ONE SIZE DOES NOT FIT ALL: EXPLORING UNIVERSAL DESIGN FOR LEARNING IN SECONDARY SCHOOL BAND

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Grace Sledd

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ONE SIZE DOES NOT FIT ALL

I, THE UNDERSIGNED MEMBER OF THE COMMITTEE,

HAVE APPROVED THIS THESIS

ONE SIZE DOES NOT FIT ALL: EXPLORING UNIVERSAL DESIGN FOR LEARNING IN
SECONDARY SCHOOL BAND

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ABSTRACT

Universal Design for Learning (UDL) is a theoretical framework that guides inclusive classroom instruction and accessible course materials for all learners. UDL does not propose a single, one-size-fits-all solution but rather a set of flexible scaffolds and supports to meet individual students’ learning needs. UDL is an emerging area of research in music education. A majority of the research has taken place in general education settings but has yet to be given the same attention in the music education research field. The purpose of this thesis is to explore how UDL strategies may be applied in the secondary school music classroom. I provide secondary band educators with practical suggestions for accessible teaching strategies to merge into their existing curriculum and practice.
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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF FIGURES</th>
<th>vi</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHAPTER 1: INTRODUCTION</strong></td>
<td>7</td>
</tr>
<tr>
<td>Universal Design in Architecture</td>
<td>8</td>
</tr>
<tr>
<td>Adaptation is Not the Solution</td>
<td>8</td>
</tr>
<tr>
<td>Universal Modifications Benefit Everyone</td>
<td>9</td>
</tr>
<tr>
<td>Disability is Not the Problem; Inaccessibility Is</td>
<td>9</td>
</tr>
<tr>
<td>Inclusive Education Movement</td>
<td>10</td>
</tr>
<tr>
<td><strong>CHAPTER 2: LITERATURE REVIEW</strong></td>
<td>13</td>
</tr>
<tr>
<td>Differentiation Practices in General Education</td>
<td>13</td>
</tr>
<tr>
<td>Universal Design for Learning</td>
<td>15</td>
</tr>
<tr>
<td>Multiple Means of Engagement</td>
<td>16</td>
</tr>
<tr>
<td>Multiple Means of Representation</td>
<td>16</td>
</tr>
<tr>
<td>Multiple Means of Expression</td>
<td>16</td>
</tr>
<tr>
<td>UDL In General Education</td>
<td>18</td>
</tr>
<tr>
<td>Post-Secondary Education</td>
<td>18</td>
</tr>
<tr>
<td>Elementary Education</td>
<td>19</td>
</tr>
<tr>
<td>UDL Perceptions</td>
<td>20</td>
</tr>
<tr>
<td>UDL in the Arts</td>
<td>21</td>
</tr>
<tr>
<td>UDL in Music Education</td>
<td>23</td>
</tr>
<tr>
<td>Post-Secondary Music Classroom</td>
<td>24</td>
</tr>
<tr>
<td>Elementary General Music</td>
<td>24</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>26</td>
</tr>
<tr>
<td>Conclusion</td>
<td>27</td>
</tr>
<tr>
<td><strong>CHAPTER 3: APPLICATIONS OF UDL IN SECONDARY MUSIC CLASSROOMS</strong></td>
<td>28</td>
</tr>
<tr>
<td>The Culture of Expert Learning</td>
<td>28</td>
</tr>
<tr>
<td>Representation</td>
<td>29</td>
</tr>
<tr>
<td>Guideline 1: Perception</td>
<td>29</td>
</tr>
<tr>
<td>Guideline 2: Language &amp; Symbols</td>
<td>32</td>
</tr>
<tr>
<td>Guideline 3: Comprehension</td>
<td>37</td>
</tr>
<tr>
<td>Expression</td>
<td>39</td>
</tr>
<tr>
<td>Guideline 4: Physical Action</td>
<td>39</td>
</tr>
<tr>
<td>Guideline 5: Expression and Communication</td>
<td>41</td>
</tr>
</tbody>
</table>
Guideline 6: Executive Functions ................................................................. 44
Guideline 7: Recruiting Interest ................................................................. 47
Guideline 8: Sustaining Effort & Persistence ............................................ 48
Guideline 9: Self-Regulation ...................................................................... 51

CHAPTER 4: DISCUSSION ............................................................................. 53
The 2020 Context ....................................................................................... 54
Abandon the Status Quo ............................................................................ 55
Suggestions for Future Research ................................................................. 55
Conclusions ............................................................................................... 56

BIBLIOGRAPHY .......................................................................................... 57
LIST OF FIGURES

Figure 1. Universal Design for Learning Guidelines .........................................................17
Figure 2. Chrome Music Lab: Sound Waves ...............................................................36
Figure 3. Chrome Music Lab: Sounds Waves Experiment ...........................................36
Figure 4. Music Theory for the 21st-Century Classroom: The Major Scale ..................43
One Size Does Not Fit All

CHAPTER 1: INTRODUCTION

Imagine this: Three kids are standing behind a wooden fence watching a baseball game. The first kid is tall and can see over the fence easily. The second kid is not tall enough to see over the fence, but she can jump to see over the fence. The third kid is very short, and even if she jumped, she could not see over the fence. Now imagine that the second and third kids had rocks to stand on. The second kid was able to find a small rock to stand on and now can see over the fence. The third kid was able to roll a large rock to stand on and she too can see over the fence. Problem solved, right? Every kid can see over the fence and enjoy the game. However, the barrier of the fence still exists. Imagine if the tall wooden fence was a chain-link fence. All three kids would be able to see the game without the need for the rocks. This hypothetical situation is a metaphor for our current educational system.

The fence represents all the barriers that students may face when at school. The rocks signify the ways that educators can help supplement instruction to fit the needs of learners. The rocks are not problematic; in fact, they are there to support and help students “enjoy the game.” However, the fence, or the systemic barrier, is still standing. If the fence were chain-link, the children would not need support from a rock; it would be universally accessible for each kid. This example illustrates the theoretical framework underpinning Universal Design.

Although the United States has made great strides in redesigning school buildings so that they provide alternative means of physical navigation for students with and without disabilities, American schools have not made comparable gains in redesigning learning materials and methods so they provide accessible alternatives for students with disabilities (Dolan et al., 2001). “It is a dreadful irony that students with disabilities have better access to school buildings than they do to the curricula within them” (Dolan et al., 2001, p. 1). In this thesis, I will describe the
elements of Universal Design, review existing literature surrounding Universal Design for Learning in the classroom, and provide Universal Design for Learning implementation suggestions for the secondary school instrumental music educator.

**Universal Design in Architecture**

Ronald L. Mace, wheelchair user, disability advocate, and architect with the American Institute of Architects, coined the term “Universal Design” in the 1960s after graduating from North Carolina State University with his undergraduate degree in Architecture. Mace worked to create designs that would fit the needs of all persons. As a wheelchair user, Mace experienced the inaccessibility of the current architecture and worked to design buildings that could meet the needs of all persons. His goals were “to design all products and buildings to be visually pleasing and usable to the greatest extent possible by everyone, regardless of age, ability, or status.” (Center for Universal Design NCSU, 2008, para. 2), and he called these “Universal Designs.” Other terms for Universal Design include Design for All, Inclusive Design, andBarrier-Free Design. Ronald’s trailblazing work in accessible design was crucial for the passage of legislation prohibiting discrimination against people with disabilities, including the Fair Housing Amendments Act (FHAA) of 1988 and The Americans with Disabilities Act (ADA) of 1990. (Center for Universal Design NCSU, 2008). From Mace’s work, three fundamental ideas came to define the Universal Design movement: (a) adaptation is not the solution, (b) universal modifications benefit everyone, and (c) disability is not the problem; Inaccessibility is.

**Adaptation is Not the Solution**

Following passage of the Americans with Disabilities Act in 1990, every existing public building in the United States is required to make reasonable accommodations to be accessible for people with disabilities. The ADA defined twelve categories of public spaces required to make
One Size Does Not Fit All

these accommodations, including: stores and shops, restaurants and bars, service establishments, theaters and hotels, private museums and schools, medical offices, shopping malls, and other businesses (ADA, 1990). These types of businesses were required to make adaptations to comply with the new legislation. Retrofitting was expensive and untimely for many businesses. Mace argues that most retrofitting and adaptation could have been avoided if designers had planned for accessibility from the beginning, and that designers should have anticipated the needs of a diverse audience. Thus, a chief characteristic of Universal Design is that it proactively builds in features to accommodate the range of human diversity (Center for Universal Design NCSU, 2008).

