussions surrounding equitable educational placements for students with special needs (Hammel & Hourigan, 2017). Following this monumental ruling in 1954, Congress passed multiple laws that gradually improved the educational rights and opportunities for students with SEN, including students with physical differences (see Figure 1). Special education laws passed in the late 1950s and 1960s laid the foundation for implementing and supporting early intervention and special education services (A History of the IDEA, 2023). Congress passed two similar laws in the 1970s and 1980s that helped to further the education opportunities for students with SEN.

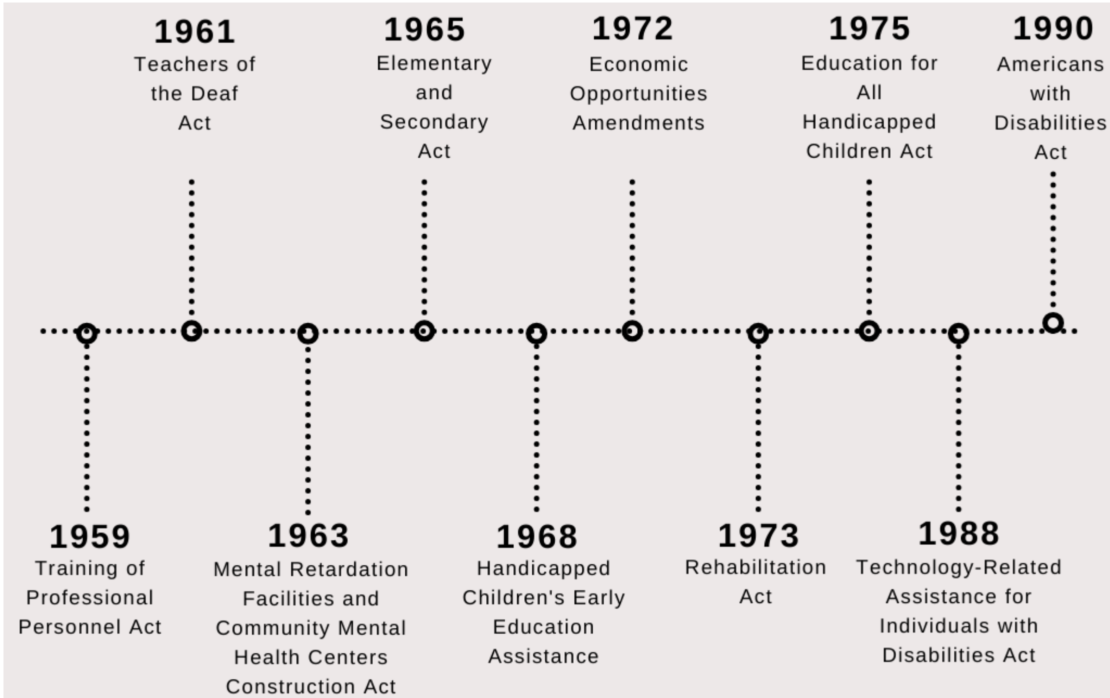

Figure 1 Timeline of Special Education Laws

Four laws that passed in the second half of the 20th century most directly impact special education–and thus, students with physical differences–in America today. First, legislators passed The Elementary and Secondary Act of 1965 (P.L. 89-10), also known as the ESEA, with the goal of strengthening educational opportunities for disadvantaged individuals. As a part of ESEA, Congress allocated funds to help educate children with disabilities, including students with physical differences. The ESEA was re-authorized by Congress as the No Child Left Behind Act (NCLB) in 2001 and as the Every Student Succeeds Act (ESSA) in 2015 (NA*f*ME, 2016).

Second, the Rehabilitation Act of 1973 (P.L. 93-112) increased access to "facilities, services, and treatments" (Hammel & Hourigan, 2017, p. 25) for students with disabilities, effectively guaranteeing their civil rights. Section 504 of this legislation focused on nondiscrimination in schools, preschools, and other educational institutions or programs that receive federal funds. Therefore, section 504 of the Rehabilitation Act of 1973 applies to both students with physical differences who qualify for special education under IDEA and students who are ineligible for special education but still require accommodations to ensure that they receive equitable access to all learning opportunities. For example, students with diagnoses such as asthma or diabetes, which do not directly impact students' ability to learn, can receive a 504 plan (Deiner, 1999; Friend, 2011), as can students with both short-term and long-term physical or health conditions (Hammel & Hourigan, 2017).

Next, legislators passed the Education for All Handicapped Children Act, or EHA, in 1975 (P.L. 94-142), arguably the most important piece of special education legislation. The EHA mandated that all children ages 5 through 21, including but not limited to students with physical differences, receive a free and appropriate public school education in the LRE. LRE stipulates that students with SEN should be taught in general education classrooms whenever possible for them to succeed in that placement (Fletcher, 2010, p. 71). The 1990 reauthorization of the EHA changed its name to the Individuals with Disabilities Education Act (P.L. 101-476), or IDEA. Six guiding principles provide a framework for the implementation of IDEA in public schools, which have been part of IDEA since its inception: (a) zero reject, (b) non-discriminatory evaluations, (c) free appropriate public education, (d) LRE, (e) procedural safeguards, and (f) parental and student involvement and rights (Crockett, 2017; Friend; 2011; Hammel & Hourigan, 2017; Hoffman, 2011). Congress reauthorized IDEA in 2004 as the Individuals with Disabilities Education Improvement Act (P.L. 108-446), at which point legislators added a provision stating that all students must have access to the general education core curriculum (Epler, 2022). IDEA establishes 13 categories of eligibility through which students can qualify for an IEP: intellectual disability, hearing impairment, Deafness, speech or language impairment, visual impairment (including blindness), emotional disturbance, orthopedic impairment, autism, traumatic brain injury, other health impairment, specific learning disability, deaf-blindness, or multiple disabilities (IDEA, 2004b). Under IDEA, 7.3 million children received special education and related services in the 2021-22 school year, and 67% of those students were placed in the general education classroom for at least 80% of their school day (NCES, 2023). Students with multiple disabilities (not including deaf-blindness) can also qualify for services under multiple categories (IDEA, 2004b), and students age 3-9 can also qualify under the category of developmental delay (IDEA, 2004c).

Finally, in 1990, the Americans with Disabilities Act (P.L. 101-336), or ADA, extended civil rights protections to people with disabilities in all settings. The ADA required schools to provide reasonable accommodations to allow individuals with disabilities, such as those with physical differences, to participate as fully as possible. Whereas IDEA guaranteed educational rights, the ADA guaranteed civil rights for students with disabilities (Crockett, 2017), requiring both nondiscriminatory practices and the accessibility of public buildings (Hammel & Hourigan, 2017). In 2008, Congress reauthorized the ADA as the Americans with Disabilities Amendments Act (ADAAA) (P.L. 110-325), increasing the number of ways in which students may be eligible for a 504 plan by expanding the definition of disability to include “substantial [limitations] to any major life activity”, regardless of the “ameliorative effects of mitigating measures” (p. 2) Though Congress appropriates funds to support special education services protected under IDEA, school districts must pay for any services or supports required by students' 504 plans (Friend, 2011).

Including Students with Physical Differences

Students who qualify under any of IDEA's aforementioned 13 categories of eligibility can receive special education and related services by obtaining an Individual Education Program ([IEP], Friend, 2011). To qualify for an IEP, a child's school performance must be "adversely affected" by their diagnosed disability (Heller & Swinehart-Jones, 2003, p. 5; IDEA, 2004b). For more information about IEPs, see Appendix A.

IDEA uses the term "orthopedic impairment," one of the 13 categories of IEP eligibility, to describe individuals' physical differences (Friend, 2011). According to IDEA, orthopedic impairments can occur as a result of congenital anomalies (e.g., clubfoot, missing limbs), disease (e.g., poliomyelitis, bone tuberculosis), or other causes (e.g., cerebral palsy, amputation, fractures or burns that cause contractures). To qualify under IDEA, these impairments must be significant enough to "adversely affect a child's educational performance" (IDEA, 2004b). Congenital anomalies are defined as "existing at or dating from birth," as opposed to acquired impairments, which occur later in life (Merriam-Webster, 2023). Acquired impairments may be temporary (e.g., a broken arm) or permanent (e.g., brain damage from a stroke); if the impairment was acquired recently, teachers may need to support the student's emotional adjustment to their new physicality (Adamek & Darrow, 2018). Orthopedic impairments can also be divided into neurological impairments, musculoskeletal conditions (Deiner, 1999; Friend, 2011), and degenerative conditions (Orthopedic Impairment, n.d.). Researchers define neurological impairments as abnormalities or damage to the central nervous system. Neurological impairments include diagnoses such as cerebral palsy, spinal cord injury, or neural tube defects like spina bifida (Friend, 2011; Lombardi, 2019; Orthopedic Impairment, n.d.) Strokes can also cause neurological impairments (Lombardi, 2019). Musculoskeletal conditions result in a variety of physicalities that may require adaptation, and corresponding diagnoses include absent limbs (also known as limb deficiency), juvenile rheumatoid arthritis, arthrogryposis multiplex congenita (which causes stiffness of the limbs), muscular dystrophy, and osteogenesis imperfecta (Deiner, 1999; Orthopedic Impairment, n.d.). Degenerative diseases impact motor development and can often be progressive, such as muscular dystrophy, the most common degenerative disease seen in school-age students (Orthopedic Impairment, n.d.). Spinal muscular atrophy is another example of a degenerative disease that can affect students (Heller & Swinehart-Jones, 2003). The aforementioned conditions do not represent all possible diagnoses that could result in a student qualifying for an IEP under the category of an orthopedic impairment, but they are some of the most commonly discussed.

Students with physical differences who have an impairment that "substantially limits one or more major life activities" (Crockett, 2017, p. 47) who do not qualify for an IEP may still receive services or support through a 504 plan if they need accommodations to "access learning as adequately as their classmates without disabilities" (Crockett, 2017, p. 46; Friend, 2011). For example, a student who uses a wheelchair or who has Ehlers Danlos Syndrome[1] may qualify for a 504 plan so that

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[1] A group of inherited disorders that affect one's connective tissues, resulting in chronic pain, fatigue, joint dislocations, and in some subtypes, organ rupture.

they can access the learning environment. Though the student would not require adaptations to the academic context, they would need accommodations to successfully participate in school. Example accommodations outlined in their 504 plan might involve assigning that student an elevator key or allowing them to rest in the nurse's office.

Students with physical differences participate in general education classes in different ways. Students who receive special education services can be included in general education classes through processes referred to as mainstreaming or inclusion (Adamek & Darrow, 2018; Jones, 2015). Mainstreaming refers to programs that add students with SEN to classes designed to educate non-disabled students (Jones, 2015). When mainstreaming, special education teachers hope to help students fulfill social rather than academic goals (Adamek & Darrow, 2018). On the other hand, inclusion refers to classes which adjust and modify instruction based on each student's ability level (Jones, 2015). This allows all students, including students with SEN, to have their educational needs met in general education classes taught by general education teachers. Notably, special education teachers still provide support as necessary (Adamek & Darrow, 2018). Although nationwide reports fail to include information about the percentage of time that students with orthopedic impairments spend in general education classrooms (NCES, 2023), multiple teacher-practitioners assert that children with physical differences generally receive at least some of their instruction in the general education classroom, either through mainstreaming or inclusion (Deiner, 1999; Friend, 2011). Increasingly, educators and parents prefer inclusion to mainstreaming as the inclusion model allows students with SEN to be more fully integrated with their non-disabled peers.

Music Programs for Students with Physical Differences

While students with physical differences are often included in music classrooms, limited information about the best practices for inclusion exists. Music teachers may particularly lack information about including students with physical differences compared to those with other diverse learning needs. In a survey of 221 band directors in Nebraska, researchers found that only 67% of respondents knew that "conventional musical instruments could be adapted to accommodate students' physical needs" (Nabb & Balcetis, 2010, p. 315). Even when teachers are aware of how to adapt instruments for students with physical differences, they still might lack the resources to do so. For instance, Nabb and Balcetis (2010) reported that the scarcity of modified instruments (intended to accommodate physical differences) was one of the biggest factors limiting the inclusion of students with physical differences in instrumental music programs.

Students receiving special education services due to a physical difference (i.e., orthopedic impairment) in the United States account for 0.5% of students receiving special education services, which represents hundreds of thousands of students (NCES, 2023). Many educators may have the opportunity to accommodate students with physical differences over the course of their careers, and every student deserves to receive proper accommodations. In their survey, Nabb and Balcetis (2010) reported that 55% percent of the 221 participating band directors knew of at least one student in their current student body who had a physical difference. Additionally, over the course of their music teaching careers, 61% of respondents had encountered students whose physicality limited their participation in instrumental music (Nabb & Balcetis, 2010). This number is similar to the results reported by Shelfo (2007), who found that 49.1% of the 214 responding Maryland-based instrumental music educators had worked with a student with an orthopedic impairment. The majority of these teachers (43.5% of respondents) had only worked with a few (i.e., one to five) students with an orthopedic impairment, and only 0.9% of participating educators indicated that they had worked with 13 or more students with an orthopedic impairment. Thus, practicing teachers would likely benefit from increased knowledge about ways to equitably include students with physical differences so that all students can participate in and access to instrumental music.

Improving the Future for Students with Physical Differences in Instrumental Music

Continued work is needed to ensure equitable access to education for all students. The U.S. educational system has faced many challenges which have made inclusion more difficult, including inadequate funding and the COVID-19 pandemic. COVID-19 posed instructional challenges for all teachers and learners, but the impact was particularly significant for students with disabilities. Online instruction provided less structure, did not adequately allow for the delivery of related services (e.g., occupational therapy, physical therapy, or speech therapy), and necessitated the use of technologies which lack accessibility features for students with visual or hearing impairments (Smith, 2020). Parents, teachers, and government officials have broached many conversations about changes that should occur, but these conversations have not yet yielded broad-scale reforms. Despite IDEA's clear guidelines about inclusion, discussions continue about how, where, and when students with disabilities should be included (Kauffman et al., 2023). Although many academics argue for full inclusion, students with "significant disabilities" (Morningstar et al., 2017, p. 3) still often lack access to general education settings (Kauffman & Hornby, 2020). In 2017, the

Supreme Court ruled in Endrew F. v. Douglas County School District that students with disabilities should be expected to make more than minimal educational progress; IDEA does not imply low expectations for students. Instead, students must receive services appropriate to their specific needs such that they can make adequate progress (Adamek & Darrow, 2018).

As an experienced teacher who plans to return to the K-12 education field after the completion of my master's degree, I understand that the potential exists to make significant changes for the betterment of all students. Many educators are hopeful that that the aforementioned Supreme Court ruling in 2017 will help to motivate school districts to ensure that students with SEN have access to *all* educational opportunities. I hope to take part in increasing educational opportunities for students with SEN, especially when it comes to including students with physical differences in instrumental music. In the words of Lamb and Abramo (2021), my goal "is to increase our awareness so that explicit pedagogical decisions have greater influence in our work than the implicit ones" (p. 39).

Purpose and Research Questions

To best serve students with physical differences, teachers need to understand and faithfully implement modifications and accommodations. However, few researchers have explored approaches that teachers have implemented to include students with physical differences in instrumental ensembles. Therefore, the purpose of this instrumental case study was to explore the experiences of three secondary instrumental music teachers who provide modifications and accommodations to support students with physical differences. Four research questions guided this study:

1. In what ways do music teachers make instrumental music accessible to students with physical differences?
2. What beliefs and dispositions motivate these teachers?
3. What, if any, benefits do teachers perceive from including students with physical differences?
4. What, if any, barriers do teachers perceive as limiting students with physical differences when participating in instrumental music?

Chapter 2

LITERATURE REVIEW

Literature reviews provide an important foundation for research studies by "building a foundation for the important ideas in the problem statement and purpose" (Rocco & Plakhotnik, 2009, p. 125). Reviewing the existing scholarly literature allows the author to establish that a gap in the literature exists (Creswell, 2007). This literature review examines previous literature regarding the benefits of inclusion in music, barriers to including students in music, strategies for supporting students with SEN in music, and strategies for supporting students with physical differences in instrumental music. The chapter concludes with the research purpose statement and questions.

Benefits of Inclusion in Music Classes

Many students, especially those with SEN, can benefit from learning in inclusive music classrooms (e.g., Draper, 2022; Maland, 2012; Salvador, 2015). Darrow (2012, 2014) asserted in several texts for practicing teachers that music class may be an area where students with SEN can achieve success, express themselves, develop friendships, and improve self-esteem, assertiveness, and social skills. Providing opportunities for positive social and academic experiences is significant as students with orthopedic impairments often experience several psychosocial challenges (e.g., motivation, self-concept and self-esteem, social competence, and/ or behavioral and emotional functioning) that can negatively impact school performance (Heller & Swinehart-Jones, 2003). Inclusive music education classes provide opportunities for students with SEN to develop a stronger sense of identity, which can positively impact other students and teachers (Hammel & Hourigan, 2017).

Students with SEN can often experience social-emotional benefits as a result of participating in music classes (e.g., Barksdale, 2003; Salvador, 2015). Participating fully alongside age- and grade-level peers can motivate students with SEN (Draper, 2022; Maland, 2012), which in turn can provide social-emotional benefits (Barksdale, 2003; Salvador, 2015). Salvador (2015) explored how one music teacher individualized instruction for two students who attended music class with both their general education fourth grade peers and a self-contained class of upper elementary school students with "moderate to severe cognitive impairments" (p. 162). When reflecting on the growth of one of the two students, the teacher explained that playing the recorder in music class with her peers may have benefited this student socially, even though she struggled with the fine motor skills required to play the instrument (Salvador, 2015). Draper (2022) observed and interviewed two first grade students with autism, their special education team, their music teacher, and their parents. The students' special education team described music as the place where the students with SEN were "included most like [their] peers," which led to the students taking on leadership roles and experiencing success (Draper, 2022, p. 142). Foley (2017) investigated the effectiveness of a nine-week arts residency program for students with SEN on improving an identified IEP goal which was not revealed to the artist-in-residency. Nine students between the ages of 10 to 14 participated in weekly 45-minute classes. At the conclusion, students demonstrated improved communication skills, including expressive and receptive language; researchers also noticed a decrease in behavioral outbursts from one student (Foley, 2017). Maland (2012) interviewed and observed students with SEN in grades 4-6 in choir and band classes and studied the changes in their self-efficacy. In particular, Maland focused on one student with SEN in each grade. Maland described how one of the students, whom she had previously described as withdrawn, became confident answering questions even when she was not sure that her answer was correct. Another student insisted that his mother bring him to perform at Mass, as he believed he was one of the best singers in his class and so his teacher needed him to attend. Hillier et al. (2011) recruited 22 adolescents and young adults between the ages of 13 and 29 to participate in an eight-week music program called SoundScape. Participants attended weekly music sessions which were each 90 minutes in length and participated in a variety of active music-making activities. Participants and their parents or guardians completed questionnaires both prior to and after attending the SoundScape music program. The researchers found that following participation in SoundScape, participants demonstrated increased self-esteem, reduced anxiety, and improved attitudes towards peers. Kivijärvi and Poutiainen (2020) studied 11 teachers, students with SEN, and parents who participated in concerts held by Finland's Resonaari Centre for Music Education. Both students and parents agreed that participating in the concerts led to a sense of belonging for the students (Kivijärvi & Poutiainen, 2020). In another study, MacGlone et al. (2020) studied three groups of adult participants with "mild to profound and complex" disabilities in Scotland who participated in 20 musical workshops over the course of several months (p. 3). At the end of the study, the researchers noted increased confidence, mood, self-expression, social skills, and musical skills in all three groups (MacGlone et al., 2020).

The social-emotional benefits of inclusion in music classes are also well-documented in teacher-practitioner texts. For instance, Hammel and Hourigan (2017), two experts in the field of music education for students with SEN, explained in a text for practicing teachers that "music can be the catalyst for students to develop healthy . . . [and] positive relationships throughout their time in public school" (p. 117). In a separate text for teacher-practitioners, Jellison (2015) "[stated] that the musical lives of children can be improved when . . . interactions with same-age peers in inclusive music environments are frequent, positive, and reciprocal" (p. 51), as it provides a sense of normalcy, and noted "the effects of positive social relationships on a child's well-being and success in school" (p. 59). Additionally, Jellison addressed the increased need for the support of reciprocal friendships and classmates as students progressed through adolescence; talking about music, being chosen as a partner in a folk dance, or performing with a small ensemble of peers can help to support not only students' musical development, but also their social development.

Students with SEN may also develop a better sense of their own identities through inclusion in music classes (Hammel & Hourigan, 2017). MacGlone et al. (2020) stated that according to the United Nations Convention on the Rights of Persons with Disabilities (CRPD), providing access to cultural activities such as music can benefit individuals with and without SEN. For individuals with SEN, participating in creative learning activities can improve their sense of self, increase the size of their social circles, and contribute to better social integration and overall mental health (MacGlone et al., 2020). In a text for practicing teachers, Hammel and Hourigan (2017) stated that individuals with SEN "find social and spiritual identity and purposeful experiences in the arts that they cannot find through other experiences" (p.

123). Thus, exposing children with SEN to the arts will provide opportunities for them to participate in artistic activities as adults, thereby maintaining their sense of identity and purpose (Hammel & Hourigan, 2017). Adamek and Darrow (2018) expressed similar beliefs in another text for practicing teachers, sharing that music participation can make the transition to adulthood less stressful, but "if students with disabilities are not engaged in music . . . during their school years, they are less likely to know what similar activities exist for them after high school" (p. 415).

Finally, many teacher-practitioner texts explain that inclusion positively impacts students with and without SEN in a classroom, as well as their teachers. In one such text, Deiner (1999) explained that social awareness activities, which can occur in the music classroom, can help students to understand the similarities and differences between all individuals. While few research studies examine the impact of inclusion in music classes in general, a few studies exist which are specific to instrumental music, which I summarize in the next section.

Benefits of Inclusion in Instrumental Music Classes

Inclusion in instrumental music specifically provides a sense of community (Scott et al., 2007), social-emotional benefits (Jellison, 2015; Sobol, 2017), and helps non-disabled students to develop a positive attitude towards inclusion (Manning, 2016; Scott et al., 2007). Firstly, instrumental music ensembles allow students with SEN to develop feelings of belonging and a strong sense of community. Scott et al. (2007) interviewed 43 music teachers in different subspecialties (e.g., elementary music teachers, secondary orchestra teachers, and secondary band teachers) from two regions of the United States. One orchestra teacher-participant, who described their classroom community as "no longer an orchestra class but a family" (p. 47), remarked that his students with SEN felt comfortable discussing their diagnoses in orchestra class amongst their teacher and music classmates, but would not disclose their diagnosis with their peers or teachers in other classes. In a text for teacher-practitioners, Jellison (2015) described the increased self-esteem that can result from learning "a culturally normative and socially valued skill" (p. 110) such as playing the chords to a familiar song on keyboard or guitar. In another similar text, Sobol (2017) stated that students with physical differences can experience "[enhanced] vitality by building self-esteem through music" (p. 36).

Just as students with SEN benefit from being part of an instrumental music community, including students with SEN in instrumental music can also positively impact teachers and students without SEN by improving their attitudes towards inclusion (Manning, 2016; Scott et al., 2007). After interviewing 16 elementary music teachers, 15 secondary orchestra teachers, and 12 secondary band teachers in the United States, Scott et al. (2007) reported that most teachers perceived inclusion as either positive or highly positive for students both with and without SEN. Specifically, one band teacher described how students without disabilities supported their classmates with SEN by helping to ensure their success. Teacher participants also believed that inclusion positively benefited themselves as teachers. Specifically, 86% of orchestra teacher participants and 63% of band teacher participants perceived that including students with SEN in school programming positively impacted themselves. The researchers reported that despite teachers' overall positive perception of inclusion, participants did not identify any common benefits across all participants. Some of the individual participants remarked that their awareness of the abilities of students with SEN had increased, and that they had greater knowledge of how to adapt their lessons

(Scott et al., 2007). Finally, Manning (2016) reported that when students with SEN were included in instrumental music, the non-disabled students learned about bias and perception, became more tolerant, and actively supported students with SEN. Ultimately, teachers' inclusion of students with SEN in instrumental classes can have significant benefits; according to Lapka's (2016) teacher-practitioner text, when teachers model inclusion in their classes, students often adopt similar values such as valuing diversity, recognizing the similarities between all humans, and ensuring that everyone has the resources they need to succeed.

Barriers to Inclusion in Music Classes

Despite the many benefits of including students, institutional barriers such as IEP access (Grimsby, 2022; Hammel & Hourigan, 2017; Jones, 2023), teacher preparation (Hoffman, 2011; Robinson, 2017), resource limitations (Grimsby, 2020; VanWeelden & Whipple, 2014), and concerns about test scores (Elpus, 2014) may prevent students with physical differences from participating in instrumental music. Although teachers cannot individually eliminate these systemic barriers, knowledge of the institutional procedures may allow teachers to advocate for their students and their programs.

Involvement, Access, and Relevance of IEPs

One significant barrier to inclusion in music classes relates to music teachers' involvement in the IEP process and access to students' IEPs (Grimsby, 2022; Hammel & Hourigan, 2017; Jones, 2023). Students learn best when each of their teachers understands their learning needs. Accordingly, participation in the IEP process ensures collaboration and continuity between music teachers, special education teachers, and parents (Hammel & Hourigan, 2017; McCord & Fitzgerald, 2006; Scott et al., 2007; Zdzinski, 2001). Jones (2023) surveyed 179 music teachers in Wisconsin with a variety of backgrounds, years of experience, and primary teaching areas, and found that 78.1% of music teachers had some level of involvement in the development of student IEPs, although only 52.8% of teachers attended IEP meetings. Jones (2023) also reported that 81.3% of the teachers who did not attend were neither told about nor invited to students' IEP meetings; only 3.0% of teachers were not interested in attending. Similarly, VanWeelden and Whipple (2014) reported that 73% of the 1,128 music teachers from all specialty areas (e.g., band, choir, guitar, orchestra, general music) surveyed from 50 states had "little or no involvement in the IEP process" (p. 39). Unfortunately, students may be negatively impacted when music teachers are excluded from IEP meetings or otherwise do not receive access to students' IEPs despite the legal requirement for schools to share the information in students' IEPs with all teachers; access to students' IEPS allows music teachers to provide appropriate instruction (Crockett, 2017). Jones (2023) reported that 30.9% of teachers had difficulty accessing or limited access to students' IEPs, and that 16.4% of these teachers were told by administrators that they "they did not need to access IEPs as they were not general or special educators" (p. 5). Scott et al. (2007) similarly stated that 87% of elementary, 63% of orchestra, and 66% of band teachers received IEP information about the students with SEN in their classrooms.

Even when teachers are granted access to their students' IEPs, the IEP may not address the students' needs in music. Jones (2023) found that many teachers believed that students' IEP goals "overwhelmingly" focused on math and reading (p. 6). As a result, 51.2% of responding music teachers reported that students' IEPs lacked relevance to music class. Similarly, Shelfo (2007) surveyed 214 instrumental music teachers in the state of Maryland and reported that 96.7% of teachers were "never" or "occasionally" involved in writing IEP goals for music. Additionally, VanWeelden and Whipple reported that 52% of the 1,128 teachers surveyed across 50 states received inadequate support from paraprofessionals, and 89% of music teachers had to independently locate "adaptive materials, resources, and devices" (p. 39). Jones (2023) described similar difficulties, with the teachers in the study stating that music-specific needs were not included in IEPs at all. Therefore, Jones (2023) reported that music teachers felt as if they had to figure out how to include students with SEN without assistance from special education teachers or paraprofessionals, or that the goals laid out in students' IEPs were not possible to achieve in a group setting (Jones, 2023).

Lack of Teacher Training

Lack of applicable teacher training constitutes another barrier which may prevent students from being included in the music classroom. Several research studies underline that music teachers often feel they lack the training to include diverse learners (e.g., Hoffman, 2011; Robinson, 2017). Hoffman (2011) surveyed 163 instrumental music teachers from six states and found that approximately 42% of teachers believed that lack of information about students with SEN "always," "often," or "sometimes" impedes inclusion. Similarly, Robinson (2017) discovered that teachers fear letting students down due to their own lack of knowledge. Culp and Salvador (2021) collected data from 162 institutions which offered degrees (bachelor's, master's, or doctoral) in music education, and found that only 56.2% of undergraduate programs offered at least one music-specific course on teaching diverse learners, and only 52.5% of programs required that students in their programs take at least one music-specific course on instructing diverse learners. Furthermore, only 36.5% of undergraduate programs offered at least one music-specific course on teaching students with SEN, and 21.3% of undergraduate programs indicated that they do not offer, require, or integrate information about educating diverse learners (including students with SEN) as part of their degree program in any capacity (Culp & Salvador, 2021). Jones (2023) reported that of the 179 responding music teachers in Wisconsin, 74.3% had completed some coursework as part of either their undergraduate or graduate program of study, although only 27.9% of teachers had completed two or more courses. Jones did not elaborate on whether or not the courses that these teachers completed were music-specific; however, she recommended that teacher preparation programs offer music-specific courses on teaching students with disabilities to its pre-service music teachers.

Although content-specific professional development improved in-service teachers' feelings of competence when working with students with SEN (Hammel & Gerrity, 2012), many teachers do not have access to these professional development courses. Grimsby (2020) interviewed and observed three elementary music teachers who strongly voiced a need for professional development geared towards teaching students with SEN. Jones (2023) reported that 57.6% of the 179 Wisconsin-based music educators surveyed had attended some form of professional development geared towards instructing students with SEN but did not specify whether or not these opportunities were music-specific. VanWeelden and Whipple (2014) documented that only 59% of the 1,128 music teachers surveyed had attended at least one workshop addressing students with SEN; of those teachers, only 45% had attended a music-specific workshop for students with SEN.

Several researchers have described benefits for teachers who can participate in content-specific professional development. Smith and Wilson (1999) surveyed 18 in-service music educators taking a summer graduate music class with a practicum component in a special education facility. The teachers taught at a variety of grade levels (i.e., elementary, middle, and high school) and had varied areas of emphasis (i.e., general, choral, and instrumental music). More than half of the participants had no previous formal training geared towards teaching students with SEN. The researchers reported that the participants felt more capable, comfortable, and willing to include students with SEN at the completion of the course (Smith & Wilson, 1999). Hammel and Gerrity (2012) surveyed 43 in-service music educators enrolled in an online, one semester graduate course geared towards teaching students with SEN. Teachers had varied years of experience, taught in nine different states, and had different primary teaching areas (i.e., band, choir, orchestra, and elementary music). Ultimately, the researchers found that professional development increased teachers' feelings of competence in developing assessments; modifying instruction, the classroom environment, and materials; encouraging social interactions; and evaluating the effectiveness of instruction (Hammel & Gerrity, 2012).