Universal Modifications Benefit Everyone

Modifications to the built environment are beneficial to many people, not just those with disabilities. For example, automatic door openers, curb cuts, entry ramps, universal-height drinking fountains, and chain-link fences all are beneficial to a diverse set of people. People routinely use door openers to enter a building when their hands are full, skateboarders use curb cuts, and children can drink water from universal-height fountains without assistance. Similarly, eager fans watching their team in a loud sports bar and students in quiet libraries rely on television closed captioning. Each of these examples was created as a disability accommodation, yet many people can benefit from the modification.

Disability is Not the Problem; Inaccessibility Is

Disabilities have less to do with individual inabilities and more to do with systemic obstacles that inhibit people’s ability to function and participate in society. People with disabilities are fully capable of going to school, working jobs, enjoying a public park, and seeing a movie. However, if the physical environment in these places acts as a barrier, they are unable
One Size Does Not Fit All

to do such activities. Mace challenged the idea that disability means “unable”; he decided to remove the unnecessary barriers to accessibility and attempted to redefine how we look at the design of all spaces.

Inclusive Education Movement

Accompanying the Universal Design movement of the late 1980s and early 1990s, the inclusive education movement was in full force. In 1986, Madeleine Will, the assistant secretary of the Office of Special Education, wrote a paper entitled *Educating Children with Learning Problems: A Shared Responsibility* (Will, 1986). This paper was pivotal in what has become known as the inclusive education movement, outlining the need to include students with mild to moderate disabilities in general education. This idea has expanded to include a broad spectrum of learning abilities, styles, and needs, including students demonstrating an above-average intelligence, students at risk of school failure, students with cultural and/or language differences, educationally disadvantaged students, students who have a slow learning rate, and students who qualify for special education services (Nordlund, 2003).

In 2001, Congress passed the No Child Left Behind Act (NCLB), which was a revision to the Elementary and Secondary Education Act (ESEA) of 1965. NCLB was a significant step forward in many ways, as it required support for students regardless of race, income, zip code, ability, home language, or background (U.S. Department of Education, 2020). NCLB mandated guidelines that exposed achievement gaps among traditionally underserved students and their peers and sparked a national dialogue on education improvement. Many states, districts, and schools found NCLB’s strict mandates rigid and inaccessible. An eleven-year-old Florida student, Ethan Rediske, and his family experienced the significant flaws in the NCLB Act firsthand:
Ethan Rediske was born with brain damage. Even though he was blind, had cerebral palsy, and had trouble saying essential words like “yes” or “no,” he was forced to take a state-mandated standardized test over two weeks. After a long struggle, his mother finally got him a waiver, only to have to prove to the state again the next year that Ethan was in no condition to take the test. “The education accountability system has gone horribly wrong,” says Florida Education Association (FEA) President Andy Ford. He says the testing craze has disturbing consequences, particularly for disabled students. (Long, 2014, para. 1)

NCLB’s standardized testing requirements seemed demanding for students and educators, took up a lot of class time, and often were inaccessible to students with disabilities. Additionally, schools lost funding if they could not show adequate yearly progress, thus exacerbating the problem. Congress considered revising the law in 2007 but this movement did not gain enough traction. Realizing this problem, the Obama Administration encouraged passage of a new educational act, the Every Student Succeeds Act (ESSA).

The ESSA is the latest update to the Elementary and Secondary Education Act. In many ways, this Act was a 180-degree turn from its predecessor, the No Child Left Behind Act. Under the ESSA, states have significantly more control over the curriculum standards, short-term and long-term goals, and plans for underserved populations. Accountability to the federal governments is scaled back considerably and states are not forced into standardized testing. The ESSA is meant to benefit all students, including those with Individualized Educational Plans (IEPs) and 504 plans, by encouraging states to expand personalized learning. This movement towards personalized instruction has been critical in the growth and expansion of differentiation practices in special education and general classrooms across the United States.
Today, Madeleine Will's ideas seem to be taking root—inspiring educators to think of inclusion not just through the lens of disability but through the lens of culturally responsive pedagogy and antiracism. Will's paper is a call to action to break down systems of oppression and ableism against students with disabilities. Similarly, author and educator Andratesha Fritzgerald (2020) calls educators to break down systems of oppression and racism in her book, *Antiracism and Universal Design for Learning*: “Regardless of the color of the skin, disability, socioeconomic status, or home situation, antiracist [and accessible] teaching demands excellence in a way that communicates honor to the learner” (Fritzgerald, 2020, p. 4). Beginning with honor for our students' identities and acknowledging the systems of oppression that may disempower them, educators can start to enact true accessibility within classrooms.
CHAPTER 2: LITERATURE REVIEW

In this chapter, I review the literature on: differentiation practices in general education, Universal Design for Learning (UDL), UDL within a general education classroom context, student/teacher perceptions of UDL, UDL’s impact in the arts, and current UDL implementation practices in music education. This literature review is somewhat of a chronological timeline within the inclusive education movement. From the 1980s to the early 1990s, adaptation and retrofitting became common practice within general education. In the late 1990s and early 2000s, Meyer and Rose (1998) and Rose and Meyer (2000, 2002) published their research on Universal Design for Learning, which has slowly become more popular in general education practices and research. As with any new framework, UDL has been slow to trickle down into other education spaces such as arts practices and research. The purpose of this thesis is to explore applications of UDL in music education practice.

Differentiation Practices in General Education

Differentiated instruction (DI) is a teaching philosophy founded on the idea that teachers should adapt instruction for student differences because "one size does not fit all" (Thousand et al., 2007; Willis & Mann, 2000). DI gained popularity during the inclusive education movement in the 1980s and 1990s and has become standard practice within general education. At its core, DI means changing classroom instruction to offer students multiple options for taking in information, making sense of ideas, and expressing what they learn. A differentiated classroom provides different ways to acquire content, process information, and develop products (Hall, 2002; Thousand et al., 2007; Tomlinson, 1999; Villa & Thousand, 2011, 2017).

Norlund (2003) describes three components of the curriculum that educators can manipulate within the DI framework: content, process, and product. The content of the
curriculum is the "What." What is the unit about? What should the student learn by the end of the instruction? The process of the curriculum is the "How." How is each student going to learn this information? The product of the curriculum is the "evaluation." How will students show what they have learned? Norlund (2003) suggests that these three components of the curriculum, content, process, and product, be adjusted to at least three different levels of ability, such as challenged, average, and gifted. This strategy is commonly known as tiered lesson planning, which offers multiple levels of engagement for students at diverse learning abilities (Tomlinson, 1999).

Although tiered lesson planning seems like an ideal situation, there are many complex challenges with this method. First, how is student ability measured? Teachers may have a rough estimate of their students’ skill level, but they may require more evidence to choose the level of ability that is in the students' best interest. Additionally, labeling and grouping students by skill level can be demeaning and discouraging to students (Oakes, 1986). Second, this process is costly in terms of time and resources. Norlund (2003) suggests that each teacher should have a committee of educational professionals to determine each child's best placement. Such a committee might be ineffective for judging every student and unrealistic in most school districts. Finally, it may be considered unreasonable to believe that teachers have time to teach three different leveled lessons. Collinson and Fedoruk Cook (2001) conducted a qualitative study exploring teacher’s interpretations of time and identified nine barriers that limited teacher’s ability to finish their lesson plans, IEP goals, administrative duties, grading etc. Teachers may already have timing concerns; trying to prepare and execute three (or possibly more) different leveled lessons could impact the flow and effectiveness of instruction.
Thinking back to Roy L. Mace's ideas of universal design, one crucial observation is that "adaptation is NOT the solution." Just as retrofitting was the beginning of accessible public spaces, DI is the beginning of an accessible curriculum. Instead of thinking of adaptations and ways to retrofit the curriculum, researchers and educators are looking to redesign curriculum and classroom spaces to be universally accessible for each student (Hitchcock, 2015; Strangman et al., 2003).

Katie Novak and Allison Posey describe differentiation through a dinner party analogy. Novak and Posey (2020) note that differentiation is like having thirty guests over for dinner, and the host makes a specialized meal for each guest. This effort, of course, is time-consuming and inefficient. Additionally, the guests may not even want what they are served! How can this problem be solved? Instead of prescribing individual meals for each guest, the host can provide a buffet from which guests can choose what meal they would like. Guests are no longer hungry, and the host is not burdened with the task of making individual meals. This analogy illustrates how educators can view accessibility within the classroom: How can we provide students with an educational buffet of choices to supplement their learning needs?

**Universal Design for Learning**

Universal Design for Learning (UDL) is a theoretical framework that guides the design of inclusive classroom instruction and accessible course materials. UDL does not propose a single, one-size-fits-all solution but rather a set of flexible scaffolds and supports that can meet individual needs (U.S. Department of Education, 2020). Universal Design for Learning is modeled after Roy L. Mace's concept of Universal Design in architecture. Anne Meyer and David Rose first laid out the principles of UDL in the late 1990s and early 2000s during the inclusive education movement (Meyer & Rose, 1998; Rose & Meyer, 2000, 2002; Rose, Meyer,
One Size Does Not Fit All

& Hitchcock, 2005). Rose and Meyer defined the guiding principles of UDL. UDL's three guiding principles are: (a) Multiple Means of Engagement, (b) Multiple Means of Representation, (c) Multiple Means of Expression.

**Multiple Means of Engagement**

By giving students multiple modes of student engagement that tap into their interests, learners have diverse environments that challenge them appropriately and motivate them to learn (CAST, 2018). Engagement is also called the "Why" of learning. Some examples of diverse modes of engagement are working individually, working in pairs, having a large group discussion, or discussing directly with the teacher.

**Multiple Means of Representation**

By giving students multiple representation methods, learners have various ways to acquire information and build knowledge (CAST, 2018). Representation is also called the "What" of learning. Some examples of diverse modes of engagement are having students read an article, watching a film, listening to a podcast, or visiting a museum to learn curricular content. There is not one means of representation that will be optimal for all learners; providing options for representation is essential (CAST, 2018).

**Multiple Means of Expression**

Learners differ in the ways that they can navigate a learning environment and express what they know. By giving students multiple means of student action and expression, they have alternatives to demonstrate what they have learned (CAST, 2018). Expression is also called the "How" of learning. Some examples of student expression are encouraging students to write a poem, sing a song, act out a scene, bake a cake, or take an exam to show understanding.
One Size Does Not Fit All

To help educators implement flexible curriculum design, the Center for Applied Special Technology (CAST) refined the UDL guidelines and corresponding checkpoints to design a curriculum that supports all learners across differing educational settings. Figure 1 illuminates more details about the three guidelines—Engagement, Representation, and Expression—and their checkpoints.

**Figure 1**

*Universal Design for Learning Guidelines (CAST, 2018)*
One element that sets UDL apart from other inclusion models is the integration of technology into the classroom (Hall, Meyer, & Rose, 2012). Technology is one way to facilitate the flexibility and accessibility that are core to the UDL framework. UDL implementation does not require technology, but it can facilitate flexibility and personalization via multiple means of representation. For example, if a student struggles with reading, providing an electronic copy of the text, and pairing it with text-to-speech software can make the text more accessible. Electronic text is also customizable by the student in terms of the font, font size, font color, which may help them read the material more easily. Technology can help facilitate multiple means of engagement, representation, and expression while giving students autonomy and choice to customize their learning experience (Burgstahler & Cory, 2008; Hall et al., 2012). In the next section, I will highlight ways in which UDL is utilized in general education practices.

**UDL In General Education**

**Post-Secondary Education**

UDL in post-secondary general education is a relatively new framework that has generated significant interest in researchers. Two meta analyses explored the current body of literature of empirically based research on UDL and post-secondary education and found eight and seventeen empirical studies, respectively (Roberts et al., 2011; Seok et al., 2018). Seok et al. (2018) revealed that fifteen of the studies reported effective outcomes. Roberts et al. (2011) found studies that explored the use of UDL within various topics such as: educating pre-service teachers (McGuire-Schwartz & Arndt, 2007; Spooner et al., 2007; Zhang, 2005); training staff members (Izzo et al., 2008); improving web accessibility (Harper & DeWaters, 2008); and the perceptions of post-secondary students and teachers as evidence of the effectiveness of UDL (McGuire et al., 2006; Parker et al., 2007-2008). However, there is very little research to support
UDL’s effectiveness as a means to improve post-secondary student outcomes, such as GPAs, retention rates, and graduation rates. Perhaps in the future, research could investigate UDL’s impact on post-secondary education outcomes.

**Elementary Education**

One important relationship in general education is the relationship between the classroom and the library. Robinson (2017) explored the partnership between UDL and the school library and its role when serving students with diverse learning needs. A critical feature of the school library is that it must have diverse ways of delivering information for students with a broad range of needs. Robinson (2017) conducted a case study of five middle school students with disabilities who collaborated on a multimedia research project within their library. Robinson documented and analyzed every step in the process for diverse modes of engagement, representation, and expression and found that the UDL principles occurred naturally in the project. Robinson noted that the library offered diverse means of engagement, representation, and expression. This research echoes scholarship by Nall (2015), who noted that the principles of UDL, when incorporated in academic libraries, provide learning opportunities for a wide array of students, especially for students with learning disabilities.

Another area of interest for many educators is implementing UDL aids and technology within the elementary science classroom. Yu et al. (2019) studied the efficacy of a new digital notebook, The Science Notebook in a Universal Design for Learning Environment (SNUDLE). This notebook presents customizable, flexible, diverse means of engagement and representation within the curriculum, and can support students who struggle with reading or writing or are unmotivated to learn science. In the preliminary findings from the first year of the two-year study, researchers have found evidence of SNUDLE’s efficacy, particularly for students with
learning disabilities (Yu et al., 2019). Other studies suggest UDL technology implementation has been conducive to the elementary science student (Cawley et al., 2003; Orkwis, 1999). These studies expand the knowledge base about universally designed approaches to support struggling students in active engagement with science at the elementary level.

**UDL Perceptions**

A concern for educators, as with any theoretical framework, is the effectiveness of new strategies within the classroom. Black et al. (2015) investigated the integration of UDL into a post-secondary classroom and analyzed student and teacher perceptions of these integration techniques. A pivotal discovery from this study is that when teachers implemented universal design techniques in the classroom, students with and without disabilities affirmed that it was conducive to their learning. The strategies that students reported being the most helpful were establishing clear expectations, providing advanced organizers, presenting information in multiple formats, giving frequent informative feedback, and using diverse assessment strategies (Black et al., 2015). A daunting hurdle for many educators is getting a start in providing varied representation and engagement techniques in the classroom. Previous investigations by Cawley et al. (2003) and Schumm and Vaughn (1995) found that many general education teachers believed that they could not modify instruction due to lack of training, time constraints, classroom management, and student levels. Spooner et al. (2007) found that when general and special education teachers went through a one-hour UDL professional development and lesson planning course, they were significantly more likely to include UDL strategies and accommodations into their lesson plans successfully. The results of this research suggest that even with minimal training, educators can make meaningful, accessible differences to their lesson planning and classroom environment.
When enacting a new pedagogy or set of strategies in the classroom, it can be valuable to gather the students’ input and perception of the strategy. Abell et al. (2011) investigated whether student perceptions of the learning environment in classrooms employing a UDL framework differ according to grade level and/or teacher gender. Students rated their classroom environment using five variables: personalization, student participation, independence in decision making, investigative problem solving, and differentiation. Abell et al. (2011) concluded that middle school students perceived the UDL strategies within their classroom to have very few options for student participation, despite the nature of UDL which encourages educators to offer many options for student participation. Additionally, students reported that they perceived their female teachers to offer more personalized strategies for each student than their male teachers. This supports scholarship by Klein (2004) who found that teacher sex had the biggest impact on students’ achievement in terms of grade-point-average and behavior in the classroom. Klein (2004) found that students tend to have greater participation, social interaction, and report-cards under a female teacher’s tutelage. These findings suggest that perhaps for middle school educators, more training and attention should be focused on student engagement and participation. Abell et al. (2011) suggest that these results could warrant further study to determine if more training about the use of specific UDL-aligned curriculum materials with engaging, interactive and scaffolded content could improve student perceptions of male teachers’ personalization of instruction.

**UDL in the Arts**

The arts can play a crucial role in making a student feel included, empowered, and heard (e.g., Adderley, Kennedy, & Berz, 2003). Within the arts classrooms, students may have a safe space where they can explore their creative voice and take control of their learning. "Students
One Size Does Not Fit All

tend to gravitate to where they feel like they can make a difference, transform others, and themselves, and be appreciated by those who can exert control in their lives” (Baines, 2014, p. x). The arts classroom can be a setting in which UDL strategies occur naturally and provide students diverse ways of engagement, representation, and expression (Glass et al., 2013).

Glass et al. (2013) provide the example of a drama classroom that naturally utilizes UDL strategies. The common practice of ensemble building is a process that includes games and routines to improve acting skills and foster a sense of community (8.3 — Foster collaboration and community in figure 1). These scaffolded activities minimize threats (7.3—Minimize threats and distractions), vary demands to optimize challenge (8.2— Vary demands and resources to optimize challenge), and focus collaborative work around the long-term goal of a public performance (9.1— Promote expectations and beliefs that optimize motivation). The variety of games that build theater skills are often supported by an instructor and include warm-ups, circle exercises, and improvisation activities that help participants pay attention, support each other, and work as a team (Glass et al., 2013).