Lack of Resources

In addition to receiving inadequate training to work with students with SEN, teachers also often lack resources to properly include diverse learners. A lack of space, time, or appropriate instructional materials may also negatively impact teachers' ability to accommodate students with SEN, especially those with physical differences (e.g., Grimsby, 2020; VanWeelden & Whipple, 2014). First, teachers of students with SEN require an adequately-sized teaching space that has space for assistive devices and manipulatives (Grimsby, 2020). VanWeelden and Whipple (2014) reported that 84% of the 1,128 music teachers in their study believed that they were "provided less than adequate . . . materials and devices to adapt or modify the classroom . . . [and] other physical spaces/ objects" (p. 39). Grimsby (2020) described a time when one of the participant's students, who used a mobility device, could not bring it into the classroom due to a lack of space. In a teacher-practitioner text, Heller and Swinehart-Jones (2003) noted that students miss out on opportunities and experiences when classrooms are not fully accessible, which can lead to students' lack of conceptual understanding and decreased school performance.

Lack of time to plan and collaborate also negatively impacts teachers' ability to include students with SEN (Grimsby, 2020; Hoffman, 2011; Jones, 2023). Jones (2023) reported that only 25.8% of the 179 responding music educators from Wisconsin felt they received enough planning time to implement students' IEPs, and Shelfo (2007) stated that only 15.4% of instrumental music educators in Maryland "always" or "usually" received adequate time to individualize instruction for students with SEN. Similarly, Hoffman (2011) reported that many educators lack the time to devise appropriate accommodations that would allow them to effectively include students. VanWeelden and Whipple (2014) discovered that the 1,128 teachers in their study believed that they were not given enough planning time (79%), assistance from paraprofessionals (52%), or resources such as books or curricular materials (88%) to devise modifications for their students. Grimsby (2020), who observed three elementary music educators from the Midwest, reported that many students cannot benefit from musical participation due to a lack of time for teachers to collaborate. Jones (2023), who surveyed 179 music teachers in Wisconsin, identified that increased time for collaboration between music teachers and special education teachers and staff would increase music teachers' ability to include students with IEPs. VanWeelden and Whipple (2014) summarized the survey results from the 1,128 music teachers in their study and concluded that teachers believed that they received inadequate time to consult special education teachers (61%) and therapists (80%). Shelfo (2007) reported slightly more positive findings, with 64% of Maryland-based instrumental music teachers believing that they "always" or "usually" received adequate consultations with special education teachers.

Researchers suggest that a lack of supplies and funds to acquire appropriate materials may also limit inclusion. Grimsby (2022) described that many music educators lack access to adaptive teaching materials, as well as funds to purchase materials and the need for training on how to use the students' devices. Jones (2023) similarly identified the need for music teachers to have sufficient access to assistive technology and adapted materials as resources that would improve teachers' ability to include students with SEN. Grimsby (2020) presented the need for assistive devices and/ or manipulatives, including alternative instruments; manipulatives for kinesthetic learning; large print, color-coded, or simplified copies of notation; assistive technologies (e.g., microphone systems or noise-cancelling headphones), and technology to minimize writing (Darrow, 2011; Grimsby, 2020; Hammel & Hourigan, 2017). Teacher experts Hammel and Hourigan (2017) also stated that students with physical differences require adaptations to access classroom instruments, chairs, music stands, and risers. However, Shelfo (2007) revealed that 79.9% of teachers from Maryland surveyed "never' or "occasionally" had adequate resources to include students with SEN.

Concerns About Test Scores

Finally, students with SEN may face barriers to enrollment in secondary music classes due to school-wide concerns about test scores (Elpus, 2014; Meier, 2021). Elpus (2014) studied nationwide enrollment in high school music classes from 1982 to 2009 and found that the implementation of the No Child Left Behind Act of 2001 (NCLB) had a particularly significant negative impact on the enrollment of students with IEPs in high school music classes. Although the enrollment of students with IEPs in high school music classes had been increasing from 1982 to 2001, this trend reversed in 2001 when NCLB was implemented. Prior to the implementation of NCLB, students with IEPs had been enrolling in music classes at an increasing rate; enrollment began decreasing after the passage of NCLB (Elpus, 2014). Music educators Hammel and Hourigan (2017) suggest that this change in enrollment trends could be attributed to schools scheduling students with SEN for remediation or tutoring in academic subjects at times that prevent them from attending music classes. Since Elpus' study, NCLB was reauthorized as the Every Student Succeeds Act (ESSA) in 2015, which lists music as an important component of a well-rounded education (NAfME, 2016). Though ESSA discourages teachers from pulling students from music classes to complete remedial work (Adamek & Darrow, 2018), Meier (2021) surveyed students in a large Midwestern school district and found that students with IEPs were still underrepresented in secondary elective music classes.

Barriers to Inclusion in Instrumental Music Classes

Even if teachers can overcome the aforementioned institutional barriers such as lack of training, time, and resources, participation in instrumental music may present additional hurdles for students (e.g., Adamek & Darrow, 2018). General music teachers generally accept the idea of teaching students with SEN, as students often attend music in the general education setting even if the majority of their day is spent in a self-contained classroom (Adamek & Darrow, 2018). However, instrumental music teachers may less-commonly teach students with SEN (Smith & Wilson, 1999; Zdzinski, 2001). However, students with and without disabilities have expressed similar levels of interest in instrumental music (Jellison & Flowers, 1991). More recently, Adamek and Darrow (2018) echoed similar beliefs in a teacher-practitioner text, stating that students with SEN often want to take music lessons like their siblings.

Researchers also explain that teachers may have additional concerns specifically related to including students with physical differences, as multiple texts for teacher-practitioners address teachers' perceptions of students with physical differences, stating that many teachers may incorrectly assume that students with orthopedic impairments also have cognitive differences (Friend; 2011; Hammel & Hourigan, 2017). Although neurological functioning can be affected by the student's orthopedic impairment, many of these individuals have normal intellectual abilities (Heller & Swinehart-Jones, 2003).

Teachers' high expectations for polished performances may therefore prevent students with SEN from participating in performance-based ensembles (Hoffman, 2011). Hoffman (2011), who surveyed 163 instrumental music teachers from six states, found that almost 45% of teachers stated that performance expectations "always," "often," or "sometimes" prevent them from including students with SEN. The researcher also stated that students with SEN were most successful in the areas of public performance, behavior, instrument carriage, and hand position, whereas sight-reading, rhythmic fluency, and memorization presented the most challenges. Hoffman also found that the rate of inclusion of students with SEN in instrumental ensembles decreased from 7.8% in first year ensembles (elementary/ middle school), to 5.5% in groups with four or more years' experience (high school). The researcher proposed that the decrease in students with SEN participating in instrumental ensembles in more experienced groups might be attributed to increasingly demanding performance schedules and greater musical complexity in the higher grade levels. Furthermore, the researcher observed that schools with larger student populations generally had lower rates of inclusion, possibly because directors can opt to implement stricter requirements for participation. These requirements, which may include more rigorous audition requirements, may prevent students with SEN from participating in instrumental music (Hoffman, 2011). However, Elpus and Abril (2019) acknowledged that a variety of factors impact enrollment, including race/ethnicity, socioeconomic status, parental education, native language, math grades and standardized test scores, and attending a live music event with a family member, and that the population of students in instrumental ensembles may not reflect the overall school population, especially in terms of race/ ethnicity.

Despite these concerns about the retention of students with SEN, researchers have documented instances in which SEN can participate successfully in instrumental ensembles, including contributing to polished performances (Jones, 2023; Scott et al., 2007). In one study by Scott et al. (2007), researchers interviewed 43 music teachers in different subspecialties (e.g., elementary music teachers, secondary orchestra teachers, and secondary band teachers) from two regions of the United States. Teachers in this study acknowledged that students with SEN can achieve at a higher-than-expected level when given the opportunity. Furthermore, one teacher participant described a student for whom instrumental music was the only class where they could participate at grade level (Scott et al., 2007).

Accessibility and affordability concerns when selecting an instrument further limit students with physical differences (Nabb & Balcetis, 2010). Nabb and Balcetis (2010) designed a survey to examine the difficulties faced by instrumental music directors when creating opportunities for students with physical differences to participate in instrumental music ensembles. Directors from 221 Nebraska high school music programs answered questions regarding (a) the number of students with disabilities, (b) attitudes toward one-handed flute programs, (c) barriers to integrating students, and (d) benefits to integrated music education (Nabb & Balcetis, 2010). In the survey, 61% of respondents recalled a situation when a student's physical difference limited their participation in instrumental music, and 30.7% of participants reported that a student with a physical difference had inquired about playing an instrument. However, only 67% of respondents knew that modifying traditional musical instruments was possible. The researchers also found that availability and awareness of modified instruments represented the two most likely obstacles when including students with physical differences. Directors additionally expressed concerns about the cost of acquiring such instruments and having time to come up with solutions (Nabb & Balcetis, 2010).

Finally, the school schedule itself may also prevent teachers from including students with SEN in instrumental music classes (Hoffman, 2011). In a survey of 163 instrumental music teachers from across six states, Hoffman (2011) found that 40% of participants believed that scheduling "always," "often," or "sometimes" limited inclusion. Similarly, VanWeelden and Whipple (2014) surveyed 1,128 music teachers and reported that 77% of teachers “were occasionally or never consulted about student placement decisions” and 73% of teachers found placement decisions to “never or only occasionally” be determined by the student with SEN’s level of musical ability (p. 39). Similarly, Shelfo (2007) reported that 85.5% of 214 responding Maryland instrumental music educators “never” or “occasionally” participated in the student placement process when determining the LRE for students with SEN. Although neither researcher specified who made the placement decisions if they were not made by music teachers, these decisions were likely made by guidance counselors, special education teachers, or administrators.

Supporting Students in Inclusive Music Classes

Despite the many benefits of inclusion, practicing music educators sometimes feel overwhelmed at the prospect of including students with SEN (Smith & Wilson, 1999). However, music teachers do not solely bear the responsibility of locating strategies and materials to include diverse learners. Research has revealed the benefits of music teachers collaborating with special education teachers, paraprofessionals, general education teachers, outside therapists, community members, and the students and their families to locate materials, learn how to provide appropriate accommodations, and support students with SEN (e.g., Culp & Jones, 2023; Dorvé, 2022; Grimsby, 2022; Jones, 2023; Manning, 2016; Salvador; 2015; Scott et al., 2007; Thornton & Culp, 2020).

Collaborations

Adamek and Darrow (2018) asserted in a text for teacher-practitioners that “collaboration involves cooperation, meaningful communication, problem solving, idea sharing, information sharing, and designing and facilitating useful strategies for students" (pp. 89-90). The writers also discussed the many collaborative partnerships in which music teachers might engage to benefit their students. First, collaborations between music educators and their school's special education department can provide beneficial information for teachers who desire to include students with SEN in the music education classroom (Hammel, 2004). Jones (2023) surveyed 179 music teachers in Wisconsin about their perception of IEPs. The researcher found that 80% of teachers "agreed" or "strongly agreed" with the statement "I communicate with special education faculty and staff at my school(s) to report on progress of students with IEPs" (Jones, 2023, p. 67). Additionally, 60.4% of teachers "agreed" or "strongly agreed" with the statement "I work with special education faculty and staff at my school to develop or modify curricula and class activities" (Jones, 2023, p. 67). Hammel (2004) detailed many of the possible benefits of collaboration in an article for practicing teachers, which include obtaining assistance in understanding students' IEPs and learning more about students' needs.

Second, music educators can collaborate with the student's paraprofessional (e.g., Grimsby, 2022; Scott et al., 2007). Grimsby (2022) recruited three music teachers and three special education paraprofessionals in the Midwestern United States to meet as a group which eventually evolved into a Community of Practice. Five themes emerged from these meetings: (a) valuing other's perspectives, (b) collaboration increases communication, (c) developing instructional strategies, (d) poor working conditions, and (e) systemic concerns in education. Thus, participants in Grimsby's (2022) study believed that paraprofessionals who work with students with SEN should offer input and suggestions based on their experiences working with the child. Similarly, Salvador (2015) interviewed and observed one teacher who taught two students with cognitive impairments who attended both their grade-level music class and a self-contained music class. The teacher clearly communicated expectations, encouraged participation, and asked advice from the three paraprofessionals who accompanied the students to music class, allowing for an "excellent collaboration" (p. 169). Ultimately, collaboration between special education teachers and music teachers improves the music teacher's ability to design effective strategies and modifications by increasing the "collective wisdom" (Scott et al., 2007, p. 49). Grimsby (2020, 2022) reiterated that because of the benefits of collaboration, music educators and special education paraprofessionals desire collaborative planning time, which school districts should provide.

Third, music teachers can consult other members of the student's special education team, which may include an occupational therapist (OT), physical therapist (PT), and/or speech-language pathologist (SLP), as well as other community professionals, so that they can most effectively include students with SEN (Friend, 2011; Heller & Swinehart-Jones, 2003; McCord & Fitzgerald, 2006). Occupational and physical therapists provide services to the student in the areas of fine and gross motor skills respectively, although there may be overlap in the services that they provide (Friend; 2011). Physical therapists provide neuromuscular, musculoskeletal, and mobility interventions to allow students to participate in physical education, recreation, and mobility activities (Jeffries et al., 2018). Physical therapy services should be educationally relevant and allow students to benefit from special education services (McCoy et al., 2018). In comparison, occupational therapists help individuals with daily living and work skills (Culp & Jones, 2023). Occupational therapists also address fine motor skills—such as handwriting or keyboarding—and work on behavior and social interaction (Lynch et al., 2023). Both occupational and physical therapists can also suggest modifications to instruments or movement activities for students with physical differences (Draper, 2019). Significantly, most physical therapists believe that interventions should be provided in the environment in which the student will use the skill, rather than in an isolated environment (Effgen & Kaminker, 2014). SLPs can help with motor planning and articulation (Friend, 2011; Lapka, 2016), and may have advice for students who wish to play a wind instrument (Draper, 2019). Other community members (e.g., high school or university-level engineering departments with access to 3-D printers) might also provide valuable insight or services (Thornton & Culp, 2020). These professionals can help design custom instrument supports and prosthetic devices. Music teachers may also collaborate with the student's general education classroom teacher, who can provide additional insights into what adaptations work for the particular student (Crockett, 2017).

Next, teachers can work with the student's peers to help support students with SEN (e.g., Darrow, 2014; Hammel, 2004; Hoffman, 2011). Salvador (2015) observed the frequent occurrence of peer assistance from non-disabled class members towards two students, Zach and Katie, with cognitive impairments during their fourth-grade music class. Zach and Katie's classmates were viewed as "proactive and thoughtful" and felt empowered to help their Zach and Katie with their "perceived needs" (Salvador, 2015, p. 166-167). The music teacher, who was the initial focus of this study, remarked that this positive attitude towards inclusivity and helping others was "fostered throughout the school" (Salvador, 2015, p. 167). Several teacher-practitioner articles also discuss the possible benefits of using a peer mentor to help students with SEN follow classroom procedures and complete instructional work can be beneficial; however, the teacher must carefully select both participants for the partnership to work (Hammel, 2004; Hoffman, 2011; Zdzinksi, 2001). Darrow (2014), in a similar teacher-practitioner article, also discussed the benefits of giving students with SEN the opportunity to be the helper rather than the "helpee," and of providing structured opportunities for students with and without SEN to converse (p. 31).

Teachers should also collaborate with the student themselves when adapting instruction or materials (Dorvé, 2022; Manning, 2016; Thornton & Culp, 2020). Several researchers have emphasized the importance of developing relationships with students with SEN and their families. Dorvé (2022) identified the importance of open communication when working with students with physical differences, recommending that teachers have private conversations with students when discussing their accommodations. The researcher also described a participant who suggested that teachers should reach out to students with SEN before the start of the school year to start building relationships that will help students feel included. Manning (2016) reported that when teachers form positive relationships with their students, the students become "more likely to ask for help, and . . . more receptive to support" (p. 45). Thornton and Culp (2020) recommended asking students and their families about the students' strengths, limitations, interests, and strategies that have worked in the past. Students with physical differences routinely develop their own strategies for accomplishing day-to-day tasks based on their own lived experiences with their physicality; therefore, they should be invited to share this knowledge and give input into the accommodations that they will receive (Dorvé, 2022; Thornton & Culp, 2020). Koch (2001) also remarked on the differences between individuals with congenital or acquired impairments. As an example, Koch noted the difference in the degree of impact between someone who is born Deaf and someone who suddenly develops hearing loss or who experiences hearing loss as part of the aging process. Similarly, Bogart (2014) found that participants with congenital disabilities had greater Satisfaction With Life (SWL), disability self-concept, and therefore higher self-esteem and self-efficacy than those with acquired disabilities.

Finally, parents can also provide valuable insights regarding the student's needs (Hammel & Hourigan, 2017; Lapka, 2016); thus, parental involvement can impact students' ability to succeed in music. Manning (2016) described the efforts of one teacher who tried to contact the parents of every student during the first week of schools to establish a "strong parent-teacher support system" (p. 45). However, parents may vary in the way that they wish for their student with SEN to participate in music. Salvador (2015) interviewed and observed one teacher who had two students with cognitive impairments that attended both their fourth-grade music class and a self-contained music class. While the parents of one student were "thrilled" by the suggestion of an alternative music curriculum, the parents of the second student wanted their daughter to "look like everyone else" (p. 170). Although parents may have varied beliefs about how they would like to see their child included in general education classes, parents also vary on if or to what degree they participate in their child's education at all. Scott et al. (2007) stated that teachers may benefit by asking parents about goals for their child so that they may identify meaningful ways for the student to contribute. One teacher participant recalled a time when a student's parents specifically asked them to attend the student's 504 meeting, because they had “probably been the closest to [the student] of all the teachers” (Scott et al., 2007, p. 46). The researchers also reported more “reciprocal interactions” between parents and teachers from instrumental music teachers than elementary music teachers (Scott et al, 2007). Dorvé (2022) described the beliefs of one of his participants, the mother of a collegiate trumpet player with Duchenne Muscular Dystrophy, who believed that parental involvement is important and recommended that parents involve themselves in their child(ren)’s music education.

Providing Accommodations

Teachers need to provide appropriate accommodations, including those determined by the collaborations discussed previously, to best support students with SEN. The following strategies, techniques, and modifications represent ways that teachers can support diverse learners in the music classroom. In a book for practicing teachers, Hammel and Hourigan (2017) recommend changing the modality, size, pacing, and color of one’s instruction and instructional materials. Other resources, described below, provide more specific suggestions about how to make these modifications and accommodations. Teachers can implement a positive, welcoming environment that allows for musical growth and provide modified materials to help support students with SEN.

When teachers provide adaptations, they can create a supportive learning environment which allows for musical growth in students with SEN (Heller & Swinehart-Jones, 2003). Gerrity et al. (2013) completed a mixed methods study in which they analyzed the musical growth of 16 children with SEN after ten consecutive weeks of integrated arts instruction based on pre- and post- instruction assessments. The researchers described the music component as the most structured of the content areas, as they tried to replicate the experience of a public-school music class. The researchers also interviewed 13 of the 16 students (three were non-verbal), 12 randomly selected parents, and six randomly chosen student mentors. After triangulation, the researchers determined that repetition, student choice, increased response time, clear directions and expectations, behavior plans, and creating a positive, distraction-free atmosphere allowed learning to successfully occur (Gerrity et al., 2013).

Another way that teachers can support students with SEN is by modifying notation, which could consist of color-coding, simplifying the part to include limited rhythms and pitches, and/or providing aural instruction (Hammel, 2004; Hoffman, 2011; Zdzinkski, 2001). Manning (2016) interviewed two music teachers who were "considered to be skilled in supporting the learning of students with special needs;" these teachers rewrote parts, enlarged music, highlighted students' parts, and allowed students to write in names or fingerings (p. 25). Similarly, Salvador (2015) noted that one student utilized color-coded, simplified notation, and performed on "melody bells" rather than the recorder (p. 166). Hammel (2004) also suggested preparing students' music by labeling breath marks, tempo, meter, and other markings that students usually write in during rehearsal for them ahead of time in a text for practicing teachers. Similarly, several researchers and teacher-practitioners suggested that teachers can alter the pace of instruction for students with SEN by reinforcing rhythmic and melodic concepts separately, offering individual instruction, and providing altered or abbreviated assessments (Hammel, 2004; Hoffman, 2011, Zdzinski, 2001). In this same manner, Manning (2016) recommended utilizing flex-band music to group players at a variety of skill levels together, and to support less-advanced players. Assessing smaller chunks of information more frequently might also bolster student success (Hammel, 2004; Hoffman, 2011). Specifically, teacher-practitioner Zdzinski (2001) recommended the Great Expectations Band Program as a method that can help students to focus on small, readily attainable goals that they can repeat until they achieve mastery and focus on positive outcomes. The strategies used in the Great Expectations Band Program align with the principles of Universal Design for Learning (UDL), which most special education teachers embrace, described in the next section.

The nonprofit education research and development organization CAST (2024) developed the principles of UDL to help address systemic, inequitable learning opportunities. These guidelines include options for recruiting interest, sustaining effort and persistence, and self-regulation. The guidelines also state that multiple means of representation should be used, which aligns with teacher-practitioners Hammel and Hourigan's (2017) belief that a constructivist approach which uses multiple modalities may help engage students with SEN and improve their understanding of curricular concepts. Pickard (2021) also concluded that applying the principles of UDL when working with students with SEN in the music classroom can prove beneficial because UDL celebrates and values differences by taking a "person-centered" (p. 121) approach. Another important principle of UDL is to provide information to students using multiple modalities, or by providing multiple means of representation (CAST, 2024). Manning (2016) reported that both Toronto-based music educators interviewed mentioned the importance of using technology to provide an aural representation of the entire song (e.g., JW Pepper) or to help students learn their individual part (e.g., Band Pad, Noteflight). However, some teachers may reserve this constructivist teaching approach for students who perform at or above grade level (Hammel & Hourigan, 2017).

Supporting Students with Physical Differences in Instrumental Music Classes

Adamek and Darrow (2018) asserted that "all music educators can expect to work with students who have disabilities in the regular music class setting, including general music, band, choir, orchestra, and other music programs" (p. 153). Because students with physical differences may need additional accommodations to participate in instrumental music, the teacher's attitude plays an important role (Smith & Wilson, 1999). Smith and Wilson (1999) reported that teachers' attitudes towards students with SEN can be improved through positive experiences with and exposure to diverse learners and their needs. In a text for teacher-practitioners, Adamek and Darrow (2018) stated that "negative experiences may stem from lack of information, misinformation, previous experiences, or difficult situations that remain unresolved or unsuccessful" (p. 77). Teachers with positive attitudes towards students with SEN are more likely to facilitate positive, inclusive musical experiences for all students regardless of students' physicalities (Smith & Wilson, 1999). Ultimately, when teachers highlight students' strengths rather than fixating on students' limitations (Hammel & Hourigan, 2017; Thornton & Culp, 2020) and willingly seek accommodations (McCord & Fitzgerald, 2006; Zdzinksi, 2001), students with SEN can successfully participate in instrumental music programs (Zdzinksi, 2001). To this end, teachers may find that allowing students to play the instrument of their choice proves beneficial, as students may exert more effort to play an instrument that they choose (Thornton & Culp, 2020). Thus, despite any possible concerns about how a student will play an instrument, teacher-practitioner Zdzinski (2001) recommended that teachers involve students with SEN in the instrument selection process and permit students with SEN to play an instrument that interests them. In a teacher-practitioner text, Adamek and Darrow (2018) similarly recommend taking students' interests and abilities into consideration during the instrument selection process. Ultimately, students who play an instrument of their choice remain interested in learning to play an instrument (Bell, 2014; Darrow, 2011). Thus, to help accommodate all students, teachers should understand the best ways to include students with physical differences that honor each student's unique learning needs.

Moreover, students with physical differences may require a modified or alternative instrument, which may mean altering how students hold or play the instrument, to fully participate in instrumental music (Crockett, 2017; Hoffman, 2011). Thornton and Culp (2020) found that providing modified instruments allowed students to develop as musicians. However, teachers' concerns about successfully modifying instruments for students seemingly continue to present a limitation towards inclusion. Adamek and Darrow (2018) posited in a text for teacher-practitioners that "band instruments are more difficult to adapt than elementary classroom instruments" (p. 110). Several researchers have proposed guidelines for instrument selection for students with disabilities and suggested potential modifications to the instruments in teacher-practitioner texts (e.g., Culp & Jones, 2023; Darrow, 2011; Hammel, 2004; McCord & Fitzgerald, 2006; Zdzinski, 2001). Although suggestions for how to include students occur throughout the literature, these strategies are often presented by experienced teacher-practitioners rather than derived from peer-reviewed literature (Salvador, 2015). In a teacher-practitioner article about helping students select instruments, Darrow (2011) recommended that educators consider each student's (a) ability to support the size and weight of the instrument with or without accommodations, (b) sensory preference, (c) ability to balance multiple cognitive demands, (d) motor abilities, and (e) ability to contribute meaningfully to the ensemble on their chosen instrument. When modifying instruments to meet students' physical needs, teachers may consider changing (a) the way students grip or support the instrument, or (b) the angle at which students approach the instrument. In a book for practicing teachers, Deiner (1999) proposed that many students with physical differences can more easily grasp and control thicker, shorter objects. In a second text for teacher-practitioners, Adamek and Darrow (2018) cautioned teachers to verify that the adaptation is not contraindicated for the student's specific grasp needs by checking with their Occupational Therapist. In a book chapter for practicing teachers, Heller and Swinehart-Jones (2003) suggested that repetitive motions can quickly lead to fatigue in students with orthopedic impairments and that teachers should therefore consider modifying assignments and/or utilizing assistive technology to minimize these effects and make appropriate instructional decisions. Finally, researchers Thornton and Culp (2020) shared that stands can also help to support the weight of an instrument. Teachers can also consider more instrument-specific approaches (see Appendix B for sample modifications).

Despite the concerns that exist about the cost of acquiring a modified instrument, if a student requires assistive technology to achieve an IEP goal, school districts must provide materials and support to help the student achieve the listed goal (IDEA, 2004d). For this reason, researchers suggest having the materials required to make instrumental music accessible to a student added to their IEP (Thornton & Culp, 2020). Additionally, for students who require a prosthetic device to play their instrument, Shriners Children’s Hospital will cover the cost of any prosthetics until age 18 (Lapka, 2016), and their website states that “all care and services are provided regardless of a family’s ability to pay or insurance status” (Shriners Children’s, 2024).

Teachers can implement strategies like those described above positively impact the experience that students with physical differences will have in music class. However, research related to inclusion of students with physical differences in secondary instrumental ensembles remains scarce. Two studies did directly address how instrumental music teachers can best include students with physical differences (Dorvé, 2022; Thorton & Culp, 2020). First, Thornton and Culp (2020) examined the practices that allowed three students with physical differences to participate in elementary band and orchestra. The researchers interviewed one teacher, three current/former students with physical differences, and the students’ parents. Five factors influenced the success of the students’ participation: (a) consulting past experience and knowledge, (b) evaluating strengths and challenges, (c) persisting through challenges, (d) seeking assistance from others, and (e) locating the materials necessary to provide appropriate adaptations (Thornton & Culp, 2020). In 2022, Dorvé investigated the experiences of collegiate brass players with physical differences in instrumental ensembles. The researcher interviewed the three collegiate brass players, as well as the students’ band directors and parents. Dorvé identified three key themes that impacted successful participation in the ensemble: (a) developing an inclusive environment through open communication, (b) building on intrinsic and extrinsic motivation, and (c) overcoming physical, mechanical, accessibility, and social challenges.

Although Thornton and Culp (2022) and Dorvé (2022) researched inclusion at the elementary and tertiary levels, respectively, more research is needed to understand the ways that teachers include students with physical differences in instrumental music at the secondary level. Therefore, the purpose of this instrumental case study is to explore the experiences of three secondary instrumental music teachers who provide modifications and accommodations to best support students with physical differences. Four research questions guide this study:

1. In what ways do music teachers make instrumental music accessible to students with physical differences?
2. What beliefs and dispositions motivate these teachers?
3. What, if any, benefits do teachers perceive from including students with physical differences?
4. What, if any, barriers do teachers perceive as limiting students with physical differences when participating in instrumental music?

Chapter 3

METHODOLOGY

In this study, I explored how instrumental music teachers included students with physical differences in their programs. By conducting an instrumental case study with three teacher participants, I aimed to provide in-service and pre-service music educators with information to assist them in more confidently including students with physical differences. After using critical case sampling to select three secondary instrumental teachers, I interviewed each participant twice and observed each participant either one or two times, which yielded interview transcripts and rich, descriptive field notes. I then analyzed the data utilizing inductive coding methods. After completing first and second cycle coding, multiple themes emerged for each research question, which I present in chapter 4. Trustworthiness was achieved through triangulation and member checking. Implications for practicing teachers and suggestions for future research are described in chapter 5.

Transformative Paradigm

A paradigm, or worldview, is a "basic sets of beliefs that guide action" in qualitative research (Guba, 1990, p. 17). Four philosophical assumptions define a paradigm in social science and research: axiological, ontological, epistemological, and methodological (Guba & Lincoln, 2005). Researchers' philosophical assumptions impact the way in which they discuss the complex lived experiences within the disability community (Munger & Mertens, 2011). Throughout this study, I embraced the transformative paradigm, sometimes called the transformative-emancipatory paradigm (Mertens, 2003). Axiology, the first philosophical assumption needed to define the transformative paradigm, addresses the impact that ethical issues might have on the researchers when considering social justice, cultural differences, power differences, and human rights. The ontological assumption of the transformative paradigm urges researchers to embrace and acknowledge multiple versions of reality. When considering the epistemology of the transformative paradigm, researchers examine the relationship between themselves and the community of interest to make sure that all voices are accurately represented. Finally, the methodological assumption refers to the nature of systematic inquiry. In the transformative paradigm, both qualitative and quantitative approaches are effective means of gathering data (Munger & Mertens, 2011). These four assumptions, combined with an emphasis on social justice and human rights, constitute the transformative paradigm (Munger & Mertens, 2011). Therefore, the transformative paradigm propels researchers to conduct a research study that is ethical, responsive to the community's beliefs, and representative of participants' voices (Munger & Mertens, 2011). Transformative scholars understand that knowledge is not neutral, but instead reflects human interests and existing power and social relationships. Accordingly, transformative research places human rights and social justice goals in the foreground (Mertens, 2009).

One area of social justice research is the field of disability studies, which addresses societal attitudes towards physical differences. Mertens (2009) supported the application of the transformative paradigm when discussing disability studies, championing the transformative paradigm as a viable framework for research that includes a social justice orientation. Researchers who embrace disability studies aim to identify disability "not as an individual defect but as the product of social injustice" (p.

3) and to recognize disability as a “form of human variation” (Siebers, 2008, p. 25). Pervasive negative attitudes towards individuals with disabilities can prevent individuals with SEN from receiving equitable treatment both in and out of school. Disability studies scholars seek to alleviate the focus on normalcy which positions disability as a problem to be fixed in order to promote a more equitable future for students with disabilities (Davis, 2017). For example, Saxton (2017) asserted that it is not the inconvenience of disability but the “discriminatory attitudes, . . . thoughtless behaviors, and the ensuing ostracism and lack of accommodation that make life difficult” (p. 76). Similarly, Siebers (2017), a leading scholar in the field of disability studies, identified how society's preference for non-disabled individuals can negatively affect individuals with physical differences.