Another classroom that Glass et al. (2013) note that may have naturally occurring UDL strategies is the dance classroom. The dance instructor can help dancers develop a theme by generating images, metaphors, gestures, and movements that express hopes and aspirations (3.3—Guide information processing and visualization). The instructor selects an appropriate piece of music to match the emotive tone and meaning of the dance piece (5.2—Use multiple tools for construction and composition). The instructor then helps dancers to set short- and long-term goals for creating and performing the choreography (6.1—Guide appropriate goal-setting). The group may set a goal to fully include an injured dancer and can work together to plan
strategies to design choreography using their wheelchair (6.2—Support planning and strategy development).

Joyal (2020) studied UDL implementation in a visual art class and its effects on Individualized Education Plan (IEP) goal achievement for students with disabilities. Joyal focused on the stakeholders (students with disabilities, teachers, paraeducators, and one-on-one nurses) to better understand how IEPs are addressed. Joyal observed that IEPs are typically addressed by educators sitting quietly with a worksheet or an iPad and generally filling in the blanks for their students. Joyal (2020) states that through UDL, students have a better understanding of the "why" of their IEPs and can take ownership of their learning through an arts lens. In arts classes, students generally have more choices to express personal preferences, and when given the opportunity, can express deep personal reflection of their experience. Through creative, engaging projects, students can grow through the process of finding creative solutions. The arts are an excellent medium for UDL strategies that empower students to become expert learners and meet their educational goals.

**UDL in Music Education**

As with any emerging pedagogical framework or teaching strategy, it may take many years for specialized educational fields, such as music, to adopt new strategies. Due to the scarcity of empirical research within UDL strategies in music education, I gathered a large portion of material from practitioner-oriented book chapters and articles. Although these practitioner articles may not be research, they often offer valuable information that is research translated into digestible, achievable strategies that can be absorbed by those who are active in the field (Rominger, 2017).
Post-Secondary Music Classroom

An emerging line of scholarship explores accessible education in the collegiate music classroom. Quaglia (2015) discusses UDL practices within the music theory classroom, arguing that UDL challenges the way educators view their curriculum. In the UDL framework, learning objectives or goals separate the means from the ends. In other words, educators must disaggregate learning objectives from the teaching methods used to achieve them, so that a variety of pathways to the goal are available at all times (Meyer, Rose, & Gordon 2014; Quaglia 2015). However, many educators may place unnecessary barriers to learning by emphasizing particular teaching and learning methods, as if they were the goals themselves. An example that Quaglia (2015) discusses is the tradition of figured-bass realization and species counterpoint. Educators use these practices to teach the syntax and structure of harmony. However, music theory teachers tend to emphasize the process, not the larger goal of learning about functional harmony.

Quaglia (2015) suggests that educators use scaffolding techniques to introduce different forms of engagement and expression when teaching harmony. For example, for harmonizing an unfigured bass line or melody, educators can use various approaches, including keyboard improvisation, singing, and written work to supply an appropriate challenge for meeting the same learning objective. These strategies are not only effective in the collegiate classroom; elementary students may also highly benefit from scaffolded forms of engagement and expression.

Elementary General Music

General music educators have many opportunities in which to utilize universal design for learning techniques. Darrow (2016) discusses integrating UDL practices into the elementary
general classroom. To implement UDL into their classrooms, Darrow writes that elementary general music educators should be flexible in instruction, student responses, assessments, and what motivates student learning. In the elementary classroom, it may be relatively easy to provide students with multiple means of engagement, representation, and expression. For example, in teaching a new song, the teacher could sing the song, show the words, show correlating pictures, move to the rhythms, and/or have different room areas represent different pitch levels—all examples of multiple means of representation. Students can do any of the previously listed actions with the teacher, in small or large groups, and independently. Finally, students can express the song in multiple ways: by singing just the pitches, speaking the words, pointing to the pictures, walking around the room, clapping the rhythms, or even moving to the song.

Another example that Darrow (2016) discusses is the use of keyboard instruments within the elementary general classroom. These keyboard instruments are typically placed on the floor and can be the first instruments students might play. The keys can have color-coded labels with the pitch, number, and solfege name and sign for diverse representation. Many diverse learners can access and understand this type of label. For more advanced students, the teacher can refer to the pitch names. For younger students, colors or pictures may be more appropriate. Additionally, these keyboarded instruments do not necessarily need to be physical instruments. A virtual keyboard can be highly customized to fit the needs of any learner. Educators can display keyboards on a smart board for students to write on and experiment with, on an iPad for students who may struggle with fine motor skills, or on paper for those who like to draw and craft. Multiple means of representation promote pathway connections in young brains (Darrow, 2016).
The Orff-Schulwerk approach is a pedagogical framework that may fit well with UDL practices because it enables hands-on music making by participants of any age or experience level by utilizing exploration, imitation, improvisation, and creation. McCord (2013) highlights examples of UDL strategies within the Orff practice. McCord (2013) studied two music classrooms that included students with severe disabilities and found that “The Orff approach naturally uses principles of UDL” (McCord, 2013, p.188).

Secondary Education

Within secondary music education, there have been some challenges integrating inclusive education practices into the curriculum. In his book chapter, "Understanding Music and Universal Design for Learning," Hourigan (2015) sheds some light on current inequities within secondary music education. Hourigan points out that, in general, the American music education aims to "guarantee the opportunity to learn and share in music experiences" (NAfME, 2014 as cited in Hourigan, 2015, p. 89), but as a system, it sometimes falls short when serving specific populations of students such as those with learning differences. Hourigan states that music education programs in the United States often have one or more of the following attributes: (a) focuses solely on performance, (b) bases most programmatic decisions on Euro-centric traditions with a hierarchy that assumes some music is of higher quality than other music, and (c) does not provide equal access to requisite knowledge and opportunities for engagement and expression, all of which exclude a vast majority of students (students with disabilities, diverse backgrounds, and socioeconomic status) in school from participation and provides a "one size fits all" approach to music education (Hourigan, 2015, p. 90).

Additionally, Hourigan (2015) states, "If challenged to include students with disabilities, [ensembles conductors] often attempt to fit the student in the mold of the ensemble. This can
come from adapting parts, finding instruments that are easier to access, offering limited opportunity (less music), and other accommodations” (p. 96). Instead of having a flexible curriculum, secondary educators often require students to be flexible to fit the Western band ensemble's often unchanging mold.

**Conclusion**

Looking back to the Universal Design movement and the ADA law passage in the 1990s, some businesses struggled to adapt to the changing times. Retrofitting was the primary method of complying with the ADA law, and many refused to spend the time and resources to update and rebuild public spaces to be accessible. Instead, people with disabilities were forced to fit the mold that was not made for them. Secondary music education has perhaps struggled to adapt in the same way (Hourigan, 2015). Instead of providing an inclusive environment that everyone can be a part of, music educators may simply retrofit their classrooms to give the appearance of accessibility.

I am inspired by Hall et al. (2012), Hitchcock (2015), and Hourigan (2015). They believed in and envisioned a future shift from modifications and accommodations of curriculum to universal design and inspired this thesis. In the next chapter, I will provide some practical, efficient, and simple strategies for UDL implementation within the secondary school band room. I hope to provide the current secondary music educators with the fundamental understanding of the UDL guidelines and strategies to create accessible and inclusive musical learning environments.
CHAPTER 3: APPLICATIONS OF UDL IN SECONDARY MUSIC CLASSROOMS

The strategies below are just a few of the myriad possibilities of UDL strategies within the secondary instrumental music classroom. These are my own ideas, most of which were inspired by research and scholarship about UDL. One appealing aspect of UDL is that it allows educators and students to think creatively and outside of the norm. Of course, students can bake a cake to show their understanding of the levels in the pyramid of sound. Why not? Current and pre-service educators have the opportunity to change the way students understand, learn, and perform music by merely trying new strategies and utilizing new technologies, all while providing accessible learning spaces for all students.

The Culture of Expert Learning

UDL provides a framework for every member of the learning community to become an expert learner (Fritzgerald 2020, p. 25). UDL encourages educators to guide their students to become expert learners who are purposeful & motivated, resourceful & knowledgeable, and strategic & goal-oriented (CAST, 2018). Within a classroom utilizing UDL, students should know and understand the following affirmations: *You didn’t come here empty-handed; you are welcomed and valuable; you will teach, share, and grow to learn; and your destination is important.* These affirmations represent the core attitude of UDL. Everyone can learn and teach, and in the classroom, students bring their own knowledge to the table to inform their learning. These attitudes create what is known as a culture of expert learning, which is foundational in a universally designed classroom. Educators are not exempt from these affirmations and are encouraged to be lifelong learners. The Albert Einstein famously said, “Once you stop learning, you start dying.” In this case, once educators stop learning new methods, strategies, frameworks,
and pedagogies, they may be less effective in providing instruction that meets students’ varied learning needs. Educators may no longer be serving their students to the best of their abilities.

**Representation**

Learners differ in the ways that they perceive and comprehend information. Learning, and transfer of learning, occurs when multiple representations are used because they allow students to make connections within and between concepts. In short, there is not one means of representation that will be optimal for all learners; providing options for representation is important when implementing UDL principles (CAST, 2018).

**Guideline 1: Perception**

All students have varying abilities of the senses: sight, hearing, movement, and touch. It is helpful to have a flexible curriculum that does not heavily depend on any one sense in particular. The checkpoints within this guideline are (a) offer ways of customizing the display of information, (b) offer alternatives for auditory information, and (c) offer alternatives for visual information.

**Checkpoint 1.1 Offer ways of customizing the display of information**

Within the UDL principles, it is essential to give students multiple options for accessing and customizing course materials. Using technology, secondary instrumental educators can provide their course materials through multiple, customizable formats.

- When handing out resources in class or online, educators may consider the following factors: the size of text, images, graphs, tables, or other visual content; the contrast between background and text or image; the color used for information or emphasis; the volume or rate of speech or sound; the speed or timing of video, animation, sound, simulations, etc.; the layout of visual or other elements; and the font used for print materials (e.g., Hammel &
One Size Does Not Fit All

Hourigan, 2017). Programs like SmartMusic, Noteflight, Soundtrap, and GarageBand all have customizable ways of viewing and manipulating music and recordings to make them more accessible.

❖ When introducing a new piece, educators can give students multiple options to access and absorb the music. Educations can provide the sheet music, a recording of the piece, a video of a professional band playing the piece, a description of the piece and the meaning behind the composition, the score for students to see their parts in a full ensemble context, and individual recording of each part within the piece. This variety of options gives students choice and encouraged them to research and learn about the piece in that is most comfortable.

**Checkpoint 1.2 Offer alternatives for auditory information**

The goal if this checkpoint is to offer information in more ways than sound and voice alone. Information conveyed solely through sound is not equally accessible to all learners and is especially inaccessible for learners with hearing disabilities, learners who need more time to process information, or learners who have memory difficulties.

❖ There are many ways to give instruction and offer information besides using sound and the voice. However, many directors may fall into the habit of just quickly saying what they want with no visual or nonverbal cues to convey their message. For example, by saying, “Trombones, play softer at measure seven,” and then having them replay it or moving on, students with hearing disabilities, slow processors, students with memory issues, and ELL students may not have gotten that direction. To activate other learning inputs, the teacher could have had the trombones point to measure seven, and once they have found it, ask, “Trombones what dynamic is this measure?” They would find the answer and then use a pencil to mark the measure to be softer (kinesthetic). The teacher could have also used
nonverbal body language to indicate that measure seven needs to be softer by having the section play and conducting in a piano style (visual). Just by quickly integrating other forms of communication, the section can dramatically have more understanding of the instructions, which ultimately will save rehearsal time to revisit the subject.

❖ Another strategy is to give students visual cues that represent quick instructions. For example, having a set gesture that indicates instruments up without having to say, “instruments up” (Hourigan, 2015). Educators can also use emojis or signs that they can point at or show to give direction. Additionally, educators can visually demonstrate techniques (like playing positions or breathing technique) and/or model to convey concepts.

**Checkpoint 1.3 Offer alternatives for visual information.**

The goal for this checkpoint is to convey information in multiple ways rather than relying solely on images and text. Images and visual representation are not equally accessible to all learners, especially learners with visual disabilities or those who are not familiar with the type of graphic being used. Checkpoints 1.2 and 1.3 are two sides of the same coin. These checkpoints encourage educators not to depend on visual or auditory solely, but to provide students with diversified instruction strategies within the classroom.

❖ Students with visual disabilities are not exempt from learning and playing music. Students with low vision can benefit from enlarged music, or access to digital versions that can be customized to the user’s preferences. Additionally, programs like Braille Music Kit, Dancing Dots Music, Opus Technologies, and Toccata can provide students with braille transcriptions and copies of their music (Hammel, & Hourigan, 2017; National Federation of the Blind, n.d.).
Educators can provide auditory cues for key concepts and transitions. For example, educators can demonstrate the musical line by singing or playing an instrument. Sometimes students cannot understand the meaning of the teacher’s words but put in a context where they can hear the meaning, students may catch on quicker to the concept. To that end, Snow (2011) encourages music educators to keep students in the mindset of “musical thinking” as much as possible to help foster this musical understanding.

Guideline 2: Language & Symbols

Inequities may arise when information is presented to all learners through a single form of representation. An important instructional strategy is to ensure that alternative representations are provided not only for accessibility, but for clarity and comprehensibility across all learners. Within this guideline, there are five checkpoints: (a) clarify vocabulary and symbols, (b) clarify syntax and structure, (c) support decoding of text, mathematical notation, and symbols, (d) promote understanding across languages, and (e) illustrate through multiple media.

Checkpoint 2.1 Clarify vocabulary and symbols

The goal of this checkpoint is to consider the construction of meaning from words, symbols, and numbers using different representations. Words, symbols, numbers, and icons are not equally accessible to learners with varying backgrounds, languages, and lexical knowledge.

Western music notation may be foreign to new and beginning musicians in a middle school band. Even players with some experience reading music may have difficulty understanding the diverse symbols in music. To combat this, music educators can have visual diagrams and explanations of these symbols around the classroom, posted online, and given as handouts to which students can refer. Teachers also may consider having a music vocabulary word wall
with illustrations displayed in their classroom—also a best practice for teaching Emergent Bilingual Students (e.g., Cooper & Grimm-Anderson, 2007).

❖ The music vocabulary used in Western classical notation often comes from Latin or romantic languages, such as Spanish, French, Italian. To introduce terms such as *accelerando*, *molto ritardando*, *crescendo*, *poco a poco*, and *arpeggio*, educators can encourage students to use their background knowledge of other languages to try and deduce the meanings of these words. “What English word does *accelerando* look like? In Spanish what does *poco* mean?” This exercise follows the constructivist philosophy of teaching and learning that emphasizes learning as a social process in which students construct meaning through their own experiences (Dewy, 1929; Steffe & Gale, 2006). By using their own experiences students form new perspectives and understandings to these otherwise foreign words. “Learning is a social at where students interpret new understandings of their worlds in relation to previous knowledge and experience” (Scott, 2006, p. 19).

**Checkpoint 2.2 Clarify syntax and structure.**

The goal of checkpoint 2.2 is to make the patterns and properties of systems like grammar, musical notation, taxonomies, and equations explicit. Music notation is very much like a language; it possesses strict rules and procedures. For beginners, understanding of musical syntax can be crucial in development.

❖ Music educators constantly can scaffold understanding of the syntax of music by having students: write in the counting for a difficult measure, move to the beat while singing the rhythms, simplify difficult rhythms, model the measure for one another, or show the same concept within a different context. Some may say that this strategy just requires good teaching techniques.
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**Checkpoint 2.3 Support decoding of text, mathematical notation, and symbols**

The goal within this checkpoint is to make sure text and symbols don't get in the way of the learning goal. Often assessments are not assessing the intended factors. If a text requires students to read, then the test is not just assessing the course material, but the ability to read and decode meaning from words. In a musical context, all music students and musicians often sing and make music far before they understand musical syntax and vocabulary.

- To support the decoding of musical notation and symbols, provide as much exposure and explanation to the music as possible. Before sightreading a piece, play a recording of the piece, provide explanations to unknown words and rhythms, and give historical context to this piece. These extra supports work to eliminate the barrier of reading musical notation and promote understanding of these symbols. This is not a new idea; Edwin Gordon championed the theory of sound before symbol based on nineteenth century concepts espoused by Heinrich Pestalozzi (Efland, 1984; Gordon, 1989). It is important to note that many educators may disagree with this sentiment and preach that bands should sightread with no introduction or context. There is value in this viewpoint, as it is a form of assessment of understanding and reading ability, but it can discourage students who are not as comfortable with music notation and can alienate those who have little to no understanding of music notation.

**Checkpoint 2.4 Promote understanding across languages.**

For students who speak and understand a language that is not the standard language used in a given classroom, educators can use translations, descriptions, movement, and images to support learning in that unfamiliar or complex languages. ELL students (English Language Learners), also called Emergent Bilinguals, are just as capable of understanding English materials as students with English as their first language. Deaf students and students who use
One Size Does Not Fit All

American Sign Language (ASL) are also capable of learning and interacting in an English classroom.