Possibly as a result of these attitudes, students with SEN remain underrepresented in high school music classes (Elpus, 2014; Meier, 2021). In a national study of student enrollment in high school music courses from 1982 to 2009, Elpus (2014) outlined that student groups who traditionally do not score well on tests—including students with SEN—may have been systemically prevented from enrolling in music classes during the NCLB era. Meier (2021) collected data from one school district and reported that students with IEPs remained underrepresented during the 2020-21 school year. Therefore, by focusing on social justice movements—which are all supported by the transformative paradigm—such as feminism, antiracism, LGBTQIA rights, or disability rights, music educators can address specific practical concerns to better serve their students (Lamb & Abramo, 2021).

Though students with SEN continue to be underrepresented in instrumental ensembles, there has been an increased emphasis on social justice research and scholarship in music education in the 21st century, including a greater focus on minority groups such as individuals with disabilities (Lamb & Abramo, 2021). Palmer (2018) claimed that social justice scholars "[assign] adjectives like dignity, respect, and equality to describe rights that should be granted to all human beings" (p. 23). When discussing the transformative paradigm, Munger and Mertens (2011) explained the necessity of approaching research in a way that fully represents the complexity and diversity of the "disability community" (pp. 24-25). To this end, Mertens (2010) argued that the transformative paradigm uses social justice as a focus to involve culturally diverse participants; thus, the paradigm can apply to any group of people who experience discrimination or oppression.

By embracing a transformative paradigm, knowledge gained through qualitative research studies like this one should improve society (Creswell & Poth, 2018). Specifically, Mertens (2003) suggested that transformative researchers should seek to use their research to propel and inspire concrete actions that "[ameliorate] the effects of oppression and discrimination" (p. 159). The transformative paradigm therefore influenced my data collection and analysis, which ultimately resulted in recommendations for practices which could transform the current educational landscape. By exploring what instrumental music teachers deem as best practices for inclusion, I hoped to provide suggestions for how other teachers could more equitably include students with physical differences, thereby resulting in a better, fairer society.

Conceptual Lens

Just as paradigms reflect a researcher's beliefs about the world, lenses reflect how researchers see the world (Kivunja & Kuyini, 2017) and how they perceive and interpret the data (Saldaña, 2021). Dellaportas et al. (2022) defined a conceptual lens as “a concept used by researchers to analyze data and facilitate synergistic thinking” (p.13). To acknowledge the impact of my beliefs and potential biases on the findings, I chose to use the social model of disability as the conceptual lens for this study (Yin, 2011).

Although many models of disability exist, two emerge as prominent when considering attitudes towards individuals with differing abilities: the social model and the medical model. Advocates of the social model view one’s disability as their “social position or identity in society” (Lamb & Abramo, 2021, p. 14) and claim that society creates barriers that prevent individuals with disabilities from participating fully (Olkin, 2022; Siebers, 2008). Generally, those who embrace the social model assert that individual differences do not need to be cured (Siebers, 2008). In contrast, the medical model, which dominates education, assumes a deficit mindset of disability as a problem or condition that doctors must repair (Lamb & Abramo, 2021; Parker & Draves, 2018; Siebers, 2008). This view of disability as a problem to solve denies a “sense of full citizenship” to individuals with disabilities and can lead to stigmatization (Knapp, 2022, p. 13). The contrasting fields of special education and disability studies represent the difference between these two models (Lamb & Abramo, 2021). Special education often reflects the medical model because special education teachers frequently look for ways to help students with disabilities succeed in an environment designed for individuals without SEN (Lamb & Abramo, 2021; Parker & Draves, 2018). Conversely, music researchers in the field of disability studies investigate the ways in which music education unnecessarily creates barriers for individuals with disabilities and seek solutions to remove barriers and make changes to the “social and built environment” (Siebers, 2008, p. 3).

Similarly, disability studies researchers who collectively support the social model believe that the solution to disability exists at the social justice level (e.g., adapting instruments or the physical space), not in medical cures or treatments (Office of Developmental Primary Care, 2018; Siebers, 2008). Some scholars believe that providing modified instruments more closely aligns with the medical model because of the non-normative nature of providing modified instruments (Adamek & Darrow, 2018). In a text for teacher practitioners, Adamek and Darrow (2018) discuss how adaptive instruments may permit some students with SEN to participate fully, but assert that the appearance of the adaptive instrument may differ noticeably from non-adapted versions of that instrument. However, other researchers assert that the use of modified instruments can remove barriers and prevent social isolation (Shakespeare, 2017). Therefore, instrument manufacturers have begun designing modified instruments in accordance with the beliefs of the social model (Wilson, 2022); in contrast, the medical model would place the onus onto students to overcome their needs independently (Parker & Draves, 2017). Lastly, the social model promotes the ideals of social justice by advocating for equal rights for students with physical differences (Jackson et al., 2018).

When discussing the social model, researchers must also understand the role that identity plays in the lives of individuals with physical differences. Identity, which can be described as “theories [people] use to fit into and travel through the social world” (p. 322) or the way [individuals] join a collective society (Siebers, 2017), plays a role in how members of that group are viewed by others. Therefore, social justice-oriented researchers recognize and celebrate that someone’s identity represents their uniqueness (Lamb & Abramo, 2021). As such, proponents of the social model seek to not only understand how individuals with physical disabilities describe their identity, but also how non-disabled individuals view the identities of those people with disabilities.

For the purpose of this thesis, I adopted the social model of disability as the conceptual lens, embracing the importance of removing barriers for students with disabilities. Other researchers, including those who self-describe as having a disability, similarly support the social model (Koch, 2001; Munger & Mertens, 2011). For example, Tom Koch, a research assistant and professor of Gerontology in Canada who self-describes as having a "moderate sight impairment" supports the social model's beliefs because his impairment "does not diminish . . . [his] life quality" (Koch, 2001, p. 372). Similarly, Munger (2011), a researcher with cerebral palsy (CP), found that other adults with CP were "quite satisfied with who they were and would not accept a cure for their CP if offered one" (p. 30), despite the social and psychological challenges that they face (Munger & Mertens, 2011). Because researchers with physical differences have similarly utilized and supported the social model, I felt comfortable embracing and adopting it for this study.

The social model's alignment with the social justice orientation of this study also aligns with my commitment to embracing a transformative paradigm. In accordance with this focus on social justice, many educators recognize the importance of utilizing anti-ableist pedagogies so as to not "deem those who appear to possess an impairment as inherently unable" (Lamb & Abramo, p. 37). Furthermore, Tometten et al. (2021) described teachers as "agents of change towards the successful implementation of inclusive education" (p. 2), and Dobbs (2012) stated that viewing disability through the lens of the social model allows people to consider disabilities as a meaningful part of peoples' lives. Therefore, by providing accommodations as the participants in this study did, students with physical differences can engage in music-making alongside their age- and grade-level peers.

This study specifically examines how students with physical differences participate in instrumental music. The social model of disability recognizes that society's perceptions of the capabilities of individuals with SEN will continue to change (Lineberger, 2013). Proponents of the social model assert that a society which values human rights needs to allow for this evolution (Lineberger, 2013). Thus, disability studies scholars aim to reverse negative societal assumptions and connotations of disability (Siebers, 2017). Specifically, these scholars seek to eliminate the association between disability–a social construct, and impairment–the description of one's physical body (Parker & Draves, 2017; Reddy, 2011). Although disability scholars acknowledge that the social model is imperfect, they also assert that the social model's perspective leads to increased self-esteem and confidence in individuals with SEN and improves the public's perception of individuals with SEN (Shakespeare, 2017). Some disability studies scholars believe that the word impairment also contentiously implies inferiority, and that the word trait might better reflect the beliefs of the social model (Samaha, 2007). For example, Parker and Draves (2017) posit that social constructs link the ideas of disability and impairment, and that society presents obstacles which "disable individuals" (p. 401). The negative impact of societally-imposed obstacles is especially relevant when including students with physical differences; unnecessary isolation and social exclusion, such as from instrumental music ensembles, can turn a student's physicality into a disability.

Design

A qualitative design allowed for a holistic, in-depth approach to the research topic. By referencing multiple data sources and types (Patton, 2002; Yin, 2011), researchers help to facilitate the reader's understanding of the topic (Stake, 1995). I embraced a qualitative design to capture the music teacher participants' perspectives, experiences, and the context in which their attitudes toward including students with physical differences have evolved (Patton, 2015). Adopting a qualitative design also allowed me to describe the unique ways that each participant included students with diverse needs (Patton, 2015).

I approached this research project as a case study. Creswell and Poth (2018) described case study research as a methodology that allows a researcher to "explore a real-life, contemporary bounded system," also known as a case, in order to study a research problem (p. 96). When conducting a case study, scholars collect knowledge and insights from participants in real-world contexts (Patten & Newell, 2018; Yin, 2011). Therefore, case studies are appropriate to study a "complex whole" (Patten & Newell, 2018, p. 174). Case studies must be bound by specific parameters such as time; place; or even less concrete factors, such as a decision-making process (Creswell & Poth, 2018). In this study, I bound the case around teachers who chose to include students with physical differences in secondary instrumental music ensembles. I ultimately chose three participants for this case, all of whom currently teach secondary instrumental ensembles (grades 6-12) and currently have students with physical differences enrolled.

More specifically, I designed this research project as an instrumental case study to provide insight into teachers' perspectives related to including students with physical differences in secondary instrumental ensembles (Stake, 2005). In an instrumental case study, researchers analyze the case in-depth, but the case does not serve as the primary focus. Instead, the importance of the case emerges from increasing readers' understanding of the topic of emphasis, or a particular "issue" (Stake, 2005, p. 445). In this research, the participation of students with physical differences in secondary instrumental music ensembles served as the central "issue" (Stake, 2005, p. 445). As demonstrated by the literature review, students with physical differences are often not included in instrumental music at the same rate as their typically-developing peers. The uniqueness of the teacher participants' attitudes and approaches could therefore provide insights for other educators who hope to include students in their own ensembles (Frierson-Campbell & Froehlich, 2022).

Participant Selection

Intentionally selecting participants is an essential part of case study research (Stake, 1995). Therefore, I strove to purposively identify music teacher participants who are known within the music education community for using best practices of inclusion. According to Creswell and Poth (2018), selecting three participants allows researchers to identify themes as part of a rich data set, but does not result in the dilatation of details. I selected three participants through critical case sampling, a type of purposeful sampling. Purposeful sampling allows researchers to "intentionally sample a group of people that can best inform the research about the research problem under examination" (Creswell & Poth, 2018, p. 148). Purposeful sampling should produce information-rich cases that "[yield] insights and in-depth understanding" (Patton, 2002, p. 230). Critical case sampling includes identifying cases that can dramatically make a point or that are of particular importance (Patton, 2002). Although critical case sampling does not allow for broad generalizations, it does often lead to logical generalizations based on the weight of the evidence (Creswell & Poth, 2018; Patton, 2002). Furthermore, critical case sampling permits the maximum application of information to other cases (Patton, 2002). In this study, I sought to locate teachers who faithfully and intentionally strove to include students with physical differences.

I began sampling in August and September of 2023. To identify participants, I reached out to instrumental music education professors at major universities in the mid-Atlantic region of the United States, shared a recruitment post in multiple Facebook groups, messaged several scholars who had written books or articles about including students with physical differences, and contacted an established retired teacher. After, I contacted potential participants by email in early September of 2023 to learn more about their inclusion of students with physical differences and to ascertain their willingness to participate. Five teachers expressed their interest in participating; these individuals self-identified as teachers who had experience working with students with physical differences. After conducting individual 20-to-30-minute phone/ Zoom conversations with those five teachers in mid-September, I ultimately selected three teacher participants to participate, named Eliza, Dwight, and Kevin.[2] I chose these participants because they possessed the greatest experience including students with physical differences and represented the most diverse group of participants possible (i.e., geographic region, gender, length of teaching experience),

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[2] Pseudonyms were used for the participants' names, as well as all the students, co-workers, school districts, schools, and towns described throughout this thesis. Eliza and Dwight self-selected their pseudonyms, whereas Kevin asked me to create a pseudonym for him.

given the participant pool who responded to my recruitment efforts. See Table 1 for a summary of the participants' teaching areas and experiences.

Eliza, a White 30-something female, currently teaches middle and high school concert band and high school marching band. She describes the students in her school district as primarily White, with large Jewish and Muslim populations, and socioeconomically diverse. She has 11 years of teaching experience, all in the midwestern United States. Presently, she teaches at Riverside High School and Dogwood Junior High. At Dogwood Junior High, she teaches the sixth, seventh, and eighth grade bands. She also teaches three ability-based concert bands at Riverside High School. Eliza also teaches jazz band as an extracurricular activity. Eliza was selected as a participant due to her confidence speaking about including students with physical differences and her experience including students with physical differences.

Dwight is a White man in his late 40's who teaches at Spring Valley High School, a mid-Atlantic high school where has taught for 28 years, the duration of his career. Dwight teaches in a school with similar numbers of White and Black students at his school, as well as substantial Hispanic and Bangladeshi populations. Although he has taught a variety of course offerings during his tenure at Spring Valley, Dwight presently teaches two concert bands, two steel bands, guitar, and International Baccalaureate music. He also teaches marching band as an extracurricular activity. Dwight was selected due to his evident passion for and experience working with students with physical differences.

Kevin, a White man in his 50s, also teaches in the mid-Atlantic region. He works at Monroe Middle School, where he has been employed for the entirety of his 34-year career. Kevin described his school's population as "[solidly] middle class" with students from a variety of racial and ethnic backgrounds. In order of descending frequency, he stated that his students are White, Black, Hispanic, and Asian American. Kevin teaches three grade level concert bands, two mixed-grade beginning bands, and a mixed-grade auditioned jazz band. I selected Kevin as a participant because of his desire to include students with physical differences, as well as his significant experience working with students with a wide variety of physical differences. For more information about the participants and the settings in which they teach, please reference the case profiles, located at the conclusion of this chapter.

Table 1 Participant Demographics

Participant Name	Gender	Race	Years of Experience	Geographic Region	School(s)	Subjects Taught
Eliza	Female	White	11	Midwest	Riverside High School	Concert Band, Marching

					and Dogwood Junior High	Band, Jazz Band
Dwight	Male	White	28	Mid-Atlantic	Spring Valley High School	Concert Band, Marching Band, Steel Pan, Guitar, IB Music
Kevin	Male	White	34	Mid-Atlantic	Monroe Middle School	Concert Band, Jazz Band

Data Collection

In preparation for this study, I completed CITI training in the fall of 2022. Prior to beginning interviews and observations, participants reached out to their administrators to ascertain permission to me to complete observations and interviews. Data collection took place between September and December 2023 both virtually and in person at each participant's school. Signed consent forms were returned electronically prior to the first interview. Interviews and observations served as primary data sources, which led to interview transcripts and rich, descriptive field notes. I interviewed each participant twice for approximately one to one-and-a-half hours each time. After the first interview, I observed each participant teaching either one or two times. Additionally, I asked participants to share artifacts such as concert programs, ensemble photos, emails, or syllabi.

Interviews

I used a semi-structured interview format to conduct the two interviews with each participant. Semi-structured interviews allow researchers to both plan questions in advance and deviate from the script to ask additional probes or follow-up questions (Patten & Newhart, 2018). I interviewed each participant twice: first at the beginning of data collection (see Appendix D), and second after observing them teach (see Appendix E). Across all interviews, questions centered around the teacher participants' experiences, including students with physical differences, beliefs about inclusion, and resources they have used to successfully include students. Information about the times and dates of all three participants' interviews can be found in Table 2.

Five of the six interviews occurred over Zoom due to schedule and geographic constraints. Each interview lasted between 53 and 100 minutes. I conducted all three first round interviews over Zoom from my university office or a practice room. First round interviews ranged from 53 to 100 minutes in length. I interviewed Eliza and Dwight in the early afternoon during their planning periods, and Kevin in the mid-afternoon after his school day had concluded. Dwight's interview lasted 100 minutes to allow ample time for him to answer all of the interview questions without any limitations; this extended time was possible because of his school's schedule, which operates on 92-minute blocks. Conversely, I was limited 53 minutes when completing my first round interview with Eliza because of the length of her planning period. At 60 minutes long, my interview with Kevin was a similar length as Eliza's interview, but there were no time constraints, and he was able to elaborate as much as desired.

Two of the three final interviews took place over Zoom. I audio recorded all five interviews using an H2 Zoom device. As during the first round of interviews, I interviewed Eliza in the early afternoon during her planning period, and I interviewed

Kevin after school. My interview with Eliza was again the shortest (59 minutes) because of the time constraints based on the length of her planning period. Kevin had the longest second round interview, as it lasted for 74 minutes. At Dwight's request, I completed his second interview at a local café. I primarily audio-recorded this interview on the H2 Zoom device, although I also opened an empty Zoom call to create a backup recording. I interviewed Dwight in the early afternoon on a day when his school was closed as part of their fall break and lasted 65 minutes.

Table 2 Participant Interviews

Participant	Interview 1 Date	Interview 1 Length	Interview 2 Date	Interview 2 Length	Total Length
Eliza	10/3/23	53 minutes	12/14/23	59 minutes	112 minutes
Dwight	9/28/23	100 minutes	11/20/23	65 minutes	165 minutes
Kevin	10/12/23	60 minutes	12/8/23	74 minutes	134 minutes

Observations

After completing all initial interviews, I observed each participant teaching. I sought to observe one full day of each participant's music classes. However, my desire to observe each class that contained a student with a physical difference necessitated me to observe some participants twice. I acted as a non-participant observer during the observations so that I could take detailed jottings during my observations (Creswell & Poth, 2018). While observing, I focused on how the teacher participants included students with physical differences, their overall approach when working with students, and the resulting classroom environment. I took jottings during these observations to serve as a reminder of the “significant actions” that occurred (Emerson et al, 2011, p. 29). I then used those jottings to create rich, detailed field notes. These field notes allowed me to recall and reflect on the events that I observed (Emerson et al., 2011). Information about the duration and occurrence of each observation can be found in Table 3.

I observed participant one, Eliza, teaching over Zoom. Since observing an outdoor marching band rehearsal over Zoom would not be feasible, I observed her junior high (grades 6-8) and high school classes on separate days. I observed Eliza’s junior high classes in October and her high school classes on a separate day in November, after the conclusion of marching band season. By November, marching band season had ended and the high school students had split into three indoor concert bands to prepare their repertoire for the holiday concert. Each junior high ensemble rehearsed for either 44 or 46 minutes; each high school ensemble rehearsed for 42 minutes. Including passing time, Eliza’s junior high band classes totaled 142 minutes[3] in length, and her high school band classes totaled 134 minutes in length; thus, I completed a combined total of 276 minutes of observation. Notably, Eliza’s co-teacher taught during some observational periods. While observing her junior high classes over Zoom, the camera angle allowed me to see most of the classroom and therefore observe the ways that Eliza assisted students while her co-teacher was on the podium. However, during the high school observation (which also occurred over Zoom) the

[3] All observational minutes include passing times, as the participants’ interactions with their students were still observed during those times.

laptop was plugged into a nearby outlet and placed near the podium at an angle that only permitted me to see the conductor and the space immediately behind the podium.

I observed the second participant, Dwight, teaching in person on two separate days. His school uses a rotating block schedule, so he does not see every class each day. I sought to prioritize observing his day two schedule, as his beginning steel pan class meets on day two, and beginning pan is the only ensemble in which Dwight presently teaches a student who has a physical difference. Unfortunately, there was no school day in October when Dwight was teaching his day two schedule and I could observe for the full day. Therefore, I elected to observe Dwight for one entire school day teaching his day one schedule, which consisted of three 92-minute blocks (one of the four blocks was a planning period). I then returned later in the month to observe just his beginning steel pan class for the entire 92-minute block, which met during period one that day. This resulted in a total of 380 minutes of observation.

Finally, I observed the third participant, Kevin, teaching throughout the entirety of one school day. Kevin's school has a rotating drop seven period schedule, meaning that every teacher teaches six periods and gets one prep. The day I observed was the day on which Kevin has no prep, meaning that I was able to observe all six of his ensembles. Additionally, both of his current seventh graders with physical differences were in attendance that day. Thus, it was not necessary to return to Kevin's school for a second day of observations. The total observation time across all six bands totaled 361 minutes.

Table 3 Observations

Participant	Observation 1 Date	Observation 1 Length	Observation 2 Date	Observation 2 Length	Total Observation

					Length
Eliza	10/20/23	142 minutes	11/20/23	134 minutes	276 minutes
Dwight	10/6/23	288 minutes	10/23/23	92 minutes	380 minutes
Kevin	11/3/23	361 minutes	N/A	N/A	361 minutes

Artifacts

Artifacts provide meaningful insights and allow researchers "to develop a broader perspective" about the case (Yin, 2014, p. 118). Therefore, I collected artifacts including photographs of each teacher's classrooms, concert programs, and photographs of modified instruments. I also requested pertinent emails between the teacher and other involved parties such as special education faculty and class syllabi, but they were ultimately not shared. I documented the appearance of each participant's classroom to understand the overall classroom environment. Therefore, I collected concert programs and photographs of the modified instruments to understand how students participated, which provided insight into how students with physical differences were included.

Data Analysis

According to Stake (1995), the purpose of data analysis is to "make sense of certain observations of the case" (pp. 76-77). I began the process of data analysis by transcribing the participant interviews according to the principles of smooth verbatim transcription. After conducting each interview, I transcribed the audio recordings as soon as possible, most typically within three days of the interview occurring.

Mertens (2015) defined coding as the process of "assigning a label to excerpts of data that conceptually 'hang together'" (p. 439). I utilized MaxQDA, a software that assists researchers in coding and organizing themes in qualitative research, to code my data. First-cycle coding methods included attributes coding, descriptive coding, process coding, emotion coding, values coding, and simultaneous coding (Saldaña, 2021). I utilized attributes coding to track essential demographic data for future reference. I employed descriptive coding to discern structures and processes by summarizing common opinions stated by multiple participants, and process coding to reflect observable actions and the sequence of events over time. I used emotion coding to label the participant's feelings as recalled by the participant or inferred by the researcher, and values coding to label the participant's inner values, attitudes, and belief systems. Finally, I employed simultaneous coding so that multiple codes could be applied to the same section of data (Saldaña, 2013). The combination of these affective and elemental coding methods allowed me to gain the most comprehensive picture of each participant's story by understanding not only the actions that they took, but also the impact of and the motivation behind those actions. I then selected pattern coding to refine my codes during the process of second-cycle coding (Saldaña, 2021). Pattern coding allows researchers to combine similar codes under an overarching meta-code, therefore, creating a smaller number of themes or constructs to be analyzed (Saldaña, 2013). Thus, pattern coding helped me to focus my data and identify the most pertinent themes as they emerged.

Trustworthiness

I ensured trustworthiness through triangulation and member checking (Creswell, 2013; Patton, 2015). Triangulation refers to a researcher using several data types and sources to strengthen the validity of a study (Patton, 2015). Triangulating data sources and types allows researchers "to gain the needed confidence, to increase credence in the interpretation, [and] to demonstrate [the] commonality of an assertion" (Stake, 1995, p. 112). For the current study, I achieved triangulation by collecting multiple data sources and types, such as interviews and interview transcripts, observations and field notes, and artifacts. To facilitate member checking, participants reviewed each interview transcript to confirm that the data accurately reflected each of their realities (Stake, 1995). While member checking, Dwight provided two clarifications to the transcript from his first interview. However, for the other five transcripts, the three participants affirmed the accuracy of each transcript without providing clarifications or suggestions. Participants had unlimited time to member check, and generally returned the documents after two to four weeks.

Researcher Bias and Positionality

Though engaging in triangulation and member checking helped to validate the data, the potential for observation bias in research always exists (Patton, 2002). I sought to acknowledge my bias, clearly document my research method, and triangulate multiple data sources to approach the data from the standpoint of "neutrality" as much as possible (Patton, 2015, p. 58). Throughout the study design, data collection, and analysis, I recognized my positionality as a female music educator who uses instrument modifications in her own performances. I also acknowledged my belief that all musicians should have access to instruments that allow them to participate successfully in instrumental music ensembles. Although I do not identify as an individual with a disability, I do identify as a person with a physical difference, and I could not have completed my undergraduate degree without instrument accommodations. I felt fortunate that my applied and music education professors supported me by allowing for adaptations, and I realize that not everyone receives this same support. These personal experiences have influenced my interest in investigating ways that other students with physical differences—particularly those with greater limitations to their mobility or endurance than me—are able to participate in instrumental music. As a researcher, I have a vested interest in ensuring that all students receive equitable opportunities for full participation. Although I cannot ignore the values I developed as a result of my personal experiences, I hoped that by explicitly acknowledging my biases and subsequently engaging in "mental cleansing" in order to refrain from judgement (Patton, 2002, p. 553), I would be able to remain objective throughout the data collection and analysis processes.

Limitations

The nature of the small sample size associated with case studies means that several limitations existed for this study (Patton, 2002). First, the demographics of the participants who participated in the study (e.g., gender, race, and socio-economic status) and the schools in which they taught limits its generalizability. For instance, all three participants were White teachers at suburban schools. Additionally, all three participants had more than ten years of teaching experience. Although their experiences allowed them to have a greater depth of experiences to discuss, the teacher participants' educational experiences may not reflect those of teachers with less experience. However, the results of this study may be transferable within the population from which the sample was drawn.

Additionally, because I did not interview students or other interested parties directly, the possibility exists that the students might have remembered or interpreted situations or interactions differently. Another limitation may relate to teachers' memory and ability to recall information that happened many years ago. This study relied on teachers reporting on events over the entirety of their teaching careers. Two of the three participants had taught for at least 28 years and all participants have taught for at least 11 years. Some of the details of their accounts could have been misremembered. Another limitation comes from the primary focus on inclusion in concert or marching band in this study. Although multiple areas of instrumental music were represented, no stories of inclusion in orchestra were collected in this study.

Other limitations emerged related to the location, method, and length of data collection. To facilitate data collection, the participants in this study taught in the Mid-Atlantic and Midwest regions of the United States. Given that each state has different educational policies, teachers from other states or regions of the country might receive different levels of support and encounter different challenges when including students with physical differences. Furthermore, every individual teacher receives different levels of support from their school district, potentially impacting the teacher's ability to implement what they deem as best practices. Therefore, the strategies utilized in this study may or may not be feasible for teachers desiring to include students in other school districts. Due to geographic constraints, one participant was observed remotely over Zoom. This impacted my ability to triangulate data since the camera angle limited my ability to observe all of the events and interactions that occurred during each rehearsal. One teacher also had schedule limitations that required our interviews to occur within her one-hour planning period. This impacted their ability to expand on some questions.

Finally, the specificity of some of the student-specific adaptations represented another limitation of this study. Most every student described in this study had their own unique physicality. Thus, the beliefs, barriers, and benefits mentioned in this study are all unique to the participants' programs and their particular students. Therefore, even though the findings of this study may be applicable to all instrumental music teachers, some of the specific adaptations described by participants would likely not be directly generalizable for students in other teachers' programs.

Case Profiles

Within a case study, case profiles provide important background information that situate each participant's lived experiences. In each case profile, I discuss each participant's approach to education and current job requirements before describing their teaching space(s). I also explain each participant's upbringing as it relates to their exposure to individuals with SEN. Finally, I summarize the participants' experiences with accommodating students with physical differences throughout their careers. More information about the modified instruments the participants' students utilized can be found in Table 4 in Appendix B.

Eliza Albert

Thoughtful and reflective, Eliza's care for and dedication to her students as an educator was evident in our interviews and throughout all of her interactions with her students and colleagues. Growing up, Eliza felt "safe and comfortable" in band, describing band people as "[her] people." For the first six years after graduating college with a degree in music education, Eliza served as the assistant band director at a junior and senior high school within the Holloway School District, where she has worked throughout the entirety of her 11-year career. In her seventh year of teaching, Eliza changed schools within the same district, and she now teaches band as the head band director at Riverside High and Dogwood Junior High School (Interview 1). The Holloway School District is socioeconomically diverse, with primarily White students and a large Jewish population.

Within the Holloway School District, students first have the opportunity to join band in sixth grade when they begin junior high. Dogwood Junior High, a small school with around 300 total students, has an enrollment of 90% of its student population in music of any kind, with 60% of students enrolled in the band program. Riverside High School is a medium-sized high school (approximately 750 students) with 100 students who participate in three auditioned, ability-based concert bands.

Eliza and her students benefit from a co-teaching model at both the junior high (grades 6-8) and senior high (grades 9-12), which allows both teachers to provide students with the one-on-one or small group attention that they need. Eliza teaches three ability-based indoor bands at the high school and three grade-level bands at the junior high, all with the same co-teacher. She also teaches a jazz band and private lessons extracurricularly. Every band rehearses daily except for sixth grade, which only meets as a full band on Mondays. On the other four days, students attend band on two of those days to participate in individual instrument pull-out lessons. At the high school level, marching band is a curricular class during the fall; the band students are then split up into three concert bands after the conclusion of marching band season.

Eliza's high school classroom is a large room with bi-color walls. At the front of the room, behind the conductor's podium, the wall contains a smart board, a black chalk board with the lines of the music staff pre-engrained, and several posters, including one which dictates the “rehearsal rules,” the first letters of which make up the word respect. Two single doors lead to Eliza’s and Nate’s offices. The junior high band room is similarly well-organized and clean in appearance. The room is large with high ceilings and two sets of double doors, one leading to the hallway and the other leading to the instrument storage closet. At the front of the room, a smart board, speakers, and a few posters are featured on the walls. A center aisle through the ensemble allows for easy movement throughout the room.

Eliza strives to be a “well-rounded teacher and confidant” for her students, which she attributed to her undergraduate music education program (Interview 1). Based on my observations, Eliza runs efficient rehearsals while developing a strong rapport with her students that allows her to push her students to achieve their musical best. Paired with her quest for musical excellence is a strong, deeply-rooted belief in inclusion that she presumes stemmed from her exposure as a child to an aunt with disabilities, as well as her parents’ backgrounds as special education teachers. She believes that every child deserves to have a musical experience, and that “[she has] a special place for them because [she values] that so much” (Interview 1).

During our conversations, Eliza described six students with physical differences she has taught over the course of her career. Eliza had worked with students who had small hands which impacted their ability to hold their instruments typically, and who in some cases utilized adapted instruments. She had also worked with students with muscle weakness that impacted their ability to walk. Some of her former students used wheelchairs or other mobility aids to participate in both concert and marching band. Eliza described how some students received paraprofessional or peer support in order to participate. Some of these students took private instrumental lessons, while others studied music only in school. Finally, several students played simplified parts, while others required no musical adaptations.

Dwight Schrute

An outgoing and charismatic individual, Dwight Schrute has taught at Spring Valley High School for 28 years. From the moment I entered his classroom, I identified his enthusiasm for teaching as contagious. During our interviews, Dwight discussed how he initially began teaching steel pan and guitar due to students' interest, which reflects his deeply-rooted belief in providing a tailored musical education to all students. When discussing the importance of including students with physical differences, Dwight stated that "everybody should have the right to a quality arts education taught by qualified teachers. Regardless of circumstance" (Interview 2). Dwight holds these beliefs in spite of the fact that he did not experience opportunities to include students with SEN as part of his upbringing.