❖ ELL’s and students who use ASL may prefer visual movements and images to explain concepts within the classroom. For music educators, when explaining concepts like legato or staccato, the language barrier may hinder student understanding. By using pictures, videos, sounds, body movements, and visual cues, ELL’s may understand the concept much faster (Cooper & Grimm-Anderson, 2007).

❖ Another strategy is to include time to break off into cooperative-learning groups, such as sectionals. This can increase motivation, create a positive learning environment, and lead to greater cultural and academic understandings (Abril, 2003).

**Checkpoint 2.5 Illustrate through multiple media**

Using multiple media mediums provides more "on ramps" for comprehension and can allow the curriculum to come alive for students. When students view concepts within real-life contexts, or better yet, through a medium in which they enjoy, they may be motivated to learn and be more successful. Secondary band educators can provide diverse resources for students to experience and understand core musical concepts.

❖ Students can learn musical concepts through many diverse forms of media. Videos, songs, illustrations, books, poems, dances, manipulatives such toys or games, recordings, live performances, photos, and online platforms such as GarageBand, SoundTrap and Chrome Music Lab. When explaining the concept of the tuning, students may not understand the concept of sound waves and what those “beats” are when a note is out of tune. Using Chrome Music Lab’s *Sound Waves*, educators can encourage students to experiment and explore sound waves. For each experiment, Chrome Music Lab gives explanations and visuals for
One Size Does Not Fit All

students to make connections and comprehend the material (see Figures 2 & 3). This can be an introductory activity to sound waves and tuning or can be a lesson within a unit.

Figure 2

*Chrome Music Lab: Sound Waves (Chrome Music Lab, n.d.)*

![Chrome Music Lab: Sound Waves](image1)

Figure 3

*Chrome Music Lab: Sounds Waves Experiment (Chrome Music Lab, n.d.)*

![Chrome Music Lab: Sounds Waves Experiment](image2)
Guideline 3: Comprehension

Constructing useable knowledge—knowledge that is accessible for future decision-making—depends not upon merely perceiving information, but upon active information processing skills. Students have various degrees of comprehension skills, so it is important to provide scaffolds for all learners.

Checkpoint 3.1 Activate or supply background knowledge

Educators should strive to help their students build connections from their prior understandings and experiences to the curriculum. Music can be a wonderful medium with which to activate prior experiences because most students may have past experiences with music. This checkpoint follows some ideas with Culturally Responsive Pedagogy (Lind & McKoy, 2016)

❖ To activate background knowledge in the music classroom, educators can use the music that their students prefer to teach different musical concepts. Have students showcase music that they like to listen to or to which they grew up listening. The teacher can then integrate these genres and artists into future concepts. For example, if students are having trouble playing the dotted eighth sixteenth rhythm, have students sing or showcase a popular song that utilizes this rhythm. For example, The Star Spangled Banner, Jingle Bells, and Uptown Funk utilize this rhythm. An example with the rhythm in a familiar context can help promote understanding within the music curriculum.

Checkpoint 3.2 Highlight patterns, critical features, big ideas, and relationships

The goal of checkpoint 3.2 is to accentuate important information and how it relates to the learning goal. A key point within the checkmark is to avoid features and information that matter the least in order to not clutter the important ideas.
A great way to highlight the musical patterns and big ideas of a piece is by designing the penultimate warm-up around these musical ideas (Linklater, 1995; Lisk, 1997). If the band is working on a John Phillips Souza march, then the warm-up can be centered around the two tonal centers of the piece and cover specific articulations that are seen in the piece. The goal is to not add too much or focus on unnecessary details, because then the main ideas may not transfer over to the rehearsal. This practice is also colloquially known as front loading information.

**Checkpoint 3.3 Guide information processing and visualization**

To meet checkpoint 3.3, educators can support the process of meaning-making through models, scaffolds, and feedback. Educators can provide interactive models and visualization that guide explorations to new understandings.

In their introductory method book, Duke and Byo (2009) propose a not-so-radical approach to guiding emerging music learners through musicianship aspects. Their method focuses on musicianship from the first day of instruction by having students use visualize everyday objects and occurrences. For example, on page 34, they have a short little tune called *Pet the Kitty*. The music is slow and legato, and by having students visualize petting a kitty, educators can guide students’ musical information processing and ultimately meet the learning goal of developing musicianship skills.

**Checkpoint 3.4 Maximize transfer and generalization**

Within this checkpoint, educators can support their students to apply past learning to new contexts. Without this support and the use of multiple representations, information might be learned, but is inaccessible in new situations.
To maximize transfer and generalization in the music classroom, key concepts can be reviewed and practice within the warm-up. If the ensemble can tune easily at the beginning of class but struggles to tune within the context of the piece, the warm-up can be changed to incorporate tuning exercises that help scaffold tuning within the context of a moving line, rather than just a stagnant note. This can help students transfer their knowledge of pitch tendencies and tuning to the pieces that they are struggling with.

Another strategy to maximize transfer and generalization of key concepts within music is having students listen to recordings and watch videos of other musicians modeling these concepts. For example, if students are struggling to apply the stylistic lilt feeling within a 3/4 dance, have students listen to recordings of the piece (or a similar piece). Listening may be enough for some students to understand the concept, but other may need other means of engagement to understand and transfer the concept. Educators can have students move and dance to the recordings to engrain feel of 3/4 time. Then educators can encourage students to recall back to the feeling and experience of dancing and apply that feeling in their music. This aligns with major tenets of Dalcroze Eurythmics (Darrow, 2016).

**Expression**

Learners differ in the ways that they can navigate a learning environment and express what they know. In reality, there is not one means of action and expression that will be optimal for all learners; providing options for action and expression is important (CAST, 2018)

**Guideline 4: Physical Action**

Physical action is one concern for students with disabilities when navigating the classroom. When looking at Universal Design, this guideline is one of the most fundamental in terms of accessibility within the classroom. There are two checkpoints for educators following
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this guideline: (a) vary the methods for response and navigation and (b) optimize access to tools and assistive technologies.

**Checkpoint 4.1 Vary the methods for response and navigation.**

This checkpoint's primary goal is for students to have equitable access for navigating course materials. Students may have varying physical abilities that require flexible means for interaction. To meet this checkpoint, educators can provide alternatives in their requirements for interaction and response.

❖ One thing that many music students experience is performance anxiety (Ryan, 2005).

Whether that be in front of a class, audience, or their teacher, performing can be daunting. Music educators can offer students alternatives for playing assessments to help combat performance anxiety and other barriers that hinder their performances. If students have to test on an etude, give students options on how they would like to perform for assessment; students can perform in class, in private with just the teacher, as a group with a few other students, or in a recorded video/audio. Not only is this giving students autonomy and choice, but they can choose the option that will produce the best results for them to show their comprehension and understanding of the material (Hourigan, 2015).

❖ Another strategy to offer students means for equitable navigation is to give graduated performance levels. For example, if everyone is required to play their major scales, give students options on how they can perform them. Flexible tempos, ranges, or formats to view their scales. The goal of playing the major scales is still intact, while the means of response is flexible to suit the needs of many learners (Hammel et al., 2016).
One Size Does Not Fit All

**Checkpoint 4.2 Optimize access to tools and assistive technologies.**

To meet checkpoint 4.2, educators can provide accessible tools and devices that build “on ramps” to facilitate learning that can help learners navigate through the physical environment of the classroom and the curriculum.

❖ Technologies like SmartMusic, NoteFlight, and SoundTrap are all programs that provide accessible means for music making and understanding. However, these programs can be advanced for some students. Programs like Chrome Music Lab utilize a hands-on, game-like experience that students can experiment with to create and learn about musical concepts.

Educators can incorporate these programs into their classrooms to support their students’ musical growth.

**Guideline 5: Expression and Communication.**

It is important to provide alternative modalities for expression to level the playing field among learners and allow the learner to appropriately (or easily) express knowledge, ideas, and concepts in the learning environment. The key within this guideline is that there is no one medium of expression that is equally suited for all learners or all kinds of communication.

**Checkpoint 5.1 Use multiple media for communication**

To meet this checkpoint, educators can allow students to express their learning in various flexible ways. Unless specific media and materials are critical to the goal, like writing with a paper and pencil, then it is important to provide alternative media for expression. For example, if students must create a project about American Indian culture, educators can give students multiple means in which to present their understanding; a PowerPoint, music video, film, TicTok, oral report, typed essay, diorama, infographic, comic strip, song, poem, and posterboard are all means in which students can convey their learning about this culture.
Within the traditional wind band ensemble, it can be difficult to offer students flexible means of expression that is not simply playing their instrument. However, there are many subjects within the curriculum that can be addressed away from the instrument. For example, reading and decoding rhythms. Students can convey their learning and comprehension of rhythm through many avenues; singing, clapping, dancing, writing in the counting, using manipulatives such as LEGOS to show durational relationships between notes, and transcribing the rhythm on paper or on an online program. There are so many options at various levels of ability that students can use to showcase their learning. Speaking from my own experience, one of the most interesting examples of expression that I witnessed was a girl who baked a multi-tiered cake to show her understanding of the pyramid of sound. This example illustrates that the possibilities for expression are only limited by the imagination!