Spring Valley High School is moderately large, serving around 1150 students. Approximately 285 students participate in the school's music program, and 73 students are currently enrolled in band, a number which Dwight says is still lower than it was pre-Covid. Students in his program come from three different middle schools. His school is racially diverse, with similar numbers of Black and Caucasian students, as well as significant Hispanic and Bangladeshi student populations. Presently, Dwight teaches two concert bands, two steel pan classes, guitar, and IB music, which rotate on a block schedule. He also teaches a non-competitive, extra-curricular marching band. The majority of his classes meet in his classroom in the basement. The bottom level of the school can be accessed by either stairs or elevator. After descending to the school's basement, a short hallway with several posters advertising different local colleges leads first to the band room and Dwight's office; other classrooms are located further down the hallway. The primary hallways are all large enough to be accessible by students using a mobility device, and the door to Dwight's classroom—despite being a single door—is likely wide enough to be accessible by wheelchair as well. Within the classroom, the room has four tiered levels and no ramp. The classroom walls, covered with sound proofing, are adorned with posters and memes, which reflect Dwight's personality and the rapport he has with students. Similarly, the door to his office is covered in stickers which have been gifted to him by students over the years. The steel pan classes meet in the auditorium. The steel pans permanently sit in the pit in front of the stage, and other materials that students need can be retrieved from on the stage or in the wings.

Dwight's honesty and use of humor with his students allows him to build strong relationships with all students, who stop by to chat with him frequently throughout the school day. Fiercely passionate, he acknowledges that he is "not a normal band director" because he does not care about the scores his band receives at competition and would rather give all students the chance to participate to the best of their abilities (Interview 1). Despite his students' success, Dwight remains humble and always eager to learn.

During our interviews, Dwight and I discussed five students he has taught in instrumental music classes with physical differences. Dwight had worked with several students with muscle weakness, atypical muscle tone, and/or limb differences. Several of his students used modified or adaptive instruments, mallets, or equipment. Some of his students utilized traditional notation without adaptations, whereas Dwight wrote in pitches for some students and provided simplified parts for others.

Kevin Helms

Kevin Helms is a confident man with 34 years of experience teaching with the Cinaria School District; he has taught at his current job at Monroe Middle School for almost all of that time. His high musical standards and passion for music were palpable as soon as I entered his classroom. Kevin is committed to holding every student to the same high standards, and he attempted to avoid "treating [students with physical differences] as if they were different" (Interview 2). He has a strong belief in equality and states that "[he] will work with anyone that wants to learn about and love music" (Interview 1).

Monroe Middle School is "solid[ly] middle class," with significant Caucasian, Black, and Hispanic populations (Interview 1). The band program begins in 4th grade and the middle school program at Monroe receives students from all nine elementary schools in the district. After graduation, Monroe students feed into all of the district's three high schools. With 192 students enrolled in the band, approximately 55% of the student population at Monroe Middle School participates in the performing arts. Kevin teaches the sixth, seventh, and eighth grade bands, one auditioned jazz band that is open to students in all three grades, and two beginning bands that are open to students in every grade but are primarily made up of sixth graders. His jazz band utilizes traditional jazz band instrumentation, but high-achieving students on other instruments may receive additional small group performance opportunities depending on the year. Each of his bands meets six days out of every seven-day cycle. Kevin recognizes students' musical abilities regardless of their physicality and enjoys providing musical experiences for students with a variety of educational needs. He reported that his musical upbringing did influence these beliefs, stating "my mom and my sister were activities coordinators. And I come from a musical family, so . . . we would go play music, and spend time with the residents" (Interview 2). He also has a nephew who participates in Special Olympics.

Kevin teaches in a medium-sized room on the far-right side of his school's music suite. The hallway leading to the music room is covered on one side with musical quotes and the names of artists and groups from multiple musical genres. On the other side, the word "music" is written in dozens of languages. At the end of the hallway is a short flight of stairs which leads to a spacious instrument locker room, with white metal wire instrument lockers on the exterior walls. The name tags are color-coded by instrument group. To the right is the band room, a room with yellow-ish green walls and tan sound-proofing panels. A variety of adornments are displayed on each of the four walls, as are trophies and plaques, Mexican and Canadian flags, Yankees and college paraphernalia, and a large percussion mallet bag. At the front of the room, Mr. Helms has a small desk and a humidifier next to the smart board. Near the door are several motivational posters with words like "enthusiasm" and "accountability." Another poster reads "excellence is not inherited . . . you have to earn it." Mr. Helms' office, which he shares with the choir teacher, is at the other end of the music suite, past the choir room and next to the orchestra instrument storage room. The office is spacious with two large bulletin boards, several windows, and more Yankees and Saphire State paraphernalia. His classroom has numerous percussion instruments.

Kevin and I discussed four students with physical differences during our interviews. Kevin has taught students with paralysis and atypical muscle tone. Some students read traditional notation, whereas others learned by ear or did not utilize notation. None of his students used modified instruments on a permanent basis, although one student temporarily utilized an alternate instrument following surgery. Lastly, Kevin described some students as being among the strongest students in their ensembles, and others as being part of band for social reasons.

Chapter 4

FINDINGS

During data collection, the three teacher participants shared data pertaining to 15 students with physical differences. After coding and triangulating my findings, several common themes and sub-themes emerged for each of the four research questions. In the subsequent paragraphs, I present the themes and sub-themes organized by research question.

Research Question One

Research question one explored the ways in which music teachers make instrumental music accessible to students with physical differences. All three participants reported working with many students with varied exceptionalities in their classes. As parents of students with SEN learned that Eliza's classes were accessible and welcoming, the number of students with SEN who enrolled in beginning band increased. Additionally, Eliza's strengths in relationship-building and acceptance also contributed to her ability to retain SEN in the band program as they moved from junior high to high school. Similarly, Kevin believed that all of his middle school students with SEN continued playing after they started attending varied high school programs. Though Dwight did not specifically discuss the retention of students with SEN from middle school to high school, he explained that generally inclusion was more prominent in 6th grade than 7th grade, as music was still mandatory in 6th grade.

Therefore, Eliza, Dwight, and Kevin made instrumental music accessible to students with physical differences through their interactions, actions, and instructional strategies. Over the course of their careers, Eliza, Dwight, and Kevin included students with physical differences in concert band, marching band (including color guard), jazz band, guitar class, and steel pan ensemble. The participants thereby supported student participation on woodwind, brass, and percussion instruments. They also described how they supported students who played steel pan and baritone ukulele and who spun flags in color guard. The three participants in this study all had experiences accommodating students with physical differences who had varying musical skill levels.

Four themes emerged which reflect the approaches taken by the participants to include students with physical differences: (a) embracing inclusive instructional approaches, (b) modifying materials and spaces, (c) prioritizing and planning ahead, and (d) collaborating with and receiving support from others. See Figure 2 for a visual summary of the aforementioned themes and subthemes.

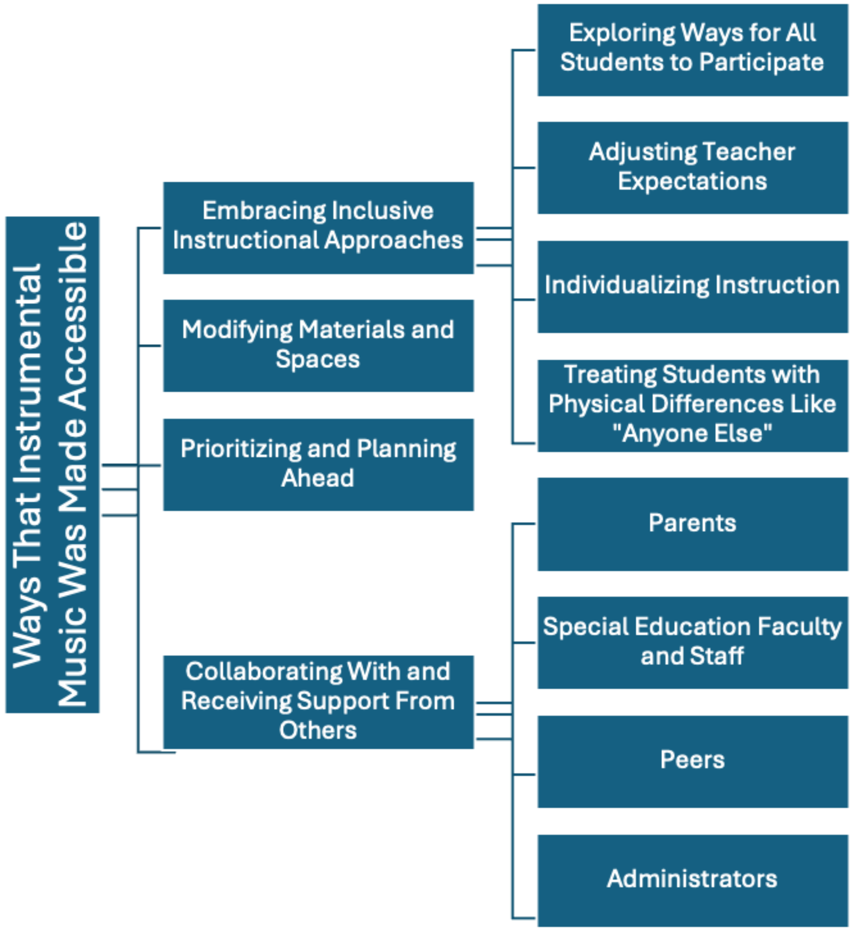

Figure 2 Research Question 1 Themes

Embracing Inclusive Instructional Approaches

Eliza, Dwight, and Kevin utilized a variety of instructional approaches to help them include students with physical differences. These instructional approaches allowed them to deliver individualized instruction within a safe, supportive learning environment. The four instructional approaches utilized by the three participants included (a) exploring ways for all students to participate, (b) adjusting teacher expectations, (c) treating students with physical differences like "anyone else," and (d) individualizing instruction.

Exploring Ways For All Students to Participate

Exploring ways to allow all students to participate represented one inclusive educational approach which helped the three participants include students with physical differences. All three participants strongly believed in the value of an inclusive classroom, and thus, intentionally put forth effort and time to find ways to include every student. Dwight declared:

> I don't understand how [teachers] can look at a kid who desperately wants to be a part of the world that we provide for other kids. And [their] first reaction is to find the one thing that [they] can say, 'no you don't belong here.' As opposed to doing *everything* in [their] power to say, 'yes, you belong here, and [I'll] figure out a way to make you belong here. (Interview 1)

Accordingly, Dwight believed that teachers should "look for ways to say yes, not look for ways to say no. And then figure it out after the fact" (Interview 1). Because of his mindset, Dwight consistently experimented to discover the approach that worked best for each student, rather than putting the onus on the students. This was especially true for two of his former students. For one student who with right-side weakness, Dwight and a band parent assembled a custom percussion rack built out of prefabricated parts and homemade materials; the rack continued to have instruments added, removed, and changed throughout the marching band season. When finding the best way to include a student with reduced fine motor skill and muscle weakness, Dwight experimented with the use of a regular guitar, a half-sized guitar, and a half-sized classical guitar, before trying a baritone ukulele. If the baritone ukulele had not worked, Dwight's next step would have been to try a chording device. This school year, he wanted to take a similar approach to figuring out the best way to include a student with finger differences and a small left hand in steel pan. During our first interview, Dwight had only just learned about this student's physicality. He pledged, "I don't know how I'm going to figure him out yet, but we're going to work on it" (Interview 1). Dwight clarified that the first accommodation he wanted to try was to enlarge the shaft of the student's tenor pan mallets.

Eliza and Kevin expressed similar attitudes about finding ways to include all interested students with physical differences. Kevin stated that "whatever [teachers] have to find out of [their] bag of tricks to make things work, [they] do" (Interview 1). Similarly, Eliza believed that "having an open mind as an educator to make sure that you're adapting appropriately to include all students is really very important" (Interview 2). Eliza's openness allowed her to adopt a variety of inclusive instructional approaches. For instance, one of Eliza's students struggled to carry materials when he used forearm crutches in junior high. In response, Eliza instituted a peer support system within the band program so that he could successfully participate. Eliza's desire to include all students extended beyond just students with physical differences. For example, during the high school band rehearsal I observed, Eliza checked in with a student to ascertain if he wished to play trumpet in jazz band. Eliza wanted the student to participate, and so she told him that she would try to provide him with a school-owned trumpet, which seemed to be the only way that he could participate.

All three teacher participants dedicated time to learning more about including students with physical differences, and in some cases, to educating other teachers about their own practices. Kevin valued coursework and professional development related to including students with physical differences. He explained that he seeks out sessions about inclusion at conferences like his state's Music Educators Association convention. Though Eliza also acknowledged professional development sessions as beneficial, she explained that her administrators typically ask her to give these sessions to the other teachers. Despite the acknowledgement of professional development as valuable, Kevin explained that teachers must be willing to learn on the fly “because there’s just too many variables of what could be each kid’s individual situation” (Interview 2). Dwight’s time learning about students with physical differences mainly took the form of collaborating with other faculty to help every student successfully participate. For example, at the time of the study, he was conversing with one student’s caseworker and guidance counselors to try to arrange his schedule so that he could participate in the beginning steel band class starting mid-year.

Adjusting Teacher Expectations

Another inclusive instructional approach taken by the three participants when including students with physical differences was their willingness to adjust their own expectations. The three participants exemplified this approach by adjusting how students participated and the skill level required for performances. This willingness allowed several students to participate in instrumental music who would have otherwise been excluded. Eliza stated that performance demands never prevented her from including students with physical differences. For instance, she described how one of her students with physical differences participated in marching band because “[he] really wanted to do everything that anybody else could do” (Interview 2). She went on to explain that “we kinda made some concessions with that” (Interview 2). Although the student did not march the entire pregame show and instead joined the band on the field part way through the drill, he was still able to participate in marching band.

Similarly, Dwight helped a student who could hold a flag, but not spin or toss it, to participate in the color guard. Dwight welcomed her openly and did not care that the band's scores in marching band competitions might be impacted. His only concern was that the judges might call the student out on the tape during performances. To prevent this, Dwight inconspicuously pointed her out to the timing and penalties judge before every performance and asked that the judges not single her out on the tape.

The teacher participants also adjusted their musical expectations for some students. For example, Kevin and Dwight each described teaching students who could not play all of the correct notes in the scores; however, they allowed these students to participate anyway. Kevin supported his student's participation, explaining that "he felt good trying to play music, and if it was Mary Had a Little Lamb, it was his own version of it, and it just was something that, for his heart and soul made him feel good when he was doing that" (Interview 2). In the beginning steel pan class, Dwight intentionally did not assign his student crucial parts because he did not play every note, although the notes that he played were accurate. Dwight also adjusted his rehearsal expectations for this student to accommodate his other needs. When I observed Dwight teach the beginning steel pan class, Dwight allowed this student to step away from the drum and sit in the auditorium as needed rather than requiring him to participate in every repetition.

The teachers also made modifications to student learning when necessary. Kevin and Dwight modified their expectations for participation by allowing some students to learn by ear rather than requiring them to read notation. For example, Kevin had provided a former student with standard notation, but he supported him in learning primarily by ear. Another former student of Kevin's did not utilize notation at all. Kevin explained that he knew that this student would play "his own version" and he accepted that (Interview 2).

Individualizing Instruction

The three participants each recognized the value of differentiating instruction to help students with physical differences participate in instrumental music. Providing differentiated instruction represented a normal part of teaching secondary instrumental music for Dwight; therefore, he was not specifically concerned about differentiating instruction for students with physical differences. Dwight provided instruction that fit each student's learning style (e.g., giving one student an exercise in concert pitch and another student a transposed exercise) regardless of whether the student had SEN. Dwight embraced the idea that each student should receive instruction customized to what they need and how they learn; his emphasis on varying learning styles helped him to normalize providing individualized instruction for all of his students. He stated that he believed the non-disabled students in his classes understand "that's just how that kid learns . . . so it's just a different learning style, and this is this kid's learning style" (Dwight, Interview 1). As a result, his students did not view his accommodations as deviating from a norm. For example, when I observed Dwight teach his guitar class, he routinely suggested alternative chord fingerings to students to provide both simpler and more difficult options.

Eliza valued the individualized instruction she could provide with the assistance of her co-teacher in both pull-out lessons and sectionals. During one of the rehearsals I observed, Eliza worked individually with a clarinetist in her office while her co-teacher taught the rest of the class. Eliza's boosters also paid to have additional private lesson teachers come in to work with students on the instruments on which neither Eliza nor her co-teacher specialize. During the high school rehearsal I observed, the flutists in all three concert bands worked with an outside flute specialist in a sectional.

Knowing that some students do not learn best in a large-group setting, Kevin also valued individualized instruction. Kevin used students to provide one-on-one peer support for their classmates, sometimes sending an advanced student into the instrument storage room with another student who would benefit from additional or individual instruction for a few minutes during class. Kevin explained that he believed this peer instruction helped his students who were struggling to “have a little bit more of an opportunity for success” (Interview 2). In his experience, the parents of both the tutor and the tutee appreciated his efforts.

Treating Students with Physical Differences Like “Anyone Else”

Finally, the three participants also exemplified inclusive approaches by treating students with physical differences like “anyone else” (Kevin, Interview 2). Although they provided individualized instruction to students who needed it, they strove to provide these accommodations discretely and helped all students to achieve. Dwight stated that the non-disabled students in his ensembles were not aware of him providing accommodations to students with SEN, claiming that “if [teachers] don’t make a big to-do of it, nobody notices” (Interview 1). Eliza also preferred to differentiate for her students, but not make this differentiation apparent to all students. She posited that students generally did not know when certain students received adaptations like modified parts. If they did notice, Eliza posited that the other students in the class generally “understood why . . . cause they go to school together for years and years and they’re aware of the situations typically” (Interview 1).

Finally, Kevin repeatedly explained that he believes in treating students with physical differences the same as every other student. He held all students to the same high expectations, and even asserted that two current students with physical differences were among the strongest players in his current seventh grade band. When I observed at Monroe Middle School, Kevin asked the drum set player with atypical muscle tone who walked with a limp and the other jazz band percussionist to go down to the auditorium to bring back the drum set, which had been used in the previous evening's coffee house performance. Despite this student's atypical gait, Kevin did not exclude or exempt him from helping. Similarly to Dwight, Kevin explained that this attitude helped his students to welcome the students with SEN into the band and "treat all of them like they're anyone else and they're their friends" (Interview 2). Finally, Dwight believed that general good music teacher practices allowed him to support students while still treating them like their peers. Dwight discussed how he scaffolds assignments:

> Well, it's what we do anyway. Right? You don't teach high school and have the ability to go 'here's a piece of music, learn it by tomorrow, thanks' . . . we're already chunking assignments, we're already scaffolding by saying 'here you can't play that, let's do this part this way. (Interview 1)

In this way, Dwight aimed to benefit all students through his normal instructional practices. This not only allowed him to treat students with SEN as he would any other student, but also helped the non-disabled students to perceive all of their classmates as "normal" (Interview 2).

Modifying Materials and Spaces

Modifying materials and spaces for students with physical differences also allowed the participants to successfully include students. The three participants discussed the specific ways that they modified materials, including music and instruments, to include students with physical differences. The participants also discussed how accessible rehearsal and performance spaces, not only in their schools but also on trips and at festivals, were necessary to fully include students.

Modified Instruments and Music

Providing modified instruments and/or music helped the participants to include many of their students with physical differences. The participants explained that most of the students with physical differences with whom they had worked benefited from modified instruments, music, or expectations for participation. Notably, the teachers were able to include some students without any modifications to their music and/or their instrument.

The participants happily provided modifications for students whom they believed would benefit from them. When asked about his rationale for providing modified resources to students, Dwight proclaimed that “we can’t be wholesale looking for ways to discount entrance into art forms based on physical limitations or anything like that” (Interview 2). The modified instruments their students utilized are described below, as well as summarized in Table 4 in Appendix B. One of Eliza’s former students utilized a flute with metal key extensions to accommodate her small right hand. Eliza also taught two former students who both had small right hands and required modifications to how they played and held their trumpets. In their cases, she did not make any changes were made to their instruments, instead teaching them to play left-handed. One of Kevin’s current students who had incomplete paralysis primarily used a traditional clarinet without any modifications. However, she was sometimes temporarily unable to support the weight of or generate sufficient breath support to play the clarinet. On these occasions, Kevin gave her a pencil and encouraged her to finger along until she could perform on her clarinet again. Next, Eliza taught a former student, a percussionist, who had a metal basket attached to his wheelchair to hold the snare drum at an angle and distance which allowed him to reach the head. This student used a different basket in concert and marching band to accommodate the different dimensions of concert and marching snares. One of Dwight's former students was also a percussionist; this student played in the marching band front ensemble. A band parent built a rack for her so that she could access all of the necessary auxiliary percussion instruments with her left arm. Dwight currently teaches a beginning steel pan player with a small left hand and finger differences; therefore, Dwight sought to create mallets with thicker shafts that would be easier for the student to grip. However, as of our final interview, this had not yet come to fruition. In Dwight's guitar class, one of his former students performed on a baritone ukulele instead of a traditional guitar to accommodate the student's fine motor skills and muscle tone. Finally, in marching band, Dwight taught a minimally-verbal student with limited fine motor control participated in color guard by utilizing "bulked up equipment" (Interview 1), which primarily consisted of flags with thicker poles, and by adjusting the drill to give her extended time to change equipment since it sometimes took her multiple attempts to pick up the next piece of equipment. These modifications allowed students to perform alongside their peers and have a positive musical experience.

Participation in marching band required additional considerations related to some students' ambulation needs. Though several students' physical differences required additional thought on the part of their teachers, the students were able to participate fully in the music-making. Another student used a mechanical wheelchair which required two hands to push. As a result, he could not propel his chair and play trumpet at the same time. Therefore, a paraprofessional was assigned to push him around the field. A former student of Eliza's with muscle weakness marched independently but did not participate in all parts of the pre-game show due to the demands of the marching involved. Dwight's student with a prosthetic leg marched the entire show; however, when field conditions were poor, "she would sometimes swap out a marching shoe for something that had a little more dig" (Interview 1). Rather than wearing her uniform marching band shoe (drillmasters), she would put a different shoe with more grip onto her prosthetic leg.

While many students played the music as originally written, a few students required musical modifications. Eliza provided a simplified part for one of her former students, a percussionist with muscle weakness. Eliza described him as "a good musician and very capable," explaining that "he just didn't have the physical ability to be able to do what his mind wanted him to do" (Interview 1). Similarly, Dwight provided simplified parts with longer note durations for a student in the marching band's front ensemble with right-side weakness because she could not play sixteenth notes one-handed. Dwight also shared that the occasionally provided simplified chord shapes to the student who played the baritone ukulele in his guitar class if he saw that she was struggling, although she did not typically require simplified notation. Dwight also wrote in the letter names of the pitches and labeled the octave in which the pitch should be played for the student in his beginning steel pan class with an atypical left hand, but he did not alter or simplify the part. Kevin did not specifically modify notation for any of the students with physical differences we discussed but stated that he would be willing to write "a simplified version of what they could handle" for any student (Interview 2). Simplifying parts for any student who would benefit allowed all students to play music at a level that allowed them to be successful.

Accessible Rehearsal and Performance Spaces

All three participants emphasized the importance of having accessible rehearsal and performance spaces when including students with physical differences. The most recent renovations at Kevin's school included installing an elevator that made the stage wheelchair accessible. When discussing the installation of the lift at his school, Kevin explained that "now that we have the lift to accommodate, it feels good because there just isn't any limitations. Anyone who wants to do [music] can be part of it" (Interview 2). To accommodate a student who used a wheelchair, Kevin adjusted his seating chart, switching the flutes and clarinets so that the clarinets would sit on the same side of the stage as the elevator. This allowed his student to easily access the stage during concerts. Kevin's classroom was also wheelchair accessible.

At Eliza's high school, the marching band's practice field was located at the bottom of a long, steep hill, which initially presented accessibility concerns. After a percussionist who used an electric wheelchair made Eliza aware of the problem, Eliza found him an alternate path to the practice field. Although this path was longer, no new construction was required, and the space became accessible to him. Once on the field, the student participated normally by driving his wheelchair and playing the snare drum simultaneously.

Dwight's primary classroom in his school's basement was accessible by elevator. However, the classroom itself was divided into four vertical tiers, limiting its accessibility. Despite a wide central aisle down the middle of the rehearsal space, these tiers would be prohibitive to students with mobility device who needed to access an upper tier. For the students with physical differences whom Dwight has taught thus far, this has not yet posed a barrier, since the students he has taught have primarily been in marching band or steel pan (ensembles which don't meet in his room) or played instruments in concert band or guitar class that naturally allowed the student to be assigned a seat on the first tier.

Eliza and Dwight also discussed the importance of accessibility during band trips. Dwight explained how he ensures beforehand that all the places his ensemble visited are accessible to avoid students not being able to enter a building and thus "feel[ing] singled out" (Interview 1). Eliza described a time when she took her group to festival only to discover that the sight-reading room was tiered, which prohibited a student in a power wheelchair from getting to the back of the room with the rest of the percussion section. Although Eliza said that they moved a set of bells down to the front of the room and that the student was a "good sport" about it, she regretted that it had happened (Interview 1). She described the occurrence as "equally everyone's fault," and explained that she reached out to the festival organizers after the fact. This resulted in the addition of a question about accessibility on the registration form, which Eliza celebrated, even though she thought "it needed to be that way in the first place" (Interview 1).

Prioritizing and Planning Ahead

Prioritizing and planning ahead helped Dwight and Eliza to include students with physical differences in instrumental music ensembles. Eliza and Dwight agreed that advanced preparation significantly improved the musical experience for students with physical differences and helped students with physical differences to feel included. Eliza elaborated that when including students, she values "being aware of their needs and . . . prioritiz[ing] that and plan[ning] ahead so that . . . the kids [don't feel] stressed or . . . incompetent; we don't want any of that" (Interview 1). She claimed that planning ahead allowed her to "do what's best for the kid . . . so that the student fits right into your instrumental music class and feels right at home" (Interview 1). Eliza acknowledged the many steps necessary to tackle in advance in order to include students with physical differences, such as "getting a [paraprofessional] involved in pushing a wheelchair around or making sure that there *is* a ramp in the sightreading room. Or making sure we have the right kind of buses" (Interview 1). Furthermore, because Eliza avoided drawing attention to individual students with modified music, she endeavored to rewrite parts for students prior to class. This allowed her to "just hand a rewritten part to the student [so they could] learn it alongside everybody else . . . [as opposed to] having to run back there and write all over their music" (Interview 2). Likewise, Dwight emphasized the need to plan ahead, especially on trips when traveling with a student with mobility concerns. On trips, Dwight stated that it is important to ascertain that every place the group is going is compliant with the Americans with Disabilities Act so that no students "[feel] singled out" because they cannot enter an attraction in their wheelchair" (Interview 1). Additionally, Dwight brought up that "coach buses don't have ADA compliant entrances," so teachers need to find a way for students to travel with the group "that doesn't cause undue stress to anybody, but also doesn't make that kid feel singled out" (Interview 1). Though Dwight and Eliza both emphasized the importance of planning ahead, Kevin did not share any examples of ways in which he planned ahead to help him include students.

Collaborations With and Support From Others

The three participants provided numerous examples of the significant role that collaborations and support from others played when including students. When discussing collaborations to support students with physical differences, Eliza stated:

> From the get-go, it just makes it a lot more manageable. To feel like you have a community that's gonna be there to support you and support the kid. So that makes a big difference. I feel like, between . . . the parents and . . . their special ed teacher and the guidance team usually we're able to really like come together to do what we need to do for the betterment of the student, which I think is really significant. (Interview 1)

In addition to providing resources, collaborations also helped teachers to effectively teach all students and provide physical and emotional support. Working together with parents, special education teachers and paraprofessionals, other students, and administrators helped Eliza, Dwight, and Kevin to include students with physical differences.

Parents

Partnering with parents represented one category of collaboration which helped the participants to include students with physical differences. The three participants collaborated directly with and received support from parents. All three participants described meetings they had with parents to discuss the best ways to include each child, which they asserted almost always consisted of positive interactions. Eliza believed that positive meetings were possible because "[she gained] a good relationship in the beginning" with the parents (Interview 2). Eliza also stated that "parents are the . . . biggest resource you can have," and described the direct efforts that parents took to help two of her former students succeed (Interview 1). For instance, Eliza explained how the parents of a student who used a power wheelchair designed and built the snare baskets for both their son's concert and marching snare drums. In addition, they enrolled him in private lessons. She believed that they did so because they "wanted him to have a good music[al] experience" (Interview 1). Eliza also recalled how the parents of the flute player with a small right hand took the initiative to help their daughter excel in band. Specifically, the parents reached out to a flute specialist repair shop to add key extensions to the right-hand keys of both her beginning sixth grade flute and her upgraded open-holed flute.

Dwight also experienced significant parental support, especially from the parents of students in his marching band. Band parents helped him construct instrumental adaptations for students with physical differences. For example, one of the band parents in Dwight's school, a woodworker, built the custom rack that a student used in the front ensemble during marching band. When thinking of how to accommodate students, Dwight referenced parents as a key resource. For instance, when thinking about how to modify a set of tenor pan mallets to include a student in steel pan, Dwight explained, "I want to see if I can get [that same woodworker band dad] to turn me something that has a much larger shaft on it that then tapers down to that tip size" (Interview 1).

In Kevin's case, the special education teacher acted as a conduit for communication, passing along relevant communication between him and parents. Despite this different mode of communication, Kevin also found that the parents of students with physical differences at his school supported musical opportunities for their children. For example, Kevin recalled how the parents of the drum set player with atypical muscle tone took him to a jam session in a large city. Kevin asserted that the parents of one of his former students showed their appreciation in small ways, like by gifting him with a sugar-free cheesecake.

According to the participants, parental advocacy significantly improved their ability to include students with physical differences in instrumental music ensembles. Dwight noted that the parents of students with physical differences are “not shy about reaching out to teachers” because they are accustomed to being their child’s advocate (Interview 2). Therefore, he expressed the importance of receiving “encouragement from the parent that they’re okay with what you’re doing and supporting how you’re doing it” (Interview 2). Dwight concurred, explaining the importance of parents “backstopping a lot of [the teacher’s] efforts because what you might be doing might not work” (Interview 2). Dwight stated that parental support is especially essential when the teacher is trying something new to try and find a way to include their child. In general, Dwight found that “as long as you're willing to do as much as you can or to, to include as much as you can, the parents are way more than willing to accept the things that you can't do” (Interview 2). As an example, Dwight recalled a conversation he had with one student’s mom about her daughter’s participation in a long parade. Although Dwight was happy for her to try to participate, he told the student’s mom that the parade “‘might not be a good fit’ because her walking was very, very heavily gated and was very slow” (Interview 2). Dwight suggested that the mom walk alongside the band in the parade so that if the student had to step out of formation, her mom would be able to stay with her, which the mom agreed to. Similarly, Eliza discussed the importance of having a good relationship with parents so that the parents understand that you are “on their side . . . [and] want their student to have a good experience” (Interview 2). Eliza then elaborated on the importance of parents accepting that “sometimes [teachers] have to make concessions for that to happen” (Interview 2). Similar to Dwight, Eliza did not require her student with muscle weakness to participate in long parades due to the physical demands of marching significant distances. Eliza also noted that “the relationship we cultivate as band directors is different than a typical in-classroom teacher,” which helps music teachers when having difficult conversations with parents (Interview 1). Eliza explained that these conversations with parents are extremely important, as parents can share information about what works for the student at home.

Special Education Faculty and Staff

Collaborations with special education teachers and paraprofessionals also played a significant role in how Eliza, Dwight, and Kevin included students with physical differences. All three participants met with the special education faculty at their schools to discuss strategies for including students. Kevin worked with the special education team, including one student’s physical therapist. He remarked that the special education team more frequently reached out to him about pertinent information related to modifications/accommodations (e.g., one student’s restrictions following surgery) than he initiated discussions with the special education team. Kevin never felt that “there was . . . anything [he] had to reach out for that ‘hey, I don’t know what the heck’s going on. You just gave me this kid.’ It’s never been the case” (Interview 1). Kevin also noted that the special education team was concerned that including their students would be a distraction; Kevin had to reassure them that it would not be.

Dwight established the benefits of communicating with caseworkers, guidance counselors, and special education teachers to learn the best way to include students with physical differences, receive guidance in interpreting the IEP or 504, and figure out the “path to success” for each individual student (Interview 1). Dwight frequently consulted with the special education team at his school. He stated, “I’m fortunate enough to have a really robust special ed program . . . with really, really good case workers” (Interview 1). Dwight claimed, “I’ve really just lazily relied on [the special education team] a lot over the years, because they’ve kind of been my guiding force of what can this kid do” (Interview 1). Because he teaches high school, Dwight often does not need to figure out new accommodations for his students—especially those in concert band—since they played their instrument previously in middle school. When he has had new students for whom he has needed to figure out what accommodations will work best, Dwight has learned many beneficial strategies from the special education team (e.g., hand signs). Oftentimes, the special education team devised solutions for inclusion that Dwight did not believe he would have thought of. Dwight also stated that he attends IEP and 504 meetings.

Eliza also consistently met with members of her school’s special education team throughout the year. Because Eliza attended IEP meetings so frequently, her school’s special education faculty was willing to reschedule meetings if Eliza could not attend during the original time. Furthermore, Eliza praised her special education team, noting that when students change buildings, such as moving from junior high to high school, the special education team helped to make sure that students received the same supports at the new building right away.

Paraprofessionals, often referred to as paras, also assisted the three teacher participants in including students in instrumental music. Paraprofessionals generally did not actively participate in music classes, which Eliza presumed was due to their lack of musical knowledge. Paras in the three participants' classes generally helped with non-musical tasks. Though the paras tended not to help students with their musicianship, Eliza noted that "if [a student has] had the same para year after year [they] can be a really good resource" to help teachers learn more about that specific student (Interview 1). Eliza, Dwight, and Kevin all also reported the benefits of having paras in the room just in case they were needed. Eliza felt that having paras in the room was beneficial during large ensemble rehearsals as that way there were extra adults present to assist students. Though the extra adults were present, they did not help much musically. Instead, Eliza explained that the paras in her classes generally "just kinda hang and wait for something bad to happen, which hopefully doesn't" (Interview 2). Similarly, Dwight valued paras who stayed "near [students] in case [they] needed something" but who were not overzealous and who did not hover over the student's shoulder unnecessarily (Interview 1). Kevin stated that one of his students with low muscle tone had a paraprofessional assigned to him; although the paraprofessional came to band class with him and had to go on the band trips if his parents could not attend, the paraprofessional otherwise "never had to do anything for him" (Interview 1). Some paras took a more active role in assisting their students. Another one of Kevin's former students had a paraprofessional who helped the student with his materials by assisting him in bringing his things into the room, putting the trombone together, and providing emotional support by taking the student out into the hall if he got overwhelmed. Finally, Eliza's former student who used a manual wheelchair was assigned a paraprofessional for marching band so that the paraprofessional could push his wheelchair on the field. Though the paraprofessional did not request this unique assignment, the paraprofessional got “thrown in the deep end, but . . . learned a lot” (Eliza, Interview 1).

Peers

Teacher participants also collaborated with non-disabled students to help them include their peers with physical differences in instrumental ensembles. Both Eliza and Kevin set up peer mentor systems. Eliza established a peer mentor system specifically to help her student who had muscle weakness and wore leg braces carry his things. This was especially beneficial when the student was in junior high and also used forearm crutches. Kevin’s system, which he dubbed the peer buddy system, appeared more extensive. Although Kevin has never specifically used the peer buddy system to include students with physical differences, he has used it to include students with SEN. Furthermore, Kevin believed that he could and would use the peer buddy system to help him include students with physical differences, if applicable, in the future. To date, Kevin primarily utilized the peer buddy system during informal after school practice sessions. During these practice sessions, students of all ability levels, both with and without SEN, routinely worked “with one of their peers” (Interview 1). Kevin also declared that it was “very neat to see that collaboration” between the students (Interview 1). For students with exceptionalities, Kevin also utilized the peer buddy system in class after providing guidance to the mentor students during their homeroom period. Kevin explained that he would “bring those individual students down and give them a game plan of how to [work with their peer buddies]. And so they kind of knew. And we even did a little modeling” (Interview 2). Then, during class, student mentors took their buddies out into the hallway for a few minutes during class to work on a short section of music. Kevin noted that “[he] mixed it up a little bit so that student didn't have to be doing that all the time or felt like that was on them and just had probably about two or three people" (Interview 2). Kevin also reported that the non-disabled students often looked out for their peers, especially during concerts.

Administrators

Finally, collaborating with administrators helped the three participants to include students with physical differences. Although participants expressed mixed feelings about the involvement and engagement of administrators, all three participants explained that their administrators provided them with assistance when they reached out with a specific request. Kevin had the most positive view of the administration's role in helping him include students with physical differences, and support of music in general. He spoke highly of the support his school administrators provide in terms of assisting with the schedule, providing resources like instruments or buses, and providing sign language interpreters at district events. If additional support was required, he felt confident that he could "call [the administrator] over at district office and they'll make it happen" (Interview 2).

Eliza also described the role her administration played in helping her include students with physical differences positively. She explained that she felt like her administration "definitely have our backs if [myself or my co-teacher] bring a challenge to their attention" (Interview 2). As evidence, she cited her administration's assistance in providing paraprofessional support for students during marching band, and in installing a ramp in Smokey Valley Junior High's band room, where she previously worked. Despite the support of her administration, Eliza usually reached out to the special education teachers when she needed another adult to help advocate for a student with SEN. Therefore, she explained that “I don’t know that admin have helped a great deal,” but expressed confidence that her administration would help her address any issues that arose and would advocate on her behalf if necessary (Interview 2).

Dwight explained that his administration was most helpful when he described a specific problem coupled with a solution, such as requesting an alternate snare drum harness for marching band to accommodate a student’s body. However, he also acknowledged that his administration was “not supportive in terms of helping [him] find the solution, in part because they don’t know any better than [he did]” (Interview 2). Despite his administration’s willingness to spend money on an alternative snare drum harness, Dwight asserted that the budget for his entire specials team was meager. Dwight stated that the budget limited his ability to provide resources and materials such as “accessible instruments” to include students with physical disabilities (Interview 1). Beyond inconsistent financial support, Dwight noted that his administrators are so focused on meeting legal deadlines for IEPs and other documents that they lacked the time to actually help teachers include students.

Research Question Two

Research question two probed into the beliefs and dispositions that led the participants to include students with physical differences. Eliza, Dwight, and Kevin possessed similar beliefs that influenced their decisions to include students with physical differences in their instrumental music programs. Dwight fervently discussed his rationale for including students throughout all of our conversations, and professed “can you tell you’ve hit one of my passion buttons right now? (Interview 1). All three teachers possessed positive attitudes towards inclusion that motivated them to give every student an opportunity to participate. Four themes emerged which summarized the participants' beliefs and dispositions, including: (a) every student deserves to participate in music, (b) inclusion has an overall positive impact, (c) adaptations are necessary and important, and (d) people matter more than trophies. See Figure 3 for a visual summary of these themes.

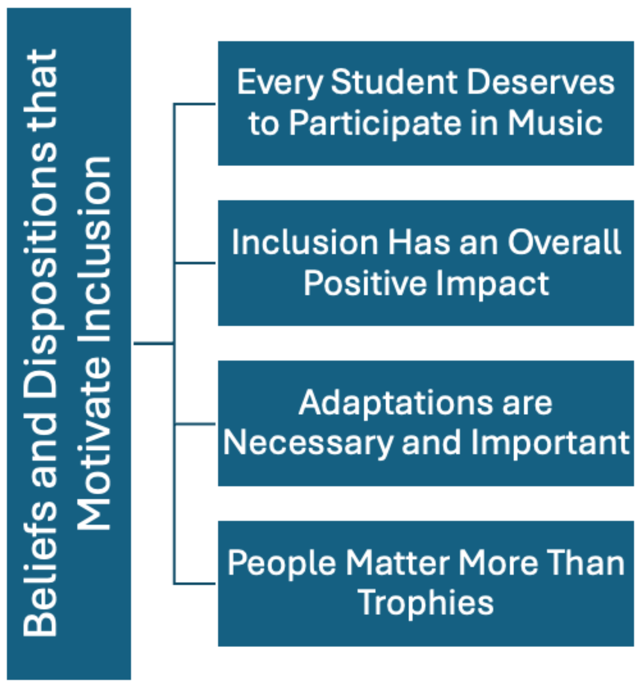

Figure 3 Research Question 2 Themes

Every Student Deserves to Participate in Music

One of the most frequently expressed dispositions that motivated the three participants to include students with physical differences was the belief that every interested student deserves a positive musical experience. Kevin succinctly declared that "I will work with anyone that wants to learn and love music" (Interview 1). When asked why they include students with physical differences in their ensembles, Dwight responded passionately to this question—“cause who the hell wouldn’t?”—before admitting, “I’m not a normal band director because I don’t give a flying crap about scores for anything” (Interview 1). Dwight also talked extensively about how music is important, stating that “everybody should have the right to a quality arts education taught by qualified teachers, regardless of circumstance.” Dwight shared that he tries to involve as many students as he can in his instrumental music classes, including marching band, and declared that students should “get on the field and have a good time” (Interview 1). Eliza also pondered the history behind the inclusion of students with SEN overall and similarly asserted that all students deserve “the opportunity to have a musical experience, whether it’s in an ensemble or otherwise” (Interview 2). Reflecting on the historical lack of inclusion of students with SEN, Eliza shared her personal and professional family experiences with individuals with SEN. As a result, when discussing inclusion Eliza remarked that “I have a special place for [students with SEN] because I value that so much” (Interview 1). Eliza acknowledged that at the secondary level, musical offerings in schools are usually ensemble-based; therefore, if students with physical differences are prevented from enrolling in ensembles, then they usually have no curricular way to participate in music. Kevin’s response was both logical and emotional, as he believed that all students should be included in music because it would be “a sin . . . for their lives to be limited to what’s in their heart” (Interview 2). He went on to explain his philosophy of inclusion, stating that “it doesn’t matter what it is . . . no matter what kind of scenario it is, your kids come in your classroom, you close the door, and you teach” (Interview 1).

Kevin and Dwight specifically explained that they valued student participation and inclusion over musical accuracy. For example, Dwight also accepted the idea that some students might not march, play, or spin at a high level in their ensemble; however, he still wanted them to participate. When discussing the inclusion of students in his beginning steel pan class, Dwight told me that he wanted the guidance counselors to “just put them in there,” noting that he would “figure it out later” (Interview 1). This attitude also carried over into marching band. At times, Dwight has had students who he noted “literally did nothing but fake fingers the whole season” (Interview 1). Dwight accepted these students into his marching band without hesitation, as he revealed that “we have an expression between me and my staff, which is that some of our kids need marching band a lot more than marching band needs those kids” (Interview 1). Therefore, Dwight had no placement process or audition for marching band; instead, he summarized his philosophy as follows: “You want to do it? You can go on. I’ll teach you whatever you want to learn” (Interview 1). For example, a non-verbal student with contractures and minimal fine motor control joined the color guard even though her physicality impacted her ability to spin the flag. Dwight also encouraged a student with a prosthetic leg to join the marching band at Spring Valley High the following fall after learning that she had not been able to be in marching band at her previous school despite being interested. This student’s former band director had not allowed her to participate in marching band because her prosthetic leg altered her gait, which rendered her unable to pass that school’s marching band audition. Of note, Dwight’s marching band competed in a class of their competitive circuit in which they were adjudicated but their score was not shared publicly. Kevin also verbally explained in his interview that he did not mind if students played parts in band that were not musically accurate. Instead, he described the importance of including these students so that they could “be a part of something” (Interview 1).

Eliza not only thought students deserved to have a musical experience, but also deserved to perform at their highest possible level. Eliza spoke passionately about helping all students to feel successful, especially when placing students into one of the three high school indoor bands. Most significantly, Eliza described the third concert band as "kind of like an extension of junior high . . . [only] now they don't get lost in the sauce" (Interview 1). This allowed her to help students who had previously fallen behind to catch up. Eliza intentionally ensured that there was no stigma associated with students' concert band placements. During observations, I noted that the band placements allowed all students to participate successfully, and thus build confidence.

Inclusion Has an Overall Positive Impact

Another disposition which motivated the participants to include students with physical differences was their belief that overall impact of inclusion is positive. Dwight's metric for success, which centered around the quality of the students' experiences and their development as humans, led him to assert that including students with physical differences positively impacts his ensembles. Dwight elaborated on how he measures success, and stated:

> The metric I use for measuring success is, are kids having a good experience, are kids being open to everybody that's around them, are kids learning how to be good human beings through an art form, and if that's the case, then I think it's been a very positive effect. So I say it's positive. (Interview 2)

Giving inclusion a "double thumbs up" (Interview 2), Kevin referenced the social benefits of inclusion for students with physical differences and for non-disabled students. All three participants elaborated on the positive benefits of non-disabled students learning to work with students with SEN. Though Eliza acknowledged that including students can be more challenging musically, she viewed the overall impact of inclusion as positive because of the way it creates community and helps students without physical differences to “understand how to include everybody that they might work with in the future” (Interview 2). Additionally, when taking her wind ensemble and symphonic band to adjudicated festivals to adjudicated festivals in the spring, Eliza expressed that “for the most part they’ve all been very successful, and it hasn’t negatively impacted the moments at all” (Interview 2). Dwight had a slightly different view of adjudications and inclusion. He explained that if one looked at competition scores, inclusion could at times have “a neutral to negative effect” (Interview 2). Despite acknowledging that inclusion could possibly impact scores, Dwight vehemently advocated for inclusion and believed it to be necessary, worthwhile, and important.

Adaptations Are Necessary and Important

Third, a willingness to provide adaptations for students with physical differences represented another belief which allowed the participants to include students with physical differences. All three participants were willing to modify music for students who needed it. Eliza asserted that “I feel comfortable modifying things as necessary based on the student” (Interview 2). Kevin stated that he was willing to simplify parts in all of his ensembles, for any student who needed it, regardless of if the student has a physical difference or any other SEN. He recounted a time this year when he had simplified a part for two non-disabled sixth grade clarinet players who were in tears because they could not play one part of the song. Dwight compared modifying parts to “any other kind of differentiated instruction,” which he maintained is a standard and important teaching practice (Interview 2). When talking about modifying parts, Dwight also stated that "99% of what you need is already there [in the score]" (Email, January 5, 2024). Dwight shared that he focuses on the macro rhythm, adjusts octaves, makes the part unison with what another instrument is playing, and/or simplifies the notation using the low brass and woodwind parts as a guide when modifying parts. At the time of data collection, Dwight hoped to include a second student with SEN in steel pan if his schedule allowed. Already thinking about musical modifications, Dwight planned to start by teaching this student to play a repetitive pattern on the bongos or congas that could work for all the pan songs, before progressing to a simple bass part using only a few notes and only some of the bass pans.

Dwight, Kevin, and Eliza displayed openness to not only modify parts, but also to modify instruments for students with physical differences in their ensembles. Kevin provided no specifications when asked how we would approach modifying instruments for students with physical differences, he did assert that "I would do whatever can be done to help a student with physical differences to be able to participate in band" (Email, February 4, 2024). Although neither Eliza nor Dwight felt that they would instantaneously know how to modify the instrument, both teachers expressed a willingness to try and figure it out. They also both expressed that they knew of resources (e.g., band parents, community groups) that they could reach out to for assistance. Dwight claimed that his process of figuring out how to modify an instrument for a student would require a lot of "trial and error," but that he would find the process "fun" (Interview 2). Looking back on the development of the custom snare baskets, Eliza remarked that his parents had also utilized trial and error to create the device. Furthermore, Eliza stated that she probably would not know how to independently modify an instrument for a student. However, she was comfortable with the idea of providing modifications in conjunction with her co-teacher. She explained, "I'm certain that [because my school has] so many band parents involved now . . . I'm confident that we could figure it out. [Needing to modify instruments] wouldn't deter us from wanting that student to participate" (Interview 2). Dwight also communicated his willingness to modify instruments to ensure the success of all students. During one passing period, Dwight told a percussion student that he could probably find a way to adjust the quad stand so that it can be used in the bleachers and not tip over, which currently prevents students from using it.

Although all three participants were similarly willing to provide modifications, they possessed different attitudes about the difficulty of doing so. Dwight expressed that seeing students succeed after he created modified instruments or provided modified music was rewarding. Therefore, even though he admitted to the difficulties of providing modifications more so than the other participants, he felt that doing so was a worthwhile endeavor. Dwight compared the rewarding feeling to a popular movie:

> It's like Tom Hanks said in *A League of Their Own* when Gina Davis wants to quit. And she says, "I'm quitting." And he says, "Why?" And she said, "Because it's too hard." And he said, "You're damn right it's hard. It's the hard that makes it good . . . But when you look and you see the opportunity that you were] able to facilitate for those kids that they wouldn't normally have gotten, it's really, really rewarding. (Interview 2)

Kevin also supported providing modified materials to students and did not believe that doing so posed any difficulties. He explained:

> Until I come to something that's really gonna be difficult as far as what [his school has] that can't help them, I haven't found that yet. I mean, the challenge is just always, I don't know if it's a challenge or not,

> 'cause I just wanted . . . [to] do for whatever any of my kids need. (Interview 1)

In this way, Kevin believed that providing students with modified instruments and music did not have to be difficult. Regardless of their beliefs about the difficulty of providing modified instruments or notation to facilitate musical experiences for students with physical differences, all three participants believed that doing so was a worthwhile endeavor.

People Matter More Than Trophies

Finally, the participants' beliefs about competition scores and audition placements influenced their willingness to include students. They all generally believed that students' emotional well-being should come first when competing or determining ensemble placements. When describing teacher attitudes toward inclusion, Dwight observed, "you can have all the training in the world, but if you still believe that your competitive score is more important than anything else in the universe, you're not going to include those kids anyway" (Interview 1). Dwight's beliefs about marching band competitions and concert band festivals largely centered around not caring about scores and valuing people over trophies. Instead, Dwight's definition of success revolved around "kids having a good experience . . . [while] being open to everybody around them . . . [and] learning how to be good human beings through an art form" (Interview 2). Therefore, Dwight explained his hatred of the principle

> That a stupid plastic trophy is our measure of success, and so to that end, we can't have kids with physical differences in our marching ensembles because it's going to keep [teachers] from getting that plastic trophy. (Interview 2)

This belief freed him to encourage all students to participate in marching band, as Dwight' prioritization of people over trophies allowed him to remove students' musical or marching abilities as criteria for enrollment. To foster inclusion, Dwight explained that he sometimes "fudg[ed] things when things need to be fudged" for students both with and without physical differences when determining which students would be in symphonic band, his top concert band (Interview 1). Although he held auditions each year, if two students had similar scores, he sometimes gave priority to seniors who have worked hard and been heavily involved in the music program over their high school career, rather than solely using scores to determine ensemble placements.

Eliza took somewhat of a different approach, seeking to make ensemble placements almost entirely based on musical ability. She clearly valued receiving high scores at competitions and adjudications. However, she did not believe that including students with physical differences negatively impacted the group's scores, perhaps because she sought to place all students, including those with SEN "in an environment that they can find success and grow as musicians" (Interview 2). In this way, Eliza put people first by placing students in the group where they would experience the most success, rather than letting other factors influence this decision or setting students up to experience unnecessary stress by placing them in a group that was too advanced. She did explain that she sometimes included a note in the judge's score to make them aware of SEN in the ensemble, specifically those accompanied by paraprofessionals.

Like Dwight, Eliza and Kevin approached ensemble placements by valuing student self-efficacy over rigidly adhering to procedures. Though Eliza based her ensemble placements almost entirely on musical ability demonstrated in a yearly audition, she gave some students simplified or alternative music to prepare if the original part was significantly too difficult. Similarly, Kevin indicated that he would be willing to simplify parts in jazz band, his only auditioned ensemble, for students with physical differences who were generally met the audition standard but could not quite handle the complexity of a part, especially at faster tempos. By making these accommodations, all three teachers ensured that all students had opportunities to participate in an ensemble that provided them with an appropriate amount of challenge.

Research Question Three

Research question three investigated the perceived benefits of including students with physical differences. Eliza, Dwight, and Kevin identified multiple benefits of inclusion for both students with and without physical differences. Eliza believed that inclusion benefited all students, but asserted that different benefits existed for all students, especially for those with more severe exceptionalities. Three themes emerged, including: (a) social-emotional and psychological benefits for students with SEN, (b) brain and neurological development for students with SEN, and (c) non-disabled students learning how to work with and “talk about” individuals with physical differences (Dwight, Interview 1). See Figure 4 for a visual summary of these themes.

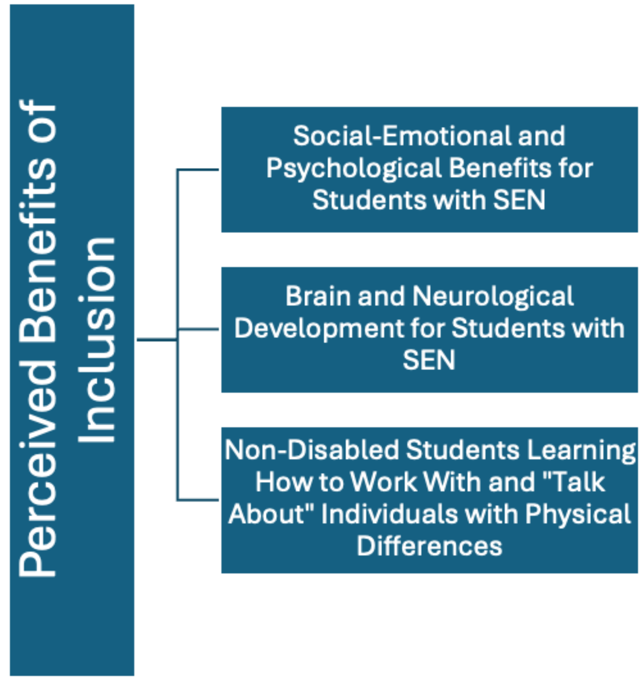

Figure 4 Research Question 3 Themes

Social-Emotional and Psychological Benefits For Students with SEN

Each of the three participants perceived numerous social-emotional and psychological benefits for students with physical differences as a result of their inclusion in secondary instrumental ensembles. Participation in secondary musical ensembles offered many students with physical differences an opportunity to be included with their non-disabled peers; participants perceived that social inclusion subsequently provided many social-emotional and psychological benefits. Eliza mused about the benefits of inclusion:

> Definitely just the community and culture they're able to be a part of is important. Sometimes if they're in kind of pull-out classes that are just specific to students with special needs, it's important that they're in typical [classes too], get[ting] that inclusion at some point throughout their day. (Interview 1)

Participants also perceived that inclusion provided opportunities for social-emotional growth and student development of social skills. Dwight described how these benefits were particularly significant for a student with minimal verbal skills, limited fine motor control, and contractures who participated in the color guard. He recounted how this student's mom approached him, sobbing, at graduation because her daughter's color guard friends "[were] the only reason she got up every morning" to go to school (Interview 1). In addition to interacting with her fellow guard-mates during rehearsals, Dwight recalled how the other color guard students also invited her to go to the movies or get ice cream with them, which Dwight said helped the student to feel "normal" (Interview 1). Dwight also noted that his student with an atypical left hand benefited more socially than musically from participating in the beginning steel pan class. Eliza identified similar opportunities for the social inclusion of students with physical differences in her marching band, saying that "they definitely were just right in the thick of it as part of the clan, which I think is great" (Interview 1). Specifically, Eliza's students participated in section dinners and social activities with both the full band and in smaller groups led by their squad leader or section leader. Eliza also believed that marching band provided students with physical differences "a community that [students] don't really get in any other activity" (Interview 2). Similarly, when discussing inclusion in marching band, Dwight has observed that "for some kids, it's their only community," which is why "I'm not going to keep a kid out who really wants to do it" (Interview 1). Kevin witnessed similar positive social benefits for his students with physical differences. When discussing a percussionist with atypical muscle tone, Kevin described how his jazz band classmates feel upset when jazz band rehearses first period and his bus gets him to school late. Kevin also mentioned how the clarinetist with partial paralysis talks to all of the girls in the clarinet section.

In addition to social-emotional growth, the participants noted the psychological growth that inclusion can offer. To that end, Eliza believed that marching band provided unique psychological benefits as it gave students with physical differences the opportunity to give back to the community by participating in parades and other community events, as well as playing at football games. Furthermore, Eliza noted that music class provides opportunities for collaboration that are not necessarily present in other classes, making inclusion in music class uniquely beneficial.

The participants also agreed that participating in inclusive music ensembles provided opportunities for students with physical differences to feel successful, which the three participants believed contributed positively to the psychological state of students with physical differences. Kevin and Dwight both talked about the importance of students with physical differences believing that they “can do anything . . . no matter what the circumstance is” (Kevin, Interview 2). Kevin declared that participating in ensembles allowed students with physical differences to learn that “there's no stopping you to do something that you want to do if you have that desire to do it” (Interview 1). However, the participants also detailed several instances in which students with physical disabilities excelled in their classes. For example, Kevin referenced his student with atypical muscle tone, and explained how “he walks with a lazy leg, but then when he plays behind a drum set, you wouldn't think it. It's just like something else takes over for [him]” (Interview 2). He also recalled how this same student won an award for his performance on the drum set at a jazz festival last year as a sixth-grade student (Observation, November 3, 2023). Kevin and Dwight also described students who did not read music, but had excellent aural skills, and could play any rhythm pattern after hearing it once.

The participants also elaborated on another benefit of inclusion they perceived—allowing students with physical differences to feel “normal.” When discussing the impact of inclusion on students with physical differences Dwight mused, “it’s hard to feel like you’re normal when you’re consistently placed in other areas that are separated from ‘normal kids’” (Interview 2). He praised band as an example of a place where students can be included, feel normal and “be told that they’re normal” (Interview 2). Kevin also explained how some students could feel “normal” in music class because music “click[ed] with them” (Interview 2) and that they “almost . . . didn’t have that disability” when they were in band” (Interview 1). Similarly, social inclusion seemed to impact students’ academic performance in both music and other classes. Dwight observed that when students were socially included, they were no longer afraid of being made fun of for needing accommodations. As a result, students would self-advocate for the adaptations that they needed and use the adaptations which were being offered.

Brain and Neurological Development for Students with SEN

Eliza, Dwight, and Kevin also perceived benefits to students with physical differences when participating in instrumental music in terms of their brain and neurological development. When asked about the benefits of participating in music, all three participants declared that they believed that music had a positive impact on students’ overall neurological development. Eliza began by stating that “music in general with anybody that has physical or cognitive disabilities is just . . . important for their development, I think” (Interview 1). Kevin and Dwight immediately mentioned that researchers have investigated the effects of music on the brain. In particular, Dwight referenced specific "research done on [the] positive effects of neural pathways with art and music specifically" (Interview 2). Eliza did not discuss any previous research but expressed similar beliefs to Kevin and Dwight about the benefits of music on the brain, positing that music "does good things for [the] brain" (Interview 1) because music "just works so many different parts of [the] brain" (Interview 2). Eliza also stated that music can positively impact students' overall physical development. As she discussed the impact of music on the brain, Eliza mentioned the gross motor functions activities that frequently occur within music class, such as keeping the beat or moving to music, that help with coordination. Eliza described:

> [Music benefits students'] physical attributes . . . marching in time or the moving to music or whatever it may be, coordination of various parts of [their bodies]. I think all of those things can definitely be [a] big, big positive in their development as humans" (Interview 1).

Furthermore, Eliza proclaimed that the impact of music on the brain has positive implications for all students' overall development, but especially for the development of students with SEN. Notably, none of the three participants had a background in brain research or music therapy and were only speaking about their own experiences and perceptions. The differences between music therapy and music education are discussed in Chapter 5.

Non-Disabled Students Learning to Work With and "Talk About" Students with Physical Differences

Finally, the three participants perceived that their non-disabled students benefited from the inclusion of students with physical differences in instrumental music ensembles. All three participants surmised that their non-disabled students were happy to have their peers with physical differences included in their instrumental music classes. Dwight perceived that "arts kids, by and large, are the more accepting kids of the school because we're always the island of misfit toys" (Interview 2).

The three participants also each addressed specific benefits of inclusion for non-disabled students. First, Kevin believed that non-disabled students benefitted socially from building relationships with students with physical differences. Kevin claimed:

> I feel with my heart there's just this positive, beautiful thing happening toward these kids. I don't even know if the kids are even thinking about how they're treating the [students with] special needs . . . [because] they just naturally act with such a kindness and friendship way. (Interview 2)

Kevin specifically mentioned his students' friendships with a percussionist with physical differences, and how they were able to see "his unconditional love towards anyone" (Interview 1).

Second, all three participants discussed how inclusion allowed their non-disabled students to positively interact with students with physical differences. By providing opportunities for these interactions, Dwight remarked:

> Sometimes for the kids, it opens their eyes to the world that this is a thing and . . . obviously you're not going to use it in a form of mockery or anything like that, but it's also just a thing that we have to talk about, that there are cognitive deficiencies, and there are physical handicaps, and there are neurodivergent kids, and there all of these things, and it's just a *thing*. (Interview 1)

Eliza had similar beliefs, and stated that "[for] typical students, it's important for them to learn how to cooperatively engage with people that are different than them" (Interview 1). She went on to explain that by doing so, non-disabled students learned that students with physical differences are “just like everybody else” (Interview 1). Additionally, she posited that the non-disabled students in her ensembles did in fact learn “how to work collaboratively with people that are different than themselves” (Interview 2). Similarly, Kevin expressed that “it’s neat to see their hearts open up . . . as far as the inclusion” as the non-disabled students become accustomed to performing alongside students with physical differences (Interview 1).

The participants believed that inclusion in school allowed students to learn dispositions required to grow into kind and accepting adults. For example, Eliza defined being a good person as being able to interact kindly toward everyone, including those people with special needs. Therefore, she discussed the importance of students while in school “[learning] how to talk to and speak of those students [with physical differences] without being vulgar or rude.” By gaining an increased awareness of individuals with SEN, participants felt that students gained an understanding of how to work with people who are different than them. For example, one of Dwight’s neurotypical students had played in his steel pan ensemble at the same time as a student with autism. After high school graduation, the neurotypical student not only went on to take a class on neurodivergence in college, but also interviewed his friend with autism and his friend’s parents for that class. In this way, including students with SEN in secondary instrumental ensembles possibly has a lasting impact on the mindsets of non-disabled students.