**Checkpoint 5.2 Use multiple tools for construction and composition**

Student creation and creativity in a large part of checkpoint 5.2. Educators can encourage students to share thoughts, ideas, and creations using tools that complement the learning goal.

Music notation software can be an excellent medium in which students show their understanding of composition and musical ideas. Many programs like NoteFlight, Musescore, Garageband, and SoundTrap are easy to navigate and can be accessed by many students. Music educators can encourage their students to compose and create songs that use musical concepts that are covered in class. This can also be an outlet for students to discover their musical voice and may motivate them to learn more.

**Checkpoint 5.3 Build fluencies with graduated levels of support for practice and performance**

To meet this checkpoint, educators can apply and gradually remove scaffolds to support fluency and independent learning. CAST (2018) says that performance opportunities, such tests
or projects, help learners because they allow students to synthesize their learning in personally relevant ways.

❖ To build music fluency and independent learning, music educators can give students time to work in small groups such as sectionals or quartets. Students may have different ideas and insights on how to explain and interpret musical concepts to their peers. A common practice for many educators is the “Think-Pair-Share” strategy that guides students to think about the answer to a given question, pair up with a peer, and share their thinking with each other. This strategy scaffolds understanding and guides students to think independently before comparing with a partner.

❖ Another example of building fluency with graduated levels of support is to teach major scales using tetrachords. In western music, a tetrachord is an ascending series of four notes. Two tetrachords each with the interval arrangement of tone, tone, semitone, can combine to form a major scale. To scaffold the construction of major scales, educators can first introduce tetrachords. Then educators can have students play two tetrachords in a row to build a major scale. This can be customized to aid students in their understanding of major scales.

**Figure 4**

*Music Theory for the 21st-Century Classroom: The Major Scale (Robert Hutchinson, n.d)*
Guideline 6: Executive Functions

Executing functions are a set of cognitive processes that are necessary for the cognitive control of behavior (CAST, 2018). These processes help students overcome impulsive, short-term reactions to their environment, which may be a natural tendency for some. Executive functions help students set long-term goals, plan effective strategies for reaching those goals, monitor their progress, and modify strategies as needed. This guideline addresses ways that educators can provide scaffolding for executive functions themselves. The four checkpoints for this guideline are (a) guide appropriate goal setting, (b) support planning and strategy development, (c) facilitate managing information and resources, and (d) enhance capacity for monitoring progress.

Checkpoint 6.1 Guide appropriate goal setting

This checkpoint is meant to help students create appropriate goals throughout the learning process. To meet this checkpoint, teachers should not set all of the goals for the class, but rather guide students to co-create scaffolded goals and objectives.

❖ Beginning instrumentalists may feel like they cannot reach their playing ability goals due to their lack of command of the instrument. Students may set their goals too high and then feel helpless to reach them. Music educators can help supplement these high goals by playing achievable, confidence-boosting pieces and exercises that motivate students and promote technical and musical growth. Teachers also can have students choose from a pre-written “bank” of appropriate, achievable individual goals to start.

Checkpoint 6.2 Support planning and strategy development

This checkpoint is designed to support students in formulating reasonable plans to help them reach their goals. Various options can be used to help learners plan and strategize, such as
cognitive "speed bumps" that prompt them to "stop and think;" graduated scaffolds that help them implement strategies; or engagement in decision-making with mentors.

❖ The goal here is to give students opportunities to plan and strategize to meet their goals. If it is the goal of each student to pass all of their playing assessments for the semester, the teacher can guide the students in creating a timeline and/or action plan for said goal. Throughout the timeline, the teacher can assess and revise with students’ approval. This can also be done on an individual level. In consultation with the teacher, a student who is struggling may have different goals and a timeline to reach said goals. This strategy is flexible and can be manipulated at multiple levels: with the full ensemble, a section, or with an individual (e.g., Bazan, 2011).

❖ The part of the brain that is responsible for executive functions does not reach maturity until late adolescence or adulthood (Rose, Gravel, & Domings, 2012). For musicians, these functions are critical in helping students plan and organize their practice time. Lapka (2016) suggests that music educators provide students with flexible practice outlines that they can use to plan and execute effective practice time. These outlines are adaptable for individual student needs and guide students to choose from various exercises and activities. This can develop student autonomy by giving students choices throughout the practice time.

**Checkpoint 6.3 Facilitate managing information and resources**

This checkpoint is to support student organization and memory using flexible tools and processes. Students who struggle with working memory—the short-term memory concerned with immediate conscious perceptual and linguistic processing—may need various internal scaffolds and external organizational aids to keep information organized.
Students may need extra reminders of the classroom routine. Provide a daily checklist of tasks to complete before rehearsal starts. For example, put down my backpack, grab a chair and stand, and grab my instrument case and music binder (Feldman & Contzius, 2021).

Provide students with an abundance of resources to use during rehearsals. Provide fingering charts, detailed class schedules, and checklists for students to keep students organized and engaged.

**Checkpoint 6.4 Enhance capacity for monitoring progress**

Checkpoint 6.4 surrounds feedback and assessment and the students' ability to monitor their progress. To meet this checkpoint, educators should provide options that can be customized to provide more explicit, timely, informative, and accessible feedback. Especially important is providing "formative" feedback that allows learners to monitor their progress and use that information to guide their effort and practice (CAST, 2018).

- Provide diverse modes of feedback. For example, have students self-review rehearsal recordings, have students give each other peer feedback, have a group discussion reviewing a performance recording, have students listen to and reflect on judges' critiques from performances.

- Ask questions to guide self-monitoring and reflection throughout rehearsals. For example, "How is my posture? On a scale from 1-10, how did I do on that last run-through? How can I improve my score for the next run-through?"

- Show representations of progress to students. Listen to recordings of a rehearsal or warm-up from the beginning of the semester; then, listen to a recording of a recent rehearsal or warm-up. By showcasing evidence of growth, students may feel motivated and inspired to continue to work, especially with young or beginning students who may feel defeated.
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Engagement

Engagement is the first exposure to the curriculum that students will receive. Engagement motivates students and recruits their interest; without this, students will not see the purpose of learning. "Fostering engagement in all learners, especially those for whom the system was not built, is both an art and a science" (Fitzgerald, 2020, p. 72). The three guidelines within Engagement are: (a) recruiting interest, (b) sustaining effort & persistence, and (c) self-regulation.

Guideline 7: Recruiting Interest

Within guideline seven, there are three checkpoints for educators to guide their provided options for recruiting interest: (a) optimize individual choice and autonomy, (b) optimize relevance, value, and authenticity, and (c) minimize threats and distractions.

Checkpoint 7.1 Optimizing Individual Choice

For this checkpoint, it is crucial that students feel independent by making independent choices. By giving students choices, students can engage by connecting to their learning, expressing personal preferences, and developing self-determination and autonomy.

❖ During warm-ups, have individuals choose an articulation pattern to play. A variant of this is providing students a set of 3 different articulation patterns (Slur 2 -Tongue 2, Slur 3 - Tongue 1, Slur 4 - Tongue 4). This variant gives students autonomy of choice yet sets the parameters of an informed choice (Villa et al., 2010).

Checkpoint 7.2 Optimizing Relevance, Value, and Authenticity

Students can connect learning to personal experiences that are meaningful and valuable. Music educators can engage students' previous learning and connect it to the material in a
relatable way—a suggestion that aligns with Culturally Responsive Teaching and Constructivism (e.g., Dewy, 1929; Lind & McKoy, 2016; Steffe & Gale, 2006).

❖ For example, when learning about basic song forms like ABA, have students find a song that they enjoy that follows this same form. It can be from any genre, any period, any culture, and have any instrumentation. This activity is personalized and contextualized to the learners' lives, is appropriate for any racial, cultural, ethnic, or age group, and requires active participation and exploration. For learners who may need more structure, the teacher can offer filters that narrow the assignment's scope, like saying that the song must be from their childhood or on the radio today.

**Checkpoint 7.3 Minimize Threats and Distractions**

One goal of all educators should be to foster a safe environment in which students can learn and grow. A key ingredient in fostering safety within the classroom is creating classroom routines and procedures (e.g., Fitzgerald, 2020; Wong, Wong, & Seroyer, 2005).

❖ Have easily accessible charts, calendars, schedules, visible timers, cues, and previews to increase the classroom's predictability. When students walk into class, make sure the schedule for the day is visible and understandable.