Research Question Four

Research question four examined the barriers the participants believed could limit students with physical differences from participating in instrumental music. Notably, Kevin generally did not identify any barriers to inclusion on the teacher’s end, at least in his current position. However, he did believe that students with physical differences may possess attitudes which prevent them from trying to participate and be included, and so from his perspective, “the barrier . . . would be getting the kids to understand that they can try . . . Sometimes the mental barrier or the courage barrier of [being] willing to try and being able to fail and try again to succeed, it’s probably the hardest one” (Interview 2). Eliza and Dwight identified several barriers that prevented teachers from including students with physical differences in instrumental music. Three themes emerged from our discussions: (a) knowledge barriers, (b) scheduling barriers, and (c) transportation barriers. See Figure 5 for a visual summary of these themes.

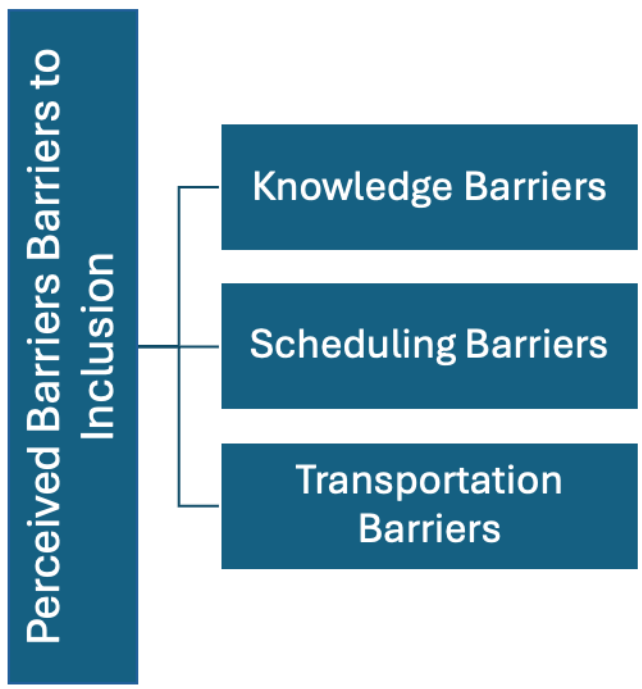

Figure 5 Research Question 4 Themes

Knowledge Barriers

Lack of knowledge represented a barrier which may prohibit teachers from including students with physical differences. The three participants in this study all stated that they believed that a lack of music-specific professional development (PD) or collegiate coursework could prove prohibitive for some teachers, even if they desire to include students. However, all three participants stated that they had not personally experienced this barrier and were able to successfully include students with physical disabilities in their classes. When considering other teachers' desires for inclusion, Eliza posited:

> A lot of the time . . . if [teachers] have [students with physical differences] in their classes . . . they're not sure what to do or what resources they have available to them. So I think that they might have that inside of them, but whether they know how to utilize it or not, I think is the biggest challenge for teachers. (Interview 2)

Eliza, Dwight, and Kevin all reported that they never received significant training in working with individuals with SEN. However, they all acknowledged the value that would have come from receiving training as undergraduate students and spoke passionately about the lack of applicable coursework offered to them during their teacher preparation programs. Eliza took one class related to teaching students with SEN in graduate school because she sought it out, and Dwight recalled an elementary methods course where the professor spontaneously required the pre-service teachers to create accommodations for students with SEN during peer teaching activities. Although Dwight says that these exercises primarily allowed him to practice including students with language needs and occasionally "small physical differences," the exercise helped him to think on his feet, a skill which he posited helps him to include students with physical differences as an in-service teacher (Interview 1). Notably, these aforementioned instances were the only two relevant educational experiences related to working with students with SEN that the three participants could recall.

The three participants referenced the lack of music-specific Professional Development (PD) related to students with SEN as an additional barrier. Kevin and Dwight both expressed that more PD related to students with SEN would be helpful but did not know what specific trainings might be beneficial. In addition to seeking out sessions about including students at state music conferences, Kevin has asked his district's performing arts supervisor to provide more PD on including students with SEN. In Eliza's district, she is the one who provides PD sessions on inclusive music education.

The participants had different views about addressing the lack of knowledge related to SEN in music classes. Eliza, whose district rarely offers music-specific PD, felt that PD separated by content area would be beneficial. Conversely, Dwight, whose PD days are organized and separated by content areas, felt that PD as a whole school would be more helpful in addressing the gaps in knowledge related to teaching students with SEN. Dwight thought it would be particularly beneficial for special education teachers to partake in PD alongside classroom teachers, including music teachers.

In summation, all three participants cited the lack of training related to including students with SEN—especially in their undergraduate coursework—as problematic. However, these three participants overcame this lack of training, perhaps because of their experiences with family members with disabilities, and because of available resources (e.g., parents who are special education teachers). Nevertheless, the participants collectively believed that "just learning . . . talking through all the . . .

large variety of physical disabilities that one might encounter as a teacher" would help to alleviate this barrier for other teachers (Eliza, Interview 1).

Scheduling Barriers

Participants identified scheduling as a potential organizational barrier to their ability to include students with physical differences. Different school schedules offered the participants different degrees of flexibility when accommodating students in ensemble classes. Pull-out lessons also influenced the degree to which the teachers could provide individual instruction, which is helpful for students with SEN. For instance, Eliza and Dwight explained how the type of school schedule and layout of courses could be preventing students with physical differences from participating in their curricular instrumental music ensembles. As Eliza concisely summarized, "there's always the scheduling aspect of it in terms of does it fit into their schedule?" (Interview 2). All three participants described the difficulties of fitting instrumental music into students' schedules; they found this to be especially true for students who had alternate graduation requirements or who had to take a lot of courses that the school only ran one section of. Dwight explained that in his school, administrators usually "[took] the path of least resistance" when it came to scheduling (Interview 2). He explained how his administrators viewed scheduling:

> So, the easiest solution is if [they] look at [the] traditional band orchestra choir kids, right? They're all real high achieving. So it is the least amount of overlap because [music teachers] don't have a lot of low-achieving kids in those groups. So it's easy to say 'well, that's the one that we're going to overlap.'" (Interview 2)

Therefore, at Dwight's school, students with SEN, whose coursework is more focused on life skills rather than receiving a traditional diploma, have increased difficulties fitting instrumental music into their schedules. Dwight described a student with SEN who wants to join his beginning steel pan class. According to Dwight, "everybody's stoked and wants to try it . . . it's just a matter of whether they can shuffle enough stuff mid-year to get him in there" (Interview 2). Dwight specifically stated that block scheduling prevented students with physical differences at Spring Valley High from being included in instrumental music. Because students attend different classes on A and B days, Dwight stated that block scheduling "a hundred percent" makes it harder to include students due to the decreased schedule flexibility (Interview 2). When I observed the symphonic band, approximately 25% of the band left half-way through the period in order to attend another class.

In addition to block scheduling, Kevin acknowledged that traditional scheduling (i.e., periods one through seven straight through) could pose a barrier to participation because "they can't do band during this class period because they have to have this and that's the only time that it occurs" (Interview 2). However, he asserted that since his school switched to a rotating schedule, he has been able to overcome this barrier, allowing him to minimize conflicts with students who were pulled out to receive their related service minutes.

Lack of small group instruction represented an additional barrier to inclusion for students with physical differences. None of the three participants taught pull-out lessons as part of their contractual obligations, though Eliza did teach private lessons to some middle and high school students as an additional job requirement. Dwight strongly asserted that eliminating pull-out lessons from Spring Valley's schedule during No Child Left Behind had a "cataclysmic" effect on his band program overall (Interview 1), but especially on students with SEN. Dwight expressed that pull-out lessons represent the opportunity to provide individualized attention to students; without pull-out lessons, students with physical differences "don't get the individualized attention that [they] need" (Interview 2). When asked about pull-out lessons, Eliza similarly declared:

> We're able to do pull-out lessons or small sectionals on a pretty regular basis at both buildings, and that makes a humongous difference . . . But students with any kind of exceptionality . . . Having that one-on-one time is imperative to their success in a lot of ways . . . really getting to dig into what works them . . . and how we can best help them in the ensemble as well. (Interview 2)

Despite not having pull-out lessons, the three teachers found ways to work with students in small groups or individually to provide them with the help they needed. Eliza frequently ran sectionals for different instrument groups during full ensemble time. Made possible because of the co-teaching model and because her booster programs paid for additional teachers in the area to come in every week, Eliza felt that these opportunities improved her students' comfort level and feelings of "competence" on their instrument (Interview 2). Kevin also recognized the benefits of individual instruction, which he capitalized on through his peer buddy program. Based on the rehearsals I observed from all three participants, Kevin also spent the most time rehearsing with individual instrument sections in his grade level bands and auditioned jazz band to correct difficult technical sections, because he did not have the opportunity to do so in pull-out lessons. Kevin also took about 25 minutes of each beginning band class completing individual student playing exams and giving each student live feedback. Although the participants found ways to overcome many of the barriers presented by their schools' schedules, each scheduling approach posed different barriers to including students with SEN.

Lastly, Dwight identified time and scheduling as closely intertwined. He observed that having a lack of time to work individually with students inside or outside of ensembles represents a barrier for all students. Since his school no longer has pull-out lessons and Dwight does not have the time to provide students with physical differences with individualized attention in his ensembles, Dwight has had to modify the repertoire he has programmed. Specifically, because he did not have time to teach the technique to play the "big classic band literature," he felt that he needed to select simpler repertoire for his ensembles (Interview 1).

Transportation Barriers

Eliza and Dwight both identified transportation as a potential barrier to inclusion for students with physical differences, specifically those who utilize wheelchairs for their mobility. For instance, when travelling to concert band festivals with her student who used a wheelchair, Eliza needed "to put in a special request for a bus . . . with a lift" (Interview 1). Dwight also identified wheelchair-accessible transportation as a potential barrier, especially "when you're renting a coach bus to go somewhere because you can't take school buses" (Interview 1). In Dwight's experience, although some school buses have elevator lifts, "coach buses don't have ADA compliant entrances" (Interview 1). Therefore, Dwight posited that finding a way to transport all students without singling out the student with physical differences presented a barrier to inclusion. Kevin's school district always successfully provided ADA compliant buses, and so transportation "never . . . stopped someone from being able to go" (Interview 2). Though Kevin recognized that transportation needs could represent a potential barrier, he did not believe that transportation represented a barrier to inclusion at his current teaching position.

Eliza also explained that parents’ transportation situation could prevent students with physical differences from participating in extra-curricular or co-curricular musical activities. In her experience, some students who utilize a wheelchair are only able to get to and from school on the school bus, as their parents do not have a vehicle that can accommodate a wheelchair. Therefore, she recognized that after school activities, such as marching band, could present additional barriers to participation for some students, unless alternate transportation could be arranged.

Summary

Multiple themes emerged for each research question in this study. The participants included students with physical differences by embracing inclusive instructional approaches, modifying materials and spaces, prioritizing and planning ahead, and collaborating with and receiving support from others. The participants desired to include students with physical differences because they believed that every student deserves to participate in music, inclusion has an overall positive impact, adaptations are necessary and important, and people matter more than trophies. Furthermore, the participants cited the following benefits of inclusion: (a) social-emotional and psychological benefits for students with SEN, (b) brain and neurological development for students with SEN, and (c) non-disabled students learning how to work with and “talk about” individuals with physical differences (Dwight, Interview 1). Finally, knowledge, scheduling, and transportation barriers could prevent students with physical differences from being included in secondary instrumental ensembles. These findings will be compared to extant literature in chapter 5. The implications of these themes will also be discussed.

Chapter 5

DISCUSSION AND IMPLICATIONS

The three participants in this study purposefully included students with physical differences in their instrumental programs. The findings discussed in Chapter 4, including teacher attitudes, inclusion strategies, and more, support extant research and literature. While these findings point toward a more equitable future for SEN, systemic barriers to inclusion still persist, and many questions remain about how teachers can more fully embrace the tenets of the social model when including students with physical differences in their classes. The transformative paradigm and conceptual lens—the social model of disability—shaped my analysis, interpretation, and discussion of the data. My paradigm and lens also influenced this study's implications and suggestions for future research. For instance, in this chapter, I not only discuss what the participants considered as best practices for inclusion, but I also hope to provide enough suggestions for practicing teachers and pre-service teachers to encourage them to willingly seek out the necessary adaptations to include more students with SEN. If teachers remove socially-constructed barriers, then they might adopt strategies and inclusive mindsets similar to the participants in this study. In this chapter, I discuss the findings in more detail, organized by the four research questions and contextualized by extant research. Subsequently, I present implications and suggestions for future research.

Including Students with Physical Differences

All participants in this study had experience including students with physical differences in their instrumental ensembles. Notably, students with physical differences participated in the participants' secondary instrumental music ensembles more frequently than the teachers initially realized. During the initial participant selection process, only one of the three participants (Kevin) stated that he currently taught students with physical differences, though all remembered having taught students with physical differences in the past. Over time, Dwight and Eliza realized that they also currently taught students with physical differences in their instrumental ensembles. In total, the three participants described 15 students with physical differences who had participated in their instrumental music programs.

Though all students with physical differences contributed to the participants' music classes, adolescents with the same diagnosis did not necessarily participate in the same way. Participants acknowledged that labels and diagnoses provided necessary but limited information about each child, which aligns with previous beliefs about labels (Jellison, 2015) and participation (Wilson, 2022). By getting to know each child and their strengths and needs as individuals, the participants learned how to best individualize modifications and accommodations. For example, students with the same diagnosis used notation in different ways, had different ambulation needs, and utilized different instrument modifications. The three participants' approach to successfully including students with the same diagnoses suggests that a variety of approaches to adaptations can be appropriate, and that there is no one best approach when teaching students with physical differences. Rather embracing inclusive instructional approaches, modifying materials and spaces, prioritizing and planning ahead, and collaborating with and receiving support from others helps teachers to successfully include students with physical differences.

Eliza, Dwight, and Kevin utilized multiple approaches to help them include students with physical differences. Participants emphasized prioritizing and planning ahead as one such strategy that helped them to find ways for all students to participate. Prioritizing students' individual needs to ensure their success also facilitated the participants' ability to modify materials and spaces, find ways for all students to participate, differentiate instruction, and collaborate and receive support from others. In some ways, planning ahead conflicts with the participants' willingness to engage in "trial and error" (Dwight, Interview 2) and "figure it out" as they went (Eliza, Interview 1). In many instances, the three teachers were generally aware of the need to create modified instruments/ notation sufficiently far in advance, and thus, the strategies of planning ahead and engaging in trial and error co-existed, as the participants completed the process of trial and error prior to the start of the school year. Planning ahead while remaining flexible is a strategy found in the literature; for instance, Thornton and Culp (2020) described how a teacher, Rob, taught one of his students to play other instruments "while they waited for the next version of his trumpet" (p. 6). Ideally, teachers can experiment with different possible adaptations prior to the student arriving in their class. However, this may not always be possible. As of the completion of data collection, Dwight had not yet been unable to create the modified steel pan mallet shafts for his student with finger differences and a small left hand. Dwight had learned about this student's physicality after the start of the school year, and Dwight stated that the student's attendance record had prevented him from working on this potential instrument modification. Ultimately, the participants in this study prioritized including students with physical differences above everything else, and so they were willing to be flexible and find ways to include students, regardless of the timetable. In this way, these participants adopted an attitude of vulnerability and perseverance, similar to the recommendations of Thornton and Culp (2020).

In addition to planning ahead, the participants explored ways for all students to participate; for instance, the teachers modified materials, pursued professional development opportunities related to learning about students with SEN, and implemented peer support programs. However, accepting individual students and their needs sometimes required compromises and difficult choices about participation. For instance, although the three participants enthusiastically included students with physical differences, the students did not always participate in every activity. Participating in some activities but not others emerged as most prominent in marching band; parades proved particularly troublesome for students with mobility concerns. The teachers in this study expressed that best practices for inclusion sometimes meant that not all students with physical differences participated all of the time. However, the teachers reported that students and their parents readily accepted these compromises, namely because of the teachers' concerted efforts to build relationships with the families. According to the participants, the parents of students with physical differences seemed to understand that the teacher genuinely desired to include their child, and therefore supported the teacher's choices. Although students with physical differences were excluded from certain elements of participation, the participants believed that allowing the students to engage in a limited capacity still allowed them to experience the positive benefits of inclusion, which is a goal of the social model.

To best include students as much as possible, participants in this study prioritized providing their students with modified materials, including modified instruments and notation. The participants also worked with band parents and community members to create modified instruments when necessary. This finding supports extant research pertaining to collaborating with community members to provide students with modified materials. For instance, Thornton and Culp (2020) described how the teacher participant in their study, Rob, dedicated time to researching assistive devices and reaching out to community members for additional support. As Rob and his students experimented with multiple modifications, the three student participants "described struggles . . . ranging from various iterations of apparatuses, broken models/ materials, or the time it took to locate or develop the necessary materials" (Thornton & Culp, 2020, p. 5). Making modifications and developing adaptations requires time and effort from multiple constituencies, which reinforces the importance of planning ahead when including students with physical differences.

Interestingly, the secondary music teachers in this study explained that they did not always need to dedicate much time to experimenting with modified materials, especially compared to their elementary music teacher colleagues. When including students with physical differences in high school concert bands, the participants reported that many of the adaptations their students needed had already been figured out by their previous directors. The participants did successfully create adaptations for students who began playing in concert band for the first time after elementary school, students who enrolled in secondary music electives like guitar or steel pan, and when students first joined marching band in high school.

By prioritizing modifying instruments and other materials, the participants' actions aligned with the social model of disability. The social model supports the use of modified instruments and notation within instrumental music classes to overcome environmental barriers. The use of modified instruments achieves three goals set forth by disability scholars: preventing social exclusion (Shakespeare, 2017), highlighting an individual's strengths rather than generating "a list of deficiencies" exhibited by the musician (Pickard, 2021, p. 110), and adapting the physical environment rather than trying to cure the individual (Siebers, 2008). By providing modifications for students, participants affirmed the students' needs while seeking to remove the societal barriers that result in disability.

Despite the teachers' dedication to providing modified instruments and sheet music, none of the three participants intentionally selected literature specifically to help include students with physical differences. Instead, all three participants chose literature for the whole ensemble and then made modifications. Dwight explained that he had never considered selecting literature for a specific student; instead, he focused on choosing literature that he could adapt to fit everyone's individual needs. In choosing literature that addressed all students' needs, the participants in this study fulfilled Sobol's (2017) assertion that literature should be chosen to help students with SEN feel competent and gain self-esteem.

Planning ahead and putting in time and effort also allowed the three participants to utilize collaborations to support their students with physical differences. Although collaborations have been discussed extensively in extant literature, the types of collaborations that teachers have utilized to successfully include students with physical differences lack consistency across sources. In this study, the participants collaborated with other music teachers, parents, special education staff, student peers, and their administrators.

Communication between previous and current directors helped the participants to quickly gain awareness of the adaptations which helped their students with physical differences to participate. Communication between middle school and high school music teachers proved especially beneficial in marching band, as the participants described how several students with physical differences required additional adaptations beyond those which had already been addressed in concert band. In this study, students whose physical differences impacted their mobility required marching band-specific adaptations (i.e., a paraprofessional to push a student's wheelchair, limited participation in drill or parades, an alternate route to the practice field, and wearing a different type of shoe than the rest of the band to get better grip). In this way, Eliza described the benefits of teaching her students in both junior and senior high, as it meant that she possessed the information required to include students in marching band in a timely fashion. Therefore, intentionally collaborating with other music teachers in this district represented an important type of collaboration.

Eliza's collaborations with her co-teacher, Nate, also proved salient to her ability to successfully accommodate students with physical differences in her classes. Co-teaching influenced Eliza's daily instructional practices, allowing her to provide individualized instruction and teach to her strengths. Eliza stated that this made her overall instruction more effective, especially when including students with physical differences. Lapka (2016) discussed the benefits of co-teaching in a text for practicing teachers, describing six approaches to co-teaching. The approach Lapka (2016) labeled as "one teach, one assist" best aligns with the co-teaching practices I observed in Eliza's classroom (p. 211). Although the term co-teaching is often used to describe a special education teacher working alongside a general education teacher, Lapka (2016) acknowledged that the second teacher could also be a music specialist, especially when co-teaching. Lapka believed that co-teaching allowed one teacher to assist a specific student, and that "co-teaching might be an important tool to include students" (2016, p. 211). Similarly, Maland (2012) shared how co-teaching improved feelings of self-efficacy in their students. Though two of the three participants who included students with physical differences in this study did not have a co-teacher, Eliza clearly valued her ability to collaborate with other musically-knowledgeable adults to accommodate students with physical differences.

In this study, parents not only encouraged their child's participation in music, but also designed modified instruments such as a snare drum basket, front ensemble rack, modified tenor mallet shafts, and a flute with key extensions. Other researchers have suggested collaborations with parents as a means of including students with physical differences (Jellison, 2015; Thorton & Culp, 2020). For instance, Jellison (2015) suggested that music teachers reach out to community members and school personnel to help design adaptive instruments for students. Similarly, Thornton and Culp (2020) noted the involvement of the high school robotics lab and a paraprofessional's husband, a biomechanical engineer, in creating adaptive instruments for an elementary band and orchestra program. Together, these studies suggest the impact of parental support on instrumental teachers' abilities to engage in beneficial collaborations.

Interestingly, none of the participants mentioned collaborating with students' occupational therapists, and only Kevin conversed with a student's physical therapist to discuss ways to best include students with physical differences. Furthermore, Kevin's collaboration was limited to one occasion in which the physical therapist contacted Kevin to discuss temporary instrument modifications following the student's surgery. Extant texts for teacher practitioners suggest that it may be beneficial to collaborate with students' occupational therapists when creating modified instruments to determine the appropriateness of the adaptation, especially when considering students' "grasp needs" (Adamek & Darrow, 2018, p. 109).

In addition to eliciting parental support, two of the three participants in this study utilized peer support in the classroom to include students with physical differences. Peer support in inclusive instrumental music classes has been inconsistently identified in extant literature. Although teachers in a study conducted by Scott et al. (2007) elicited support from student peers to help them include other children with SEN, Thornton and Culp (2020) did not mention peer support as a means for supporting the inclusion of students with physical differences. Hoffman (2011) found that 89% percent of participants deemed it "somewhat likely" or "very likely" that they would partner a student with SEN with a "regular education student" (p. 107). In a text for practicing teachers, Jellison (2015) discussed the academic and attitudinal benefits of Peer-Assisted Learning (PAL) throughout research, especially when teachers maintained considerable oversight and peer groups remained consistent. Based on this study, peer support could potentially benefit future teachers as they include students with physical differences in their instrumental programs.

While participants individualized instruction by leveraging collaborations and modifying materials and spaces, they also believed in treating students with physical differences like "anyone else" (Kevin, Interview 2). For instance, Kevin explained that he held all students to the same high standards and provided them each with adaptations as necessary to ensure their success. However, during an observation, I noted that Kevin discouraged typical students from participating if they did not try their best and practice at home. It seemed like Kevin accepted students with physical differences, some of whom did not perform at grade level, into his ensemble without hesitation. However, he sometimes balked when typical peers struggled to play at grade level, even though he did also simplify parts for typical students when necessary. Despite this misalignment between Kevin's spoken beliefs and practices, the participants' approaches to inclusion generally involved normalizing providing adaptations and accommodating each student's learning style, disability or not. As a result, the participants felt that the non-disabled students in their classes did not know that they were providing adaptations because of students' IEP or 504 needs. By not publicly emphasizing students' individualized needs in class, the teacher participants believed that they created an environment that allowed their students to socially integrate into their ensembles, which they hoped would thereby reduce the stigma associated with "attribute[s] that [make] a person different from others" (Goffman, 2017, p. 133). The idea of de-emphasizing students' individualized needs seemed to work for the participants in this study and aligns with the findings in Manning (2016), who observed similar instructional approaches when interviewing two music teachers who excelled at working with students with SEN. Manning (2016) also emphasized the importance of providing accommodations that benefit all students so that students with SEN did not feel singled out.

Despite wanting to treat students like everyone else, including and treating their students with physical differences equitably sometimes meant that the participants needed to adjust their performance expectations. Although this approach makes the interesting assumption that students with physical differences will not perform at a high musical level—which was not the case for all of the students the participants described—sometimes it may be necessary to accept that some students with physical differences might not be able to perform the same repertoire at the same level as the rest of the band. In some circumstances, muscle weakness, muscle tone, or range of motion may impact the complexity of the part that some students can play, even if they are cognitively typical. Ultimately, adjusting their expectations allowed participants to create a sense of "normalcy" for their students, which they believed was important (Dwight, Interview 2). The participants perceived that providing this sense of normalcy for their students with physical differences helped the students to believe that they "can do anything . . . no matter what the circumstance is" (Kevin, Interview 2). When including students, the participants in this study vehemently believed that all students should participate regardless of their musical ability. By honoring the students' physical differences, the teachers honored treating the students like individuals over treating them like everyone else. Though the participants explained how they adjusted their performance expectations for some students with physical differences, they notably also described several students with physical differences who played at or above grade levels and who were among the strongest players in their sections. For instance, one participant described a student with atypical muscle tone who won an award for his drum set solo. By providing appropriate adaptations, the teachers in this study desired to have students with physical differences perform at the same level as their peers, while accepting students who needed modified musical expectations.

Implications

Understanding how the participants in this study included students with physical differences could have important implications for other practicing teachers, not only in terms of strategies utilized within the classroom, but also in terms of teachers' ability to advocate for their programs. Pre-service and in-service teachers should feel reassured that they do not solely bear the responsibility for creating adaptations to allow for an inclusive music program; in many cases, parents and other professionals welcome collaborations. Similarly, band teachers should understand that like with typically developing learners, parents may influence whether students with physical differences decide to enroll and participate in instrumental music. Therefore, teachers should consider reaching out to parents to learn about their skills and willingness to support the instrumental music program at the school. By building relationships with parents and finding ways to specifically recruit and encourage the participation of students with physical differences, practicing teachers might increase the percentage of students with SEN who enroll in their secondary instrumental ensembles.

Second, the participants also described compromises that they made to allow students to participate as much as their physicality permitted. However, to more fully align with the social model, teachers could seek to remove additional barriers to allow for more complete participation. For example, teachers could shorten the length of the parade for all students, all students or some sections of students could ride on a float instead of marching, or the drill could be simplified for all students.

Third, the teachers discussed their desire to plan ahead when including students so that they can create and design adaptations as necessary. However, sometimes teachers do not become aware of students' physical differences until on or after the first day of school. In this case, teachers may have to implement temporary solutions, in order to ensure that the student with a physical difference is having a positive musical experience while they collaborate with others and work to find a more permanent solution. Therefore, teachers may need to be flexible, patient, and communicative when including students with physical differences.

Next, the participants described multiple beneficial collaborations in which they had engaged in order to include students with physical differences, including collaborating with students' previous music teachers. Recognizing the benefits of collaborating with students' previous music teachers emphasizes the importance of building relationships with the other teachers in one's feeder program. If the student has previously been enrolled in music class, secondary teachers can learn about adaptations to the notation or instrument that the student uses. Middle school teachers should also consider reaching out to high school teachers to help them to prepare to accommodate students who will be in their program in the upcoming school year. In some cases, it may also be beneficial for this information to be added to a student's IEP. Additionally, this study may also support the value of having two musically-knowledgeable adults to foster inclusion in ensemble classes. Though Dwight and Kevin included students with physical differences as the sole music teacher, Eliza credited much of her success including students to the co-teaching model in her classroom. Because all three participants acknowledged that paraprofessionals typically lack musical knowledge, a co-teaching model like the one at Eliza's schools could prove even more beneficial than paraprofessional support. The similarities between the participants' beliefs about working with other musically-knowledgeable adults and other previous studies (Lapka, 2016) indicate that the benefits of having multiple musically-knowledgeable adults is likely transferable to other schools and teachers. Pre-service teacher educator programs should consider educating their students about the value of co-teaching models for individualized instruction. In-service teachers should consider advocating for these models in their schools if they find that they struggle to include students with physical differences in their classes.

Additionally, teacher preparation programs should also help pre-service teachers to understand not only the need to engage in collaborations and provide modified materials, but also that they will need to dedicate time for these endeavors. Additionally, teacher preparation programs should prepare pre-service educators to advocate for this time when conversing with their administrators. Administrators should also understand the benefits of frequent communication and collaboration when including students with physical differences. In-service teachers should advocate for assistance in developing a school culture that supports collaboration and communication between departments.

Finally, when musing about successful inclusion, Eliza suggested that pre-service and in-service teachers should become familiar with as many diagnoses as possible. Practicing teachers should seek to openly share and provide suggestions about accommodations connected to specific needs/diagnoses. By creating a culture of sharing, teachers can learn from the successes and failures of others and improve their own practices of inclusion. Easily accessible resources, such as the NAfME Exceptionalities Special Research Interest Group (SRIG) website or articles like the one written by Culp and Jones (2023) may serve as good starting points for teachers to compile and reference recommended approaches. Teacher preparation programs should also help to raise awareness of the physical needs that accompany diagnoses which pre-service teachers may encounter in their future classrooms by discussing more examples of SEN in music-specific contexts.

Beliefs and Dispositions Which Motivated Inclusion

The participants' positive beliefs and dispositions toward inclusion resulted in multiple students with physical differences participating in their classes. Understanding the participants' beliefs and dispositions towards inclusion may help to explain why the participants included students as they did. In turn, understanding the participants' motivations may encourage other teachers to adopt similar beliefs. The beliefs and dispositions which emerged as themes under research question two aligned with previous research related to the inclusion of students with SEN.

First, the three participants unanimously believed that all students deserve the chance to participate in instrumental music. The participants acknowledged the challenges that accompanied inclusion but described inclusion as both necessary and rewarding. Even when participants' first attempts to include students with physical differences failed, they tried again. Other researchers have also cited multiple attempts as necessary as a teacher learns what adaptations will best allow a student to participate (Thornton & Culp, 2020). Therefore, including students seems to require teachers to possess positive attitudes and tenacity.

The participants reported that their willingness to provide modifications for their students allowed their students to succeed and to have a positive experience in instrumental music classes. The participants simplified parts and provided differentiated instruction to help any student who would benefit. This approach to differentiating parts also aligns with the principles of UDL, supported by many researchers and authors (Hammel & Hourigan, 2017; Pickard, 2021). For instance, Jones (2023) claimed that “music class is uniquely well-suited for differentiation” (p. 68). Similarly, Dorvé (2022) quoted a band director who wanted every student to play in his ensemble and stated that students are “all over the musical spectrum just anyway,” regardless of if they have a disability or not (p. 67). Similar to the three participants in this study, this band director prioritized inclusion over perfection.

The three participants in this study put people first during ensemble placements and competitions. The participants’ belief that people matter more than trophies directly influenced their actions when attending competitions or holding auditions. The participants perceived that these decisions therefore created a welcoming environment in which students with physical differences wanted to participate. Similarly, Dorvé (2022) cited one student’s marching band director, who had a similar “philosophy of putting humans first . . . [because] their value was not defined by their disability” (p. 96). Another one of the participants in Dorvé’s study, a college student with Duchenne Muscular Dystrophy, Evan, viewed auditions as ableist. Evan asserted that ensemble directors should be more accommodating of errors during the audition process that are due to the performer’s disability. Lamb and Abramo (2021) also described the ableist nature of auditions in a text for practicing teachers. The researchers specifically addressed how sight-reading posed a barrier to students with visual impairments. The acknowledgement of the exclusionary nature of typical auditions by both of these sources and the participants in this study aligns with the participants' decisions to put people first when making ensemble placement decisions. Adjusting their expectations for participation and performance is another way in which the participants’ beliefs aligned with the social models. Because the participants adjusted their expectations, students with physical differences were not excluded from instrumental music ensembles. This is significant because social exclusion and isolation is one of the psychological factors which results in an individual's impairment becoming a disability.

Finally, the three participants believed that inclusion had an overall positive impact on all parties. While some students required musical modifications and played different parts from the rest of the ensemble, the participants cared more about the social and neurological benefits of inclusion than the impact—positive or negative—of the students' playing on the ensemble's musical excellence. All three participants vehemently advocated for inclusion and felt inclusion to be very positive for all students. Despite this, Dwight—arguably the most passionate supporter of inclusion of the three participants—believed that while the overall impact of inclusion was positive, the musical impact of inclusion could at times be "neutral to negative" (Interview 2), as the participants taught students with and without physical differences at a wide variety of skill levels. The participants described some students who excelled with or without modifications, as well as students who were in band for social reasons or used "fake fingers" the entire marching band season (Dwight, Interview 1). Despite these acknowledgements, the participants' beliefs about inclusion—which in many cases were influenced by childhood experiences with family members and individuals with SEN—were such that in the instances when students' physicalities impacted their musical performance, the participants still wanted them to have the opportunity to play in instrumental music ensembles.

Implications

The similarities between the beliefs and dispositions identified in both this study and extant literature present important questions and implications for music educators. Some teachers dedicate a great deal of time and effort to include students with physical differences in secondary instrumental ensembles, such as by striving to locate or create adaptations, which often requires multiple attempts. Therefore, pre-service and in-service teachers should experiment with new approaches to inclusion without fearing failure, as teachers' adaptations may not succeed the first time.

The music programs in this study have highly regarded, and in some cases competitive, programs while also including students with physical differences. This implies that inclusion and musical excellence can, in many instances, occur simultaneously. Therefore, teachers of other secondary instrumental ensembles may reconsider their procedures for deciding ensemble placements. Reexamining ensemble entry requirements will allow in-service teachers to create an inclusive environment for all students, as musical excellence and inclusion can co-exist. The audition procedures described by participants in this study put students first, which suggests that teachers' attitudes significantly affect the way that students with physical differences are included in instrumental music ensembles. To some extent, teacher preparation programs, administrators, and professional music organizations can support this belief. Administrators should also encourage teachers to value inclusion and community in addition to musical excellence, and teacher preparation programs should introduce and encourage a mindset that values people *and* polished musical products. However, teachers may struggle to structure their ensembles in ways that allow them to simultaneously achieve both goals. Teachers might be able to balance their desire for both musical excellence and inclusion by grouping students in ability-based rather than grade-level bands. Greater understanding of the need for inclusion will also help teachers to propose changes and remove barriers from the audition processes for regional and All State ensembles. Furthermore, similar changes should be considered at the collegiate level.

Benefits of Inclusion

Eliza, Dwight, and Kevin's perceived benefits of inclusion closely align with past literature. The three participants believed that inclusion yielded positive benefits for students with and without disabilities. The participants' belief that inclusion benefits all learners aligns with previous findings from Scott et al. (2007) who reported that most teachers perceived inclusion as positive or highly positive for all students.

In this study, the three participants discussed the neurological and physical benefits of participating in instrumental music for students with physical differences. In particular, the participants stated that music helps to develop many aspects of students' brains. Music therapy research—a distinct field from music education research—supports the participants' assertions about how playing instruments can benefit the brains and bodies of students with physical differences. Musical activities encourage neurological changes through a process called neuroplasticity; through music-making, students can improve their coordination, sensory-motor networks, and emotional processes (Altenmüller & Schlaug, 2015). For more information about neuroplasticity, please see Appendix A.

The participants also described how they discussed how music-making supports gross motor activities, which they believed improved students' coordination. Music therapy research similarly supports how participating in music-making can benefit the physical development of students with SEN (Altenmüller & Schlaug, 2015; Deiner, 1999). Active musical activities such as learning to play an instrument require skilled movements and the integration of information from multiple modalities. In general, playing an instrument improves the rhythmic movement of the limbs and hand-eye coordination (Clark & Chadwick, 1980). Moving to music at different tempos or different rhythms can also assist students' sensorimotor integration (Deiner, 1999), which likely benefits all students. Furthermore, Grau-Sanchez et al. (2020) found that motivation and pleasure positively influence motor learning. Therefore, playing a musical instrument—a real world activity which participants often find enjoyable—could improve the development of physical skills (Grau-Sanchez et al., 2020). Within music education research, Maland (2012) described a student whose lung capacity reportedly improved by playing an instrument in band following his heart transplant. Researchers who embrace the social model assert that one does not need to cure an individual's disability or difference in order to remove barriers to participation. However, providing adaptations (e.g., instruments or notation) does not influence whether or not students experience the physical and neurological benefits of inclusion. Thus, teachers can simultaneously support the social model and look to music therapy research to determine the possible benefits of participation.

Eliza, Dwight, and Kevin also perceived that their students with physical differences experienced numerous social-emotional and psychological benefits when participating in instrumental music ensembles. In this study, the participants believed that marching band provided particularly significant social benefits. The participants' beliefs about the social benefits of inclusion similarly aligns with previous research and teacher-practitioner texts which assert that students with SEN who interact with their age- and grade-level peers in music classes experience social and emotional benefits (Draper, 2022; Hammel & Hourigan, 2017; Hillier et al., 2011; Maland, 2012; Jellison, 2015).

Finally, the participants in this study discussed how participating in instrumental music classes not only socially benefited students, but also provided them with opportunities for normalcy. Extant research has similarly addressed the importance of providing students with SEN opportunities to participate alongside of students without disabilities. For instance, Salvador (2015) described how the parents of one fourth grade student rejected an adaptive music curriculum in lieu of having their child play the recorder and “look like everyone else” (p. 170). The principle of normalization, which Adamek and Darrow (2018) defined as the idea that “individuals with disabilities should have experiences as close as possible to what is typical,” represents the foundation of the civil rights movement for people with disabilities (p. 71). Deviating from the norm can lead to negative stigmas (Coleman-Brown, 2017). In this way, encouraging students with physical differences to participate in a community like marching band could increase acceptance of a greater range of human physicalities and therefore help to reduce negative stigmas about individuals with physical differences. Therefore, the participants’ willingness to include students with physical differences and allow them to participate in whatever way is most appropriate for them substantially aligns with the social model by removing the barriers which many commonly-accepted band practices may present. Many individuals who face stigmas, such as those with physical differences, view passing as ‘normal’ as an important goal (Coleman-Brown, 2017). Eliza, Dwight, and Kevin also all discussed the importance of non-disabled students learning to interact with students with SEN, which can also help to alleviate negative stigmas.

Implications

This study revealed the possible importance of teachers believing in the value and necessity of inclusion. This importance may be particularly evident when discussing teachers' understanding of the social-emotional benefits of inclusion—which are particularly prevalent in marching band, where a strong sense of community is common—when deciding where and to what degree students will be included. In marching band, teachers' beliefs about competition and scores may also influence how teachers view inclusion, since many marching bands attend competitions on multiple weekends throughout the season. In this study, regardless of the participants' beliefs about competitions and scores, the participants in this study believed that inclusion had an overall positive impact on all ensemble members. Understanding and adopting this belief may help hesitant teachers to realize that inclusion will not adversely impact the educational experience of the non-disabled students in their classes.

The participants' descriptions of the neurological and motor benefits of instrumental music may also present several possible implications. First, music teachers who wish to informally provide neurological or physical benefits to their students can consider turning to music therapy research, as music therapy supports Eliza's, Dwight's, and Kevin's perceived benefits. However, since music teachers are not licensed music therapists, music educators should not be using music therapy to provide formal treatments or interventions and should consult with a licensed music therapist for more information. Although teachers must understand the difference between music therapy and music education, teacher preparation programs could expose pre-service teachers to the ways that music can benefit the brain. Second, instrumental music may support students' IEP goals, which would help teachers to advocate for inclusion within their programs. Finally, if music teachers can convince administrators and special education faculty of the benefits of inclusion in instrumental music, then music teachers might receive greater financial and material support to help them successfully include students. Additionally, helping pre-service and in-service teachers to understand that inclusion benefits all students could improve teachers' willingness to instruct inclusive ensembles.

Barriers to Inclusion

Many similarities and differences exist between the barriers identified in this study and in previously published research articles and texts for teacher-practitioners. The three barriers (i.e., knowledge, scheduling, and transportation barriers) identified by Eliza and Dwight align closely with barriers identified in previously existing literature. Adamek and Darrow (2018) described knowledge and organizational barriers in their text for practicing teachers. Several other barriers that were identified in previous research will be compared to Eliza's, Dwight's, and Kevin's experiences.

In this study, the participants identified lack of knowledge as a barrier, which they attributed to insufficient teacher training and/or professional development. Numerous researchers (e.g., Culp & Salvador. 2021; Grimsby, 2020; Hammel & Gerrity, 2012, Hoffman, 2011; Jones, 2023; Robinson, 2017; VanWeelden & Whipple, 2014) have similarly identified lack of knowledge about ways to include students with SEN due to limited education and training as barriers. Though the participants in this study successfully included students with physical differences, they also admitted that they had generally not received plentiful training in including students with SEN. Interestingly, these participants all had positive attitudes related to inclusion, despite citing inadequate training related to including SEN in their music classes. They explained that more professional development related to including students with SEN would benefit them. Other researchers have explored the importance of professional development and relevant coursework on teacher attitudes and have found that teacher attitudes toward inclusion can change over time. For example, one teacher interviewed about inclusion described how his beliefs about music education transformed after attending professional development sessions and gaining experience as a teacher (Thornton & Culp, 2020). He explained how over time, he began to "[value] student learning over performance" and view music as "an important subject for every student" (Thornton & Culp, 2020, p. 7). With appropriate preparation and support, all teachers may be capable of adopting similarly inclusive views in their own classrooms.

The participants also described ways in which organizational barriers prohibited the inclusion of students with physical differences. The schedule at Dwight's school prevented him from enrolling students in instrumental music since most ensembles and special education classes are each only offered once throughout the school day. Meier (2021) similarly described the barriers that arise when students with SEN, especially those with IEPs, wished to schedule elective courses. Therefore, Meier stated the importance of offering instrumental music classes which do not have prerequisites or require continuous enrollment.

Finally, the participants' access to and involvement with students' IEPs merits additional conversation. Two of the three participants in this study attended IEP meetings to support their students, and all three participants had some involvement in the IEP process. Additionally, all three participants had access to students' IEPs and believed that they received sufficient information to help them successfully include their students. Research indicates that not all teachers receive as much access to IEPs and IEP meetings as the participants in this study. For instance, Jones (2023) reported that 52.8% of teachers attended IEP meetings and that only 78.1% of Wisconsin-based music educators were involved with students' IEPs. VanWeelden and Whipple (2014) reported that 73% of music teachers surveyed nationally had limited involvement in the IEP process. Jones (2023) found that 69.1% of music teachers in Wisconsin were prohibited from or faced significant barriers to accessing students' IEPs. Similarly, Scott et al. (2007) reported that only 66% of band teachers from three regions of the United States received IEP information for the students in their classes. In this study, the participants' access to their students' IEP information may have helped them to overcome other potential barriers, especially their lack of training on how to include students with SEN.

Implications

Both the barriers that the participants described in this study and the way that teachers largely overcame them implies that teachers play an important role in determining the quality of the experience that students with physical differences have in instrumental music. First, the participants' desire to include students allowed them to overcome knowledge and organizational barriers. This signifies that adopting similar beliefs to the participants in this study may benefit other teachers who also face obstacles to including students with physical differences. However, seeking out additional training outside of standard teacher preparation programs may also be beneficial. For instance, in-service teachers should consider advocating for music- or SEN-specific professional development. Alternatively, in-service teachers could seek funding to attend music education conferences with sessions focused on educating students with SEN. Administrators can also support music teachers' desire to include students by allowing them to participate in fieldwork or observe other teachers off campus during school hours; assisting teachers in forming relevant collaborations, especially with companies or individuals not already associated with the school; and assisting teachers in securing grant funding to pay for adaptive technologies including instruments.

Furthermore, teacher preparation programs should provide pre-service educators with ample information about including students with SEN in music-specific contexts during their programs of study. In addition to enrolling in special education courses at universities, pre-service or in-service teachers could reach out to local schools that serve students with SEN and ask to shadow that school's music teacher. If teacher preparation programs could provide fieldwork experiences with students with SEN, pre-service teachers could potentially enter their first year of teaching feeling confident in their ability to create adaptations and provide meaningful musical experiences for students with SEN.

Next, by understanding the logistical barriers described in this study, administrators and teachers could help increase the enrollment and improve the experiences of students with physical differences in secondary instrumental ensembles. Before music-related ensemble travel, teachers should consider proactively reaching out to their administrators and transportation departments to coordinate solutions to transportation-related barriers. Solutions could include designing late bus routes with accessible buses or reserving school-owned wheelchair accessible vans for the band program on weekends that they travel to competitions or festivals. Similarly, the teacher participants' described how block scheduling, traditional scheduling, and removing pull-out lessons limited inclusion, but a rotating drop schedule could help to remove scheduling conflicts. Therefore, it is possible that a rotating drop schedule may allow teachers to balance scheduling elective courses and related services for students with physical differences. Other teachers can use this data in discussions with administrators when proposing schedule changes or in response to proposed schedule changes. Furthermore, middle and high schools should consider creating secondary music classes that do not have prerequisites or require continuous enrollment to allow for ample access.

Finally, the three participants participated closely in the IEP process and successfully included students with physical differences. This finding, combined with past research that also suggests the importance of IEP involvement, suggests that a correlation may exist between IEP access and successful inclusion (e.g., Grimsby, 2020, 2022). Music teachers who are unable to participate in the IEP process should advocate for policy changes. Teacher preparation programs should also ensure that pre-service teachers learn how to read and interpret IEPs within their content area. Ultimately, if teachers understand the potential barriers that may arise when including students with physical differences, then they can proactively take actions to remove those barriers before they impact the student's musical experience.

Suggestions for Future Research

Although this study provides a foundation for understanding how and why teachers include students with physical differences in secondary instrumental ensembles, more work is necessary to best support inclusive educational practices in the United States. For example, the prevalence of teachers needing to experiment with multiple iterations of devices to include students raises questions about how teachers might include students more easily. Dwight experimented with several types of guitar before determining that a baritone ukulele was the best choice for a student with muscle weakness in his guitar class. Therefore, this study necessitates additional research that adds to educators' depth of understanding. First, researchers should consider replicating this study with teachers of color, teachers and students in orchestra classes, and with teachers and students from other regions of the United States.

This study focused on the teachers' experiences with the intention of providing suggestions for other practicing teachers. If replicated, including student participants would also provide valuable insights. Next, researchers should consider studying teachers who do not include SEN, either because of external factors, because they believe they do not know how, or because they have barrier to access in their programs. Those findings would help generate suggestions for inclusion for both administrators and teacher preparation programs. In this study, all three participants believed in the importance of inclusion. Further research into how to increase other teachers' belief in and valuation of inclusion could provide beneficial, actionable insights for professional development for both pre-service and in-service teachers.

Next, despite the positive trends in this study, the enrollment of students with SEN continues to represent an area of interest into which more research is needed. Therefore, research into pertinent factors and teacher- or school-based strategies that lead to the involvement or lack of involvement of students with physical differences in instrumental music classes is needed. This knowledge would help future teachers learn how to increase the enrollment of students with physical differences in their classrooms.

Additionally, researchers should explore what constitutes the most successful inclusive practices. For instance, researchers should continue to explore the efficacy of utilizing peer support and/or co-teaching models to support students with SEN. Specifically, researchers should explore how peer support typically emerges. For instance, researchers could examine if most instances of peer support are formally established by the teacher, or if peer support naturally emerges within inclusive instrumental ensembles.

Finally, additional research into the impact of the school's culture on inclusion could yield evidence for practicing teachers to present to their administrators. Understanding the ways that the school culture supports inclusive educational opportunities could (a) impact the opportunities that students with physical differences have to participate in instrumental music (especially from a scheduling perspective), (b) prepare or not prepare non-disabled students to accept their peers with physical differences within their instrumental music ensembles, and (c) affect the materials and financial support provided by school administrators.

Conclusion

The attitudes possessed and actions taken by the three participants suggest that positive trends in inclusive music education may already be occurring. By systematically removing barriers, teachers and schools can provide equitable opportunities for all students that account for their physicality. In this study, teachers included their students in ways that removed societal barriers. Specifically, by providing modified instruments and music and allowing students with physical differences to participate alongside their non-disabled peers, the participants perceived that they reduced stigma and exclusionary practices while simultaneously benefitting all students socially and emotionally. As research and resources that provide suggestions and strategies for teachers become increasingly more available, including students will hopefully become easier. With continued effort, all music educators might eventually feel empowered to welcome every student into their secondary instrumental music classes.

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Appendix A

GLOSSARY

504 Plan: A legal document which lists accommodations for students who are ineligible for special education. Section 504 of the Rehabilitation Act of 1973 guarantees these rights (Crockett, 2017).

Accommodation: Adaptations that allow children to learn at the same level as other students in the classroom (Hammel & Hourigan, 2017).

Adaptations: Instructional tools and materials which are adjusted to children's individualized learning needs (Hammel & Hourigan, 2017).

Disability: A view taken by the medical model in which society imposes external social constructs on individuals with impairments (Knapp, 2022; Reddy, 2011), thus leading to social exclusion and isolation (Shakespeare, 2017). In contrast the social model "approaches disability as a social position or identity in society" (Lamb & Abramo, 2021, p. 36).

Duchenne Muscular Dystrophy (DMD): A progressive genetic disease caused by mutations in a protein called dystrophin, which leads to progressive muscle degeneration and weakness (Dorvé, 2022).

Every Student Succeeds Act (ESSA): The 2015 reauthorization of the *No Child Left Behind Act* which states that all students should receive a "well-rounded" education including a broad curriculum, rather than focusing solely on academic success in the areas of reading and math (NAfME, 2016).

Impairment: A description of one's physical body; bodily medical condition; or cognitive, emotional, or physical difference (Knapp, 2022; Reddy, 2011; Wendell, 2017).

Individualized Education Program (IEP): A legal document for students with SEN which is individually created for each student. Every IEP lists the child's current performance level and the current aids, services, and program modifications that they should receive (IDEA, 2004e). Teachers, administrators, and parents work together to determine which services would bring each student the greatest benefit (Jones, 2015).

Inclusion: An educational model in which students with SEN predominantly learn in the same classroom as their age- and grade-level peers (Adamek & Darrow, 2018; Darrow, 1999). Instruction is adjusted based on each student's ability level (Jones, 2015) so that all students can have their educational needs met in the general education classroom with support from the special education teacher (Adamek & Darrow, 2018).

Least Restrictive Environment (LRE): The setting where students can succeed with the fewest modifications (IDEA, 2004a).

Mainstreaming: An educational model that adds students with SEN to classrooms designed to educate non-disabled students (Jones, 2015) for part of the school day in order to provide social interactions with their same-age peers (Adamek & Darrow, 2018).

Medical Model: A common educational lens which can be used to discuss students with special needs. The medical model approaches disability from a deficit perspective, viewing disabilities as something which must be fixed (Lamb & Abramo, 2021; Parker & Draves, 2018).

Modifications: Adaptations that change the curricular goals to allow the child to succeed at the highest possible level (Hammel & Hourigan, 2017).

Neuroplasticity: Also known as brain plasticity, neuroplasticity is a process through which the brain undergoes structural and functional changes, especially in response to external or internal stimuli, or following injury (Puderbaugh & Emmady, 2022).

No Child Left Behind (NCLB): A law passed by Congress in 2001 and signed by President George W. Bush in January 2002 increasing the federal government's role in holding schools accountable for student outcomes in order to close the achievement gap by requiring yearly standardized tests in math and reading (Duignan & Nolen, 2023).

Orthopedic Impairment: A congenital anomaly, impairment caused by disease, or impairment resulting from other causes (e.g., cerebral palsy, amputations, fractures, or burns that cause contractures) that adversely affect a child's educational performance (IDEA, 2004c). Children with physical differences whose educational performance is negatively impacted by their diagnosis are considered to have orthopedic impairments under IDEA, and therefore qualify for services (Friend, 2011).

Physical Difference: The description of an individual's physicality and impairment that removes the social stigma typically associated with disability (Ellis, 2009; Koch, 2001)

Related Services: Transportation, school health and nurse services, parent counseling and training, and other supportive services are considered related services. Supportive services include speech-language pathology and audiology services, interpreting services, psychological services, physical and occupational therapy, orientation and mobility services, and medical services for diagnostic or evaluative purposes (IDEA, 2004f).

Social Model: A lens which frames disability as part of one's identity, stating that society creates the barriers to full inclusion for individuals with disabilities (Lamb & Abramo, 2021; Siebers, 2008).

Special Education: Specially designed instruction provided to meet the unique needs of a child with a disability to ensure that the content, methodology, and delivery of instruction allow the child to access the curriculum. These services are provided at no cost to the parents (IDEA, 2004g).

Special Education Paraprofessional: Special education paraprofessionals assist teachers by providing support to students as outlined in the student's IEP. Paraprofessionals may also be referred to as paras, parapros, paraeducators, aides, one-on-ones, or assistants (Michigan Alliance for Families, 2023).

Universal Design for Learning: Also referred to as UDL, this framework optimizes teaching and learning for all people by providing multiple means of engagement, representation, and action & expression (CAST, 2024).

Appendix B

SPECIFIC EXAMPLES OF INSTRUMENT MODIFICATIONS

Although teacher-practitioners recommend finding ways for students to participate in settings and with instruments that are as “normalized” as possible (Adamek & Darrow, 2018), researchers and teacher-practitioners also agree on the importance of allowing students to play instruments of their choice (Adamek & Darrow, 2018; Bell, 2014; Darrow, 2011; Thornton & Culp, 2020; Zdzinski, 2001). Therefore, teachers should decide what adaptations are appropriate for each student and consult the student and their family to determine what adaptations are acceptable to them. This appendix contains tables designed to provide suggestions of extant adaptations for practicing teachers of students with physical differences. Tables provide recommendations for companies that can provide modified instruments, as well as potential modifications for each instrument family and specific instruments. Traditional band and orchestra instruments are addressed, as are common general music instruments (e.g., guitar, ukulele, recorder). The first table specifically describes the instrument adaptations that the participants described in this study, and subsequent tables give an overview of other potential instrumental adaptations that were not necessarily used by students mentioned in this study, but could be considered by teacher-practitioners.

Table 4 Adaptations Shared in This Study

Modification name	Modification description	Who it benefits	Website/ Reference
Auxiliary percussion rack	Toms and cymbals were mounted at playing level to a rectangular metal frame.	Performers with limited range of motion.	Dwight, interview 2
Baritone ukulele	Baritone ukuleles have the same strings as the top four strings of a guitar, but a narrower neck than a classical guitar.	Performers with muscle weakness.	Dwight, interview 1
Color guard flag poles with enlarged grip diameter	Materials such as foam or tape can be put on a color guard flag pole to increase its diameter and make it easier to grip.	Performers with limited fine motor control or muscle weakness.	Dwight, interview 1
Extra-lightweight drumsticks	Drumsticks come in a variety of thicknesses and weights, although lighter drum sticks are often thinner. Maple 7A drum sticks are generally regarded as the lightest-weight option.	Performers with muscle weakness.	Kevin, interview 1
Flute with right-hand key extensions	A repair shop added metal key extensions to the right-hand keys.	Performers with a small right hand.	Eliza, interview 1
Playing trumpet left-handed	No adaptations were made to the trumpet.	Performers with any right-sided limb difference.	Eliza, interview 1
Snare drum basket	Band parents created a metal basket which attached a concert or marching snare drum directly to the student's power wheelchair. Different baskets were used for each drum due to the different dimensions.	Performers with limited range of motion.	Eliza, interview 2

Table 4 (continued)

Steel pan mallets with enlarged shaft	A woodworker band dad built new wooden shafts that were thicker.	Performers with an upper limb difference.	Dwight, interview 1
Using pencil instead of clarinet	The student fingered their parts on a pencil when recovering from surgery.	Performers with muscle or lung weakness.	Kevin, interview 1

Table 5 Currently Available Sources for Adaptive Instruments

Source name	Modification description	Who it benefits	Website/ Reference
University of Nebraska at Kearney One-Handed Woodwinds Program	Dr. David Nabb and Jeff Stelling designed one-handed saxophones using a patent-pending toggle key system.	Performers who have the use of one upper limb.	https://www.unk.edu/academics/music/unk-one-handed-winds-program.php
Flute Lab	Flute lab sells custom-made one-handed flutes and saxophones.	Performers who have the use of one upper limb.	https://www.flutelab.com/onehand/
Peter Worrell	Peter Worrell sells one-handed clarinets.	Performers who have the use of one upper limb.	http://www.peterworrell.co.uk/onehandedclarinet.htm
Amend Music Center	Amend Music Center will design adaptive mechanisms for any instrument.	Performers with any physical difference.	https://amendmusiccenter.com/assistive-technologies/
Ergo Brass	Ergo Brass sells pre-designed stands which support the weight of most brass and woodwind instruments.	Performers who need help supporting the weight of this instrument.	https://ergobrass.com
Take it away	Take it away is a UK-based initiative that has many prototypes in progress that will hopefully be available for sale in the coming years.	Performers with any physical difference.	https://takeitaway.org.uk/wp-content/uploads/2020/06/Guide-to-Buying-Adaptive-Musical-Instruments.pdf
OHMI	OHMI, a UK-based institution, hosts an annual competition to design more accessible woodwind, brass, string, and electronic instruments. Many designs can be viewed on their website; a few can be purchased and several more can be rented.	Performers with any physical difference.	https://www.ohmi.org.uk/instruments.html

Table 6 Recorders

Modification name	Modification description	Who it benefits	Website/ Reference
3-D printed one-handed recorder	Paul Yeomans designed a prototype in an effort to reduce the price of acquiring custom one-handed recorders.	Performers who have one functional upper limb.	https://takeitaway.org.uk/wp-content/uploads/2020/06/Guide-to-Buying-Adaptive-Musical-Instruments.pdf
Adaptive Aulos recorder	The Adaptive Aulos recorder comes in 8 pieces so that the hand position can be adjusted to accommodate different finger lengths so that the instrument can be played with six fingers. Adamek and Darrow (2018) recommend gluing the parts in place once the best orientation has been determined	Performers with physical differences related to the number or length of their fingers.	https://www.westmusic.com/recorders/recorder-instruments/400220
Nuvo Recorder+	The Nuvo Recorder+ uses a plateau system and larger tone holes to reduce squeaking, and the mouthpiece makes it easier to control the sound.	Performers who have difficulty regulating the amount of breath support needed or who have limitations in grip strength or fine motor dexterity.	https://www.nuvoinstrumental.com/products/recorder/
One-handed recorders	Peter Worrell and Aafab both sell custom-made, one-handed recorders.	Performers who have one functional upper limb.	http://www.peterworrell.co.uk/onehandedrecorder.htm https://www.aafab.nl/winkelen.php
Recorder neck strap	Recorder neck straps help support the weight of the recorder.	Performers with limited grip strength.	https://www.musick8.com/store/alphadetail.php?product_group=1700
Recorders for all triple play	This 3D-printed attachment works with a standard Yamaha recorder and allows one finger to operate multiple keys so that all notes can be played with six fingers while still reading a standard fingering chart.	Performers with limb differences resulting in at least six fingers.	https://makers4good.com/pages/recorders-for-all

Table 7 General Woodwind Suggestions

Modification name	Modification description	Who it benefits	Website/ Reference
Claritie	This sling-like device supports the weight of woodwind instruments like the clarinet and oboe.	Performers with muscle pain or weakness.	See Culp & Jones, 2023 https://www.reeds-direct.co.uk/daniel-s-claritie-clarinet-support-that-takes-all-the-weight-off-the-thumb-aclarinetsupport.html
Kooiman Etude 3 thumb rest	The Kooiman Etude 3 is an adaptable, ergonomic thumb rest that distributes the weight more evenly over the thumb and allows for a more natural thumb position.	Performers with muscle weakness, arthritis, or joint pain that inhibits their ability to support the weight of the instrument.	https://www.meridianwinds.com/shop/c/p/Ton-Kooiman-Etude-3-Thumb-Rest-x38304643.htm
Neck strap and thumb rest adapter	Neck straps help to support the weight of the instrument. Elastic neck straps are more flexible and therefore generally viewed as superior. Leather adapters offer an alternative point of attachment if there is no loop on the instrument’s thumb rest.	Performers with muscle weakness, arthritis, or joint pain that inhibits their ability to support the weight of the instrument.	https://www.forrestsmusic.com/oboe_straps.htm https://www.alamomusic.com/bg-clarinet-nylon-elastic-neck-strap/
Popsicle stick key extenders	Popsicle sticks can be glued to the pearls of the saxophone to allow performers with small hands to depress the keys.	Performers with small hands or limited finger spread.	See Culp & Jones, 2023
Telescoping end peg	Telescoping pegs attach to the thumb rest and sit on the chair to support the weight of the instrument. Ring adapters can be purchased separately if necessary.	Performers with muscle weakness, arthritis, or joint pain that inhibits their ability to support the weight of the instrument.	https://rdgwoodwinds.com/products/kickstand-bhob-instrument-support https://rdgwoodwinds.com/products/kickstand-bhob-ring-adapter-for-clarinet?_pos=1&_sid=dc564e126&_ss=r https://rdgwoodwinds.com/products/kickstand-bhob-ring-adapter-for-oboe-eh?_pos=2&_sid=dc564e126&_ss=r

Table 8 Clarinets

Modification name	Modification description	Who it benefits	Website References
Musik Foag	Musik Foag will custom-make any of their clarinets with alternative keys to accommodate a player's needs.	Performers with upper limb differences, especially those with missing or short digits on the right or left hand.	https://musik-foag.de/
Nuvo clarinet (Key of C)	Nuvo instruments are plastic, lighter-weight, and easier to produce a sound on than their traditional counterparts.	Performers with muscle weakness, arthritis, or joint pain that inhibits their ability to support the weight of the instrument.	https://www.nuvoinstrumental.com/products/clarineo/
Plateau Clarinet	Plateau clarinets use a closed-hole system (like a saxophone) instead of the traditional open-holed arrangement. Traditional open-holed clarinets can be modified to use a plateau system, or they can be bought directly from a vendor.	Performers who struggle to fully cover the holes of a traditional, open-holed clarinet because of hand size, limitations in grip strength or fine motor dexterity, or arthritis.	https://www.clarinet.dk/content/show_content.php?id=101&cont=eu&lang=en&instr=cla https://hansonclarinets.com/plateau/ https://rheubenallen.com/product/rheuben-allen-plateau-clarinet/
Prodige pocket clarinet	Buffet manufacturers this smaller, light-weight clarinet, which has an adjustable thumb rest and is in the key of D.	Performers with small hands or muscle weakness.	https://www.buffet-crampon.com/en/instruments/clarinets/pocket-clarinet/

Table 9 Saxophones

Modification name	Modification description	Who it benefits	Website References
Alpha sax	The Alpha Sax is fully chromatic throughout its range but removes the palm keys and low B and Bb keys. Other keys are adjusted to be easier to reach, and the weight is 33% less than a traditional alto sax.	Performers with small hands or who struggle to support the weight of the instrument.	https://www.woodwind.dk/Alpha%20sax.htm
Bari sax stand	Hamilton's bari sax stand helps support the weight of the instrument while the instrument is being played.	Performers with neck pain or who struggle to support the weight of the instrument.	https://saxalley.com/product/hamilton-baritone-saxophone-stand-kb570/
Nuvo jSax (Key of C)	Nuvo instruments are plastic, lighter-weight, and easier to produce a sound on than their traditional counterparts.	Performers with muscle weakness, arthritis, or joint pain that inhibits their ability to support the weight of the instrument.	https://www.nuvoinstrumental.com/products/jsax/
RULON Alto sax palm key removal kit	This kit includes magnetic tone hole covers which seal the tone holes that are created once the palm keys are removed.	Performers with small hands or limited left hand dexterity may benefit. Similarly, performers with muscle weakness, arthritis, or joint pain may benefit from the change in hand position.	See Brown, 2023 https://keyleaves.com/products/rulon-alto-sax-palm-key-removal-kit

Table 10 Double Reed Woodwind Instruments

Modification name	Modification description	Who it benefits	Website/ References
Lightweight Student Bassoon	Howarth of London sells several short reach bassoons for performers with small hands or shorter arm reaches. The smallest student models are also designed to be lighter in weight, but sound in a higher key than a full-size bassoon.	Performers with small hands or muscle weakness that inhibits their ability to support the weight of the instruments with benefit.	https://www.howarthlondon.com/instruments.aspx?id=1&family=809
Lightweight Student English Horn (Cor Anglais)	Howarth of London sells student English horns (Howarth S30C) that are designed to be as light as possible, and use a key system that is more comfortable for performers with small hands.	Performers with small hands or muscle weakness that inhibits their ability to support the weight of the instruments with benefit.	https://howarthlondon.com/instruments.aspx?family=813&system=20179
Lightweight Student Oboe	Howarth of London sells student oboes (Howarth S10 or Howarth Junior Plus+) that are designed to be as light as possible, with close finger spacing that allows smaller hands to navigate the instrument.	Performers with small hands or muscle weakness that inhibits their ability to support the weight of the instruments with benefit.	https://howarthlondon.com/instruments.aspx?family=813&system=20179

Table 11 Flutes

Modification name	Modification description	Who it benefits	Website/ Reference
	Alternate Flute Head Joints		
30-Degree Head Joint	BT Bertrem sells a head joint that places the flute at an approximately 30-degree downward angle to make it easier to reach the keys.	Performers who have limited range of motion in their right arm and shoulder.	https://www.flutespecialists.com/product/bt-bertrem-30-degree-headjoint/
Abell Low-Whistle Style Head Joint	The low-whistle style head joint is made of grenadilla wood, uses a fipple-style opening, and is made vertically.	Performers with limited breath control.	https://flutecenter.com/collections/ergonomic-headjoints/products/abell-headjoint
Swan Neck Head Joint	The Swan Neck head joint is an ergonomic head joint that sets a 40-degree playing angle and includes a thumb rest.	Performers who have limited range of motion in their right arm and shoulder.	https://www.flutespecialists.com/product/flute-lab-swan-headjoint/
Vertical Head Joint	The vertical head joint allows the keys to be played vertically as if it were a clarinet or a recorder. The flute is at a slightly less than 90 degree angle to reduce pronation of the right wrist. A thumb rest is included.	Performers who have limited range of motion in their right arm and shoulder. Using this headrest may also prove more comfortable for those with wrist issues.	https://www.flutespecialists.com/product/flute-lab-vertical-headjoint/
Yamaha Curved Head Joint	The Yamaha curved head joint reduces tension and allows performers to comfortably reach all of the keys.	Younger performers, performers with dwarfism, limited range of motion in their right arm, or muscle weakness when they arm is extended.	https://usa.yamaha.com/products/musical_instruments/winds/flutes/headjoints/index.html

Table 11 (continued)

Adaptive Flutes			
Brannen Brothers	Key extenders can be purchased for Brannen-Cooper flutes, including the open tone holes, left hand C# key, and G# key. The key extensions usually do not fit other flute models.	Performers with limited mobility in the wrist and fingers, or short digits on the left or right hand.	https://www.brannenflutes.com/specs-options
Flute with key extensions	The Emerson Corporation built a flute with key extensions to allow a man with damage to three of his fingers to reach all the keys.	Performers with limited hand mobility or short digits.	See Snedecker, 2005
Key plugs	Key plugs can fill the tone holes on an open-holed flute if the performer has difficulty covering the tone hole.	Performers with limb differences or muscle weakness.	See Culp & Jones, 2023
Left-handed flute	Viento sells affordable left-handed flutes with either open or closed holes and reversed head joints that place the right hand closest to the body.	Performers with right arm weakness or reduced range of motion.	https://www.viento-querfloeten.de/en/left-handed-concert-flute.html
Nuvo jFlute	Nuvo instruments are plastic, lighter-weight, and easier to produce a sound on than their traditional counterparts.	Performers who have trouble supporting the weight of the instrument or with reduced embouchure control/ aural-motor awareness.	https://www.nuvoinstrumental.com/products/flute/
Solenoid- powered flute	Rosemary Metcalf created a prototype of a flute that was supported by a floor stand, and that had nine solenoids to depress the nine main keys of the flute using one hand.	Performers with muscle weakness and/ or limited use of one or both arms.	See Snedecker, 2005

Table 12 General Brass Suggestions

Modification name	Modification description	Who it benefits	Website/ Reference
Instrument stands	Tuba stands are commonly sold, and trumpet stands can be built out of the bottom of a metal music stand or a mic stand. Pre-made stands can be purchased by MERU (trumpets and trombones).	Performers who struggle to support the weight of the instrument.	See Snedecker, 2005 https://takeitaway.org.uk/wp-content/uploads/2020/06/Guide-to-Buying-Adaptive-Musical-Instruments.pdf
Plastic instruments	pTrumpets, pCornets, pBones, and pBone minis are lighterweight options to traditional metal trumpets and trombones. Metal mouthpieces can be substituted to improve the tone.	Performers who struggle to support the weight of the instrument. In particular, the pBone mini will also benefit performers with short arms (such as those with dwarfism) or reduced arm mobility.	https://pbone.co.uk/product/ptrumpet/ https://pbone.co.uk/product/pcornet/ https://pbone.co.uk/product/pbone-mini/ https://pbone.co.uk/product/jiggs-pbone/
Solenoid-powered valves	Russ Brown used touched-active solenoids, a circuit board, and cables to depress the valves of a trumpet. A similar trumpet was designed by the teacher in Thornton and Culp's (2020) case study. This technology is adaptable to a variety of valved instruments.	Performers with significant muscle weakness or limitations in grip strength.	See Snedecker, 2005 and Thornton & Culp, 2020
Valve saddles	Valve saddles, U-shaped pieces of metal or plastic, can be attached to the top of the valve pearls perpendicular to the performer's embouchure.	Performers who cannot keep their finger from slipping laterally off the valve while the valve is depressed.	See Snedecker, 2005

Table 13 Trumpets

Modification name	Modification description	Who it benefits	Website/ Reference
Air-powered trumpet	Mike Conboy and Asaph Murfin designed a trumpet in which a small metal plate with three touch pads, situated just above the valve pearls. When the touch pads were activated, a burst of compressed nitrogen depressed the valves.	Performers with significant muscle weakness or limitations in grip strength.	See Snedecker, 2005
Cornet	Cornets have a more condensed wrap than trumpets, but they play in the same key.	Performers with short arms or reduced arm mobility.	See Grossmann, 2023
Pedal trumpet	Andrew Forster and Richard Hansen designed a pedal trumpet in which pedals depressed and lifted the 1st and 3rd valves. The performer's index finger depressed the middle valve normally.	Performers who have the motor ability to depress one trumpet valve using either hand.	See Snedecker, 2005
Pocket trumpet	Several manufacturers sell pocket trumpets, extremely compact trumpets which come in a variety of finishes.	Performers with short arms (such as those with dwarfism) or reduced arm mobility.	https://www.musicarts.com/pocket-trumpets
Reverse trumpet	Jeff Vovakes reversed the tubing on a trumpet so that the player could freely depress the valves using their left hand.	Performers who have greater strength or fine-motor coordination in their left hand.	See Snedecker, 2005
Trumpet adaptive device	While at the University of Wisconsin- Milwaukee, Kaitlyn Driver designed a five piece, 3-D printed device to help a student with left-hand limb differences hold his trumpet. The schematics for this device specifically fit a Bach TR300 trumpet.	Performers with left-hand limb differences; variations to these schematics could assist students with other upper limb differences.	https://enablingthefuture.org/upper-limb-prosthetics/trumpet-holder-device/

Table 14 French horns and Trombones

Modification name	Modification description	Who it benefits	Website/ Reference
French Horn Modifications			
Reverse French horn	Amy Carol Parks performs on an adapted French horn with the right hand operating the valves.	Performers without the full use of their left hand.	See Nabb & Balcetis, 2010
Single horn	Single horns come in either F or Bb (although F is most common) and are lighter and easier to play.	Performers with muscle weakness.	See Culp & Jones, 2023
Trombone Modifications			
Extendabone	The Extendabone is an extendable slide handle that can easily be put on or taken off the slide; it is held with the same grip as the main slide.	Performers who have trouble reaching 6th and/ or 7th position.	https://extendabone.com/about/
Trombone hand support	The Rath trombone hand support helps to distribute the weight of the instrument throughout the whole hand to prevent strain and eliminate tension. It may be able to take most or all of the weight of the instrument off the hand so that the left hand is only used for balance.	Performers with arthritis, carpal tunnel, or excessive tension when holding the instrument (possibly because of small hand size), or those who wish to prevent the development of arthritis or carpal tunnel.	https://rathtrombones.com/trombones/hand-support/
Valve trombones	Valve trombones reduce the need for the performer to extend their arm through the 7 positions and may reduce tension in the left hand.	Performers with short arms (such as those with dwarfism) or reduced arm mobility.	https://www.wwbw.com/Valve-Trombones.wwbw

Table 15 Euphoniums and Tubas

Modification name	Modification description	Who it benefits	Website/ Reference
Cushion/ rolled up towel	Placing a soft object such as a cushion or rolled-up towel in the performer's lap helps absorb the weight of the instrument.	Performers with muscle weakness or sensitivity.	See Culp & Jones, 2023
Nuvo jHorn (Key of Bb or C)	Nuvo instruments are plastic, lighter-weight, and easier to produce a sound on than their traditional counterparts. The jHorn most closely resembles a baritone.	Performers with reduced breath control, muscle weakness, or limited arm span or arm mobility.	https://www.nuvoinstrumental.com/products/jhorn/
Strap/ harness	Straps and harnesses distribute the instrument's weight between the performer's lap and back; additionally, they can make it easier to balance and hold the instrument.	Performers with muscle weakness, especially in the core muscles.	See Culp & Jones, 2023

Table 16 Orchestral String Instruments

Modification name	Modification description	Who it benefits	Website/ Reference
3D-printed bow hold apparatuses	Custom-made apparatuses, sometimes in collaboration with a university's engineering department, have been designed and 3-D printed to help performers grasp the bow.	Performers with right hand differences.	See Thornton & Culp, 2020
Alternate bow hold	Placing the thumb below the frog can reduce tension.	Performers with EDS, hypermobility, or muscle weakness.	See Grossmann, 2023
Bow guides	Bow guides provide a channel for the bow to travel through, making it easier for performers to keep the bow parallel to the bridge.	Performers with limited wrist control.	See McCord & Fitzgerald, 2006
Cellophant/ bow hold buddy	The cellophant and bow hold buddy, designed to teach the proper bow hold shape, can be permanently used to support the right hand shape.	Performers with Ehlers-Danlos Syndrome (EDS), hypermobility, or muscle weakness.	https://www.swstrings.com/product/accessories/bass/CP https://www.swstrings.com/product/accessories/viola/BHB
Czech-Ease	This light-weight travel bass with an abbreviated body maintains a full timbre and comes in several styles.	Performers with muscle weakness or who otherwise require assistance manipulating a traditional bass.	See Culp & Jones, 2023 https://www.czech-ease.com/about.php
Fingerboard tape	Fingerboard tape helps students feel where to place their fingers.	Performers with limited proprioception.	See Culp & Jones, 2023

Table 16 (continued)

German bow hold	On Double Bass, the German bow may require less pressure and tension in the hand. The angle of the bow hold is also different than using a French bow.	Performers with EDS, hypermobility, or muscle weakness.	See Grossmann, 2023
Stringvision bowgrip	The Stringvision Bowgrip is made of a non-latex elastomer which reduces fatigue while playing and slips over the frog of the bow. This device works with fractional and full-sized bows.	Performers with EDS, hypermobility, or muscle weakness.	https://stringvision.com/products/stringvision-bowgrip?fbclid=IwAR0jwMJNplf0sBPca5-TwJzVYDfrpZz8TCelAfRjui_A5NQ6pacDPM63vhA

Table 17 Popular String Instruments: Guitar, Ukulele, Banjo, and Bass

Modification name	Modification description	Who it benefits	Website/ Reference
Bozung guitar barre	Attaching to the performer's hand with Velcro, this device allows the performer to play major, minor, and dominant 7 chords in open tuning on guitar, ukulele, and banjo.	Performers with reduced left-hand dexterity.	https://www.westmusic.com/guitars-folk/accessories/guitar-folk-slides/bozung-guitar-barre-350891
		Ukulele	
Troubadour chord changer	When using the troubadour chord changer, pressing one button allows the entire chord to sound. The device fits most soprano ukuleles.	Performers with reduced left-hand dexterity.	https://www.westmusic.com/guitars-folk/accessories/guitar-folk-capos/troubadour-ukulele-chord-changer-356837
Ukulele adaptive strap	An elementary music teacher in Georgia attached a guitar pick and a metal ring to a backpack strap on their body to allow the student to strum using their limb.	Performers with a right arm that ends at the elbow.	https://pitchpublications.com/diy-adaptive-device-for-playing-ukulele/
Ukulele strum buddy	Using the Ukulele strum buddy, the pick is controlled using a foot or a knee.	Performers with one arm.	https://anotherwaytoplay.org/2016/10/02/ukulele-strum-buddy/
Ukulele support system	The Ukulele support system utilizes waist and shoulder straps to assist with holding the ukulele; the device can also be anchored to a desk or table and/or used in combination with a chord changer.	Performers with reduced dexterity in the upper limbs, or with upper limb differences.	https://www.facebook.com/UkuleleProsthetics/

Table 17 (continued)

Guitar/ Bass			
Baritone Ukulele	Baritone ukuleles have the same strings as the top four strings of a guitar, but a narrower neck than a classical guitar.	Performers with limited dexterity, range of motion, and/ or grip strength in the right arm or wrist.	Dwight, interview 1
Barre chorder	The Barre Chorder straps onto two fingers of the player's fretting hand, and is designed for guitars with open tuning (e.g., DGDGBD). This device allows the player to play any major chords by moving to a different fret, and may require less pressure than the EZ Chord or the Davis EZ Chord to produce a chord since players can use the combined strength of their fingers.	Performers with reduced left-hand dexterity or left-hand weakness.	See Bell, 2014
Chapman stick	Stick Enterprises sells multiple models of multi-string sticks, all of which can replicate either a guitar or a bass guitar, and which can be played by fretting or tapping the fingerboard with one or two hands.	Performers with limited range of motion, muscle weakness, or function in one hand.	See Culp & Jones, 2023 https://stick.com/instruments/
Davis EZ chord	The Davis EZ Chord (not related to the EZ Chord) is a plastic mold that can either adopt the E-major shape or A-minor shape for bar chords. Chords can be changed by sliding to different frets. The Davis EZ Chord is also used in standard tuning, but does not reduce the amount of pressure required to play a bar chord.	Performers with reduced left-hand dexterity.	See Bell, 2014

Table 17 (continued)

Chapman stick	Stick Enterprises sells multiple models of multi-string sticks, all of which can replicate either a guitar or a bass guitar, and which can be played by fretting or tapping the fingerboard with one or two hands.	Performers with limited range of motion, muscle weakness, or function in one hand.	See Culp & Jones, 2023 https://stick.com/instruments/
EZ chord	When using the EZ chord, pressing one button allows the entire chord to sound. The EZ chord should be used on a guitar with standard tuning, and it can be played on any fret. It can also be used regardless of if the guitar is held traditionally or if it is placed flat on the player's lap.	Performers with reduced left-hand dexterity.	See Bell, 2014
Foot-activated strumming device	Duke University designed a prototype which would allow the performer to activate a strumming device mounted above the strings and sound hole of an acoustic guitar with a foot.	Performers with limited dexterity and/or range of motion in the right arm or wrist.	See Bell, 2014
Lap guitar	Traditional guitars can be placed horizontally in the player's lap and played using a slide bar.	Performers with limited range of motion.	See Culp & Jones, 2023
Modified picks and pick holds	Alternate picks such as the orbit pick or rhythm pick adapt the type of grasp and angle used to hold the pick. Other alternative picks, such as the monster pick and maxi pick adjust the size and thickness, respectively. Foam can also be glued to the guitar pick to make it thicker and therefore easier to hold.	Performers with limited fine motor control in the right hand will have an easier time holding the pick. Performers with joint pain due to arthritis, carpal tunnel syndrome, hypermobility, or EDS may also find the larger pick more comfortable to hold.	See Bell, 2014; Clark & Chadwick, 1980; and Oden, 2014

Table 17 (continued)

Rockstar guitar stand	Duke University designed a custom guitar stand which could be mounted to an individual's wheelchair.	Performers who use a wheelchair or who have limited range of motion	https://caroline.md.networkofcare.org/veterans/assistive/detail.aspx?id=29742&cid=2421&cn=Musical%20Instrument%20Holder&org=
TinkerTar	Colorful one-string guitars with a narrow, color-coded fretboards are designed to play melodies.	Performers with limited dexterity, range of motion, and/ or grip strength in the right arm or wrist.	https://www.tinkertar.com/

Table 18 Percussion Instruments

Modification name	Modification description	Who it benefits	Website/ Reference
Adaptive mallets	Adaptive percussion mallets with shorter, thicker grips and shorter shafts make the mallet easier to control. Some of the mallets also can be held at different angles.	Performers with reduced fine or gross motor skills.	https://content.westmusic.com/great-products-from-west-music-for-adaptive-learning/ https://americandrum.com/catalog.php?c1=Adaptive+Mallets
Adaptive cuffs	Hand straps which can help performers grasp a variety of mallets or small percussion instruments.	Performers with reduced fine or gross motor skills and/ or limited grip strength.	https://www.westmusic.com/orff/orff-mallets-sticks/265621 https://americandrum.com/catalog.php?c1=Adaptive+Mallets
Auxiliary percussion stand for wheelchair tray	Small wooden stands can be built and mounted to the tray on a student's wheelchair to display small percussion instruments.	Performers with limited mobility.	See Clark & Chadwick, 1980 https://content.westmusic.com/great-products-from-west-music-for-adaptive-learning/
Bulked up mallets	Teachers can make percussion mallets easier to grasp by making them thicker and/ or softer through the application of foam, rubber, tubing, cotton, or carpet tape.	Performers with muscle weakness or limited grip strength.	See Adamek & Darrow, 2018 and Crowe & Ratner, 2012
Drum buddy	A wooden apparatus consisting of a clamp holding a frame drum and a spring-loaded drumstick attached to a plunger; performers depress the plunger to play.	Performers with limited range of motion, muscle weakness, or limited grip strength.	See Crowe & Ratner, 2012
Electronic kick bass drum	Julian Groeli attached a cable to allow a man with one legto activate the kick bass drum of a drum set. The rest of the bass drum was played typically.	Performers with one leg.	See Snedecker, 2005

Table 18 (continued)

Extra lightweight drumsticks	Drum stick companies make drum sticks in a variety of thicknesses and weights, although lighter drum sticks are often thinner. Maple 7A drum sticks are generally regarded as the lightest-weight option.	Performers with muscle weakness, especially limited grip strength.	Kevin, interview 2 https://www.sweetwater.com/store/detail/S7AMG--zildjian-maple-dip-series-drumsticks-super-7a-wood-tip-green-dip
Lightweight basket shaker	Companies such as Meinl sell light-weight shaker instruments made out of rattan with large rattan handles.	Performers with muscle weakness, especially limited grip strength, or limited range of motion.	See Adamek & Darrow, 2018
Mounting or suspending instruments from music stands	Instruments such as chimes can be attached to music stands by various means (e.g., clamping, taping, drilling) to make it easier for students to reach the instrument or eliminate the need to hold the instrument.	Performers with limited range of motion, muscle weakness, or limited grip strength.	See Adamek & Darrow, 2018 and Crowe & Ratner, 2012
Shaker bracelet	The lightweight shaker bracelet attaches to the performer's wrist with Velcro.	Performers with tactile defensiveness; limited range of motion, fine motor control, grip strength; or muscle weakness.	See Crowe & Ratner, 2012

Table 19 Piano

Modification name	Modification description	Who it benefits	Website/ Reference
Digital piano or MIDI keyboard	Both devices can be programmed to play chords with one finger and to sound like traditional ensemble instruments.	Performers with limited range of motion.	https://faq.yamaha.com/usa/s/article/U0002033#:~:text=4)%20To%20produce%20Single%20Finger,Minor%2C%20Seventh%20and%20Minor%20Seventh.
One-handed piano method books	Mario Licata’s method book allows students to use one hand and provides options for both standard and color-coded notation.	Performers with an upper body limb difference.	e.g., https://www.amazon.com/Music-All-Inclusive-Keyboard-Method/dp/B0BFV9L75G
One-handed piano repertoire	Dr. John M. Ziegler lists piano works for the right hand or left hand, sorted by difficulty.	Performers with an upper body limb difference.	See Abramo, 2012 https://pianoeducation.org/pnoonhnd.html
Pedal extensions	Pedal extensions can make it easier for performers to reach the pedals.	Performers with short limbs on their lower body or who utilize a wheelchair.	See Crowe & Ratner, 2012

Table 20 Digital Instruments

Modification name	Modification description	Who it benefits	Website/ Reference
Doctor Musik's Virtual Instruments	This website embeds apps for virtual xylophones, recorders, ukuleles, guitars, and auxiliary percussion instruments.	Performers with significant limitations to their range of motion or muscle weakness.	https://www.doctormusik.com/#virtual%20instruments
iTrump/ iBone	Spoonjack produced two apps that are designed to replicate the motions of playing a trumpet or a trombone, respectively, in digital form.	Performers with muscle weakness, limited range of motion, and/ or limited breath support.	See Culp & Jones, 2023
Jamboxx	This hands free, breath-powered instrument is played like a harmonica and can be programed to sound like other instruments.	Performers with limited reduced range of motion or fine motor control.	https://www.jamboxx.com/
Keezy	This app for Apple devices allows students to pre-record sounds into multiple color-coded squares that display on the app interface.	Performers with significant muscle weakness, limited range of motion, and/ or limited breath support.	https://keezy.net/
Mallet station	Mallet Station is a keyboard-shaped percussion instrument similar to a MIDI device that is played with xylophone mallets and connected to a computer where it can produce the timbre of a variety of different instruments.	Performers with limited range of motion or muscle weakness, including those who prefer the timbre of a woodwind or brass instrument.	Eliza, interview 2 https://www.steveweissmusic.com/product/pearl-malletstation-em1/electronic-percussion#full-description

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Appendix C

IRB APPROVAL

Institutional Review Board
210H Hullihen Hall
Newark, DE 19716
Phone: 302-831-2137
Fax: 302-831-2828

DATE:	July 26, 2023
TO:	Aimee Pearsall
FROM:	University of Delaware IRB
STUDY TITLE:	[2065901-1] Including Students with Physical Differences in Secondary Instrumental Music: An Instrumental Case Study
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
EFFECTIVE DATE:	July 26, 2023
REVIEW CATEGORY:	Exemption category # *(1)*

Thank you for your New Project submission to the University of Delaware Institutional Review Board (UD IRB). According to the pertinent regulations, the UD IRB has determined this project is EXEMPT from most federal policy requirements for the protection of human subjects. The privacy of subjects and the confidentiality of participants must be safeguarded as prescribed in the reviewed protocol form.

This exempt determination is valid for the research study as described by the documents in this submission. Proposed revisions to previously approved procedures and documents that may affect this exempt determination must be reviewed and approved by this office prior to initiation. The UD amendment form must be used to request the review of changes that may substantially change the study design or data collected.

Unanticipated problems and serious adverse events involving risk to participants must be reported to this office in a timely fashion according with the UD requirements for reportable events.

A copy of this correspondence will be kept on file by our office. If you have any questions, please contact the UD IRB Office at (302) 831-2137 or via email at hsrb-research@udel.edu. Please include the study title and reference number in all correspondence with this office.

Appendix D

FIRST INTERVIEW PROTOCOL

*This protocol will be administered in a semi-structured interview format

Disclaimer

1. This protocol will be audio recorded so that the interview can be reviewed and analyzed later. The audio will not be shared. Participation is voluntary and you can choose to stop at any time.

Demographics/ Background

1. Would you like to suggest a pseudonym for yourself?
2. What pronouns do you best identify with?
3. What was your musical background growing up?
4. Describe your higher education journey.
5. Where have you taught and for how long?
6. What drew you to teaching high school band/ orchestra?

School Context

1. What are the demographics of your school community?
2. What is the setup of your school's community?
    a. Total enrollment
    b. Music program enrollment
    c. How often do you meet?
    d. What kinds of music do you play?
    e. What grade level(s) of music do you play?
    f. How are students' ensemble placements determined?
3. How is your feeder system setup?

Key Questions

1. Tell me about the first student you worked with who had a physical difference.
2. How did that student become involved in your program?
3. If any, what modified or alternative materials did you provide to students with physical differences to allow them to fully participate?
    a. Sheet music
    b. Instruments

    c. Physical space
    d. Technology
4. Have you taught any additional students with physical differences in your ensembles?
5. Why do you include students with physical differences in your ensemble?
6. What benefits do students with special needs bring to the ensemble?
7. What challenges are there when including students with special needs?
8. What is the impact of inclusion on “typical” students?
9. If any, what resources are you aware of to help teachers learn to provide modified materials to students with physical differences that might be of use to other teachers?
    a. Sheet music
    b. Instruments
    c. Physical space
    d. Technology
10. Tell me about your experiences with:
    a. Students’ IEPs and 504s?
    b. Attending IEP/ 504 meetings?
11. What information/ training have you received preparing you to include students with physical differences in secondary instrumental music?
    a. What undergraduate coursework geared towards teaching music to students with special needs did you receive?
    b. What professional development geared towards teaching music to students with physical differences have you received?
12. Based on your experiences, what information/ training do you believe teachers need to be prepared to include students with physical differences in secondary instrumental music?
    a. What undergraduate coursework geared towards teaching music to students with physical differences should teachers receive?
    b. What professional development geared towards teaching music to students with physical differences should teachers attend?
13. How, if at all, have collaborations helped you to include students with physical differences?
    a. What, if any, collaborations have you participated in?
    b. Can you think of any other collaborations that would have helped you to include students with physical differences?

14. What do you consider to be the current best practices for including students with physical differences in instrumental music?

Closing

15. Is there anything else you would like to add?
16. Would you be willing to share any past concert or marching band programs, curriculum documents, or any other materials that reflect your attitude on inclusion?

Appendix E

SECOND INTERVIEW PROTOCOL

*This protocol will be administered in a semi-structured interview format.

*These are sample questions that I anticipate, but additional questions may emerge from the data analysis that occurs after the first round of interviews.

Disclaimer

1. This protocol will be audio recorded so that the interview can be reviewed and analyzed later. The audio will not be shared. Participation is voluntary and you can choose to stop at any time.

Key Questions

1. Have you thought of anything else you would like to share as a follow-up to the things we discussed during our first interview? If so, what?
2. How do you think your attitude and disposition has affected student outcomes?
3. Do you think this would apply to other teachers and students?
4. Why do you think some students with disabilities may not be involved in instrumental music at the secondary level?
5. What barriers have you seen in your own experience for students with physical differences who wish to participate in instrumental music?
    a. What factors are you aware of that did not allow that student to participate?
    b. How did their lack of inclusion make you feel?
    c. What actions did you take in response?
6. If you were in charge of teacher preparation or professional development, what do you think you would do, add or change to help teachers include more students?
    a. Values
    b. Training/ education
    c. Financial support
    d. Time/ collaborations

Closing

1. Is there anything else that you would like to share?
2. Have you thought of any other artifacts that you would like to share?

Appendix F

CONSENT FORM

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title of Study: Including Students with Physical Differences in Secondary Instrumental Music: An Instrumental Case Study
Principal Investigator(s): Aimee Pearsall, Advisor
Julia Grossmann, Student Researcher

Important aspects of the study you should know about:

- **Purpose:** The purpose of this instrumental case study is to explore the experiences of three secondary instrumental music teachers who provide modifications and accommodations to best support students with physical differences.
- **Procedures**: If you choose to participate, you will be asked to participate in two hour-long, in-person, semi-structured interviews with the researcher. You also agree to allow the researcher to complete one to three in-person classroom observations.
- **Duration:** This study will require three in-person visits. There will be two hour-long interviews, and one classroom observation. All interviews and observations will be collected from August through December of 2023. All interviews and observations will occur in-person.
- **Risks**: There are no anticipated risks.
- **Benefits:** Reflecting on past practices may increase your self-awareness of the ways you have benefited students. You may also remember previous accommodations you made that could benefit current or future students. It is also hoped that other teachers and students will benefit from the information collected in this study, as it will help students with physical differences to be best included in secondary instrumental music.
- **Costs and Compensation:** e.g., If you decide to participate there will be no additional cost to you. No compensation will be provided.
- **Participation:** Taking part or not in this research study is your decision. You can decide to participate and then change your mind at any point.

<u>Contact Information</u>: If you have any questions about the purpose, procedures, or any other issues related to this research study you may contact the Student Investigator, Julia Grossmann at [phone number] or at [email address].
My supervisor, Aimee Pearsall, can also be contacted at [phone number] or at [email address].

CONSENT TO PARTICIPATE IN THE RESEARCH STUDY:
I have read and understood the information in this form and I agree to participate in the study. I am 18 years of age or older. I have been given the opportunity to ask any questions I had and those questions have been answered to my satisfaction. I understand that I will be given a copy of this form for my records.

________________________	________________________	__________
Printed Name of Participant (PRINTED NAME)	Signature of Participant (SIGNATURE)	Date
________________________	________________________	__________
Person Obtaining Consent (PRINTED NAME)	Person Obtaining Consent (SIGNATURE)	Date