**Guideline 8: Sustaining Effort & Persistence**

Within this guideline, there are four checkpoints to ensure that educators provide options to support learners who differ in initial motivation and self-regulation skills: (a) heighten salience of goals and objectives, (b) vary demands and resources to optimize challenge, (c) foster collaboration and community, and (d) increase mastery-oriented feedback.
Checkpoint 8.1 Heighten Salience of Goals and Objectives

In the classroom, students should have a vision of a learning goal and why it matters. If there are no goals within the learning process, it can be hard for students to see why their learning matters.

❖ Engage students in discussions about what excellence means within the ensemble. Set a macro-goal for the group. Whether that is getting a superior rating at a festival, performing a challenging piece of literature by spring concert, or playing the winter concert with no squeaks or fracks, setting goals can help keep students engaged and focused.

❖ Individual goals can also motivate students which can work to support the team goal. By having goals for individuals, students can have a sense of responsibility and leadership within the ensemble. Educators can collaborate with students to set individual playing goals like getting a higher chair placement in the next round of auditions, working on individual dynamics and musicianship, and improving improvisation technique. Goals can be scaffolded to meet the needs of diverse musicians. For example, some may perfectly understand and shoot for a goal as general as “Play all of my major scales by the end of the semester.” However, that may seem daunting and overwhelming to some, so smaller more manageable goals work best: “Play Bb, Eb & Ab major scales by October 3rd.”

❖ Set intentions for rehearsals. For example, "by the end of the rehearsal, our goal is to be able to play measures 45-60 at the performance tempo." Setting micro-goals that call back to the larger original goal may motivate and engage students in the learning process (Bazan, 2011).
One Size Does Not Fit All

Checkpoint 8.2 Vary Demands and resources to Optimize Challenge

All learners need to be challenged to grow, but not always in the same way. In addition to providing appropriately varied levels and types of demands, students also should be provided with the appropriate resources to complete the task.

❖ Scales are an example of an exercise that can be appropriately scaled to challenge students while providing alternatives in the permissible tools and scaffolds. For scale assessments, allowing students to choose to look at their music or play from memory, play for longer or shorter note durations, or play more or fewer scales in the exercise. The key is to emphasize the process, effort, and improvement in their students.

Checkpoint 8.3 Foster Collaboration and Community

A common goal for students is to communicate effectively and work collaboratively within a community of learners. Within this checkpoint, educators are encouraged to offer students ample time to work collaboratively among peers.

❖ Make time for sections to work collaboratively together. Have student-led sectionals in which collaboration and peer-tutoring are encouraged.

❖ Encourage students to play in small ensembles like duets, trios, quartets, etc. Playing in diverse groups not only fosters creativity, but it encourages student input and collaboration among peers (e.g., Stamer, 2002).

Checkpoint 8.4 Increase Mastery-Oriented Feedback

Assessment is essential to growth. Just like every student is distinctive, effective feedback should be unique, frequent, timely, and specific.

❖ An excellent technique for feedback is listening to recordings of the ensemble. Record a run-through of a piece, warm-up, or exercise. Have students listen back and give compliments
and improvements. This exercise gives students a chance to reflect on their performance, think critically about ways to improve, and promote expert learning.

Guideline 9: Self-Regulation

Within this guideline, there are three checkpoints to ensure that educators develop learners' intrinsic abilities to help regulate their emotions and motivations: (a) promote expectations and beliefs that optimize motivation, (b) facilitate personal coping skills and strategies, and (c) develop self-assessment and reflection.

Checkpoint 9.1 Promote expectations and beliefs that optimize motivation

Educators should encourage their students to set realistic, attainable goals that can keep them motivated to learn and encouraged to press on, even when things get difficult.

❖ Help students set personal instrumental and ensemble goals. For example, by the end of the semester, every student should pass the playing test for all major scales. Provide frequent reminders, guides, rubrics, and checklists that encourage students to keep working toward meeting their goals (e.g., Bazan, 2011).

❖ Another way to get students motivated and excited to learn is by bringing in guest artists and performers to the classroom. Sometimes students may need to be inspired to learn by seeing professionals and seeing concepts brought to life in real world contexts. Additionally, this same effect can be achieved by taking students to local concerts, marching band shows, and live performances (e.g., Adams, 2016).

Checkpoint 9.2 Facilitate personal coping skills and strategies

Teachers can model healthy coping behavior for their students. Educators may only model self-regulatory skills and not think to provide students with reflection and self-regulatory opportunities in the classroom. Modeling is helpful but may be insufficient for many learners to
learn these skills. Students may need assistance regulating their own emotions and coping with stressful external events that happen in and out of the classroom. Educators can aid students by providing opportunities for reflection and self-regulation.

❖ Have students reflect on and discuss how they can improve, overcome and cope with performance anxiety (Ryan, 2005). Provide prompts such as, "how can I overcome performance anxiety?" Have students chat/reflect online, in groups, in a personal journal, or within a group discussion on performance anxiety. By normalizing the fear, having reflective conversations, seeking external support, and developing an internal dialogue, students may develop the ability to transfer these coping skills to more challenging life events (CAST, 2018).

**Checkpoint 9.3 Develop self-assessment and reflection.**

To develop better capacity for self-regulation, learners can monitor their emotions and reactivity. It is important that students have multiple self-assessment techniques so that they can choose ones that are optimal.

❖ In a cyclical manner, (e.g., every two weeks, after every performance, after each comprehension check) have students journal and reflect on their progress and learning. A blank piece of paper (or a blank word document) may be daunting to many students, so provide sentence stems to scaffold reflection and self-assessment. For example, “Thing(s) that I did well during this [rehearsal, performance, test] ________” or “Thing(s) that I can improve on for the next [rehearsal, performance, test] ________”. Additionally, encourage students to set goals that match their reflection reports (Reynolds & Beitler, 2007).
CHAPTER 4: DISCUSSION

In many ways, UDL strategies can be seen simply as good teaching (Edyburn, 2010). Scaffolding student understanding, connecting students background knowledge to inform learning, and engaging students through diverse mediums are all strategies educators may learn in their credential course work. In their book, *Accommodations- Or Just Good Teaching?*, Hodge and Preston-Sabin (1997) discuss integrating reasonable accommodations as just a part of good teaching. However, Burgstahler and Cory (2008) state that creating universally designed courses and curricula requires intentionality that specifically works to remove barriers to learning. “Even the most gifted lecturer is not necessarily a good teacher if other aspects of the course do not meet the needs of students” (Burgstahler & Cory, 2008, p. 69). This intentionally includes the knowledge of students’ strengths and abilities, backgrounds, skills, cultures, and preferences. UDL guides educators to look at the benefits of their students’ diversity, rather than viewing students through a deficit lens (Kieran & Anderson, 2018; Villegas & Lucas, 2002; Yosso, 2005).

An emergent theme throughout this literature review was the topic covered by Santamaria (2009) and Kieran and Anderson (2018): the connection between UDL and culturally responsive pedagogy. After many months into the literature surrounding UDL, I began to find more and more practitioners and researchers tapping into this cross-over. Fritzgerald (2020) inspired me to look more deeply into the connections between UDL and anti-racism, which launched me into this pool of literature. Three UDL checkpoints that seem similar to Culturally Responsive Pedagogy are Checkpoint 2.4 (Promote Understanding Across Languages), Checkpoint 3.1 (Activate or Supply Background Knowledge), and Checkpoint 7.2 (Optimizing Relevance,
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Value, and Authenticity). There is significant overlap between these two pedagogies which warrants future research.

The 2020 Context

This literature review being written within the context of COVID-19, a global pandemic that has changed how we deliver and experience education. In March of 2020, many educators were informed by the state that schools would be shutting down for public safety, and teachers needed to convert their entire classroom to an online format in a very short time. Such a transition is not just an easy task, not only because of the emotional toll of a global pandemic, but because of this question: “how do we revise those in-person engagement experiences to be meaningful and impactful for our students?”

Technology is a foundational element within the UDL framework. It provides customizable, adaptable, accessible forms of engagement, representation, and expression interactions. For educators who may have already provided their students with various means of interacting with the curriculum and classroom through technology, the transition may have been smoother. For example, in the music classroom, if students were used to submitting playing recordings of them playing on Google classroom, Padlet, SmartMusic, etc., then the struggle of learning a new interface was eradicated.

It is important to note the equity emergency that COVID-19 created. Of course, not all students have access to reliable Wi-Fi or technology to engage in an online format long-term. Many schools have provided their students with laptops and hotspots, but many are without proper equipment and/or internet access and struggle every morning to figure out how they will sign into class that day. Students with moderate to severe disabilities may have one-on-one aides that help them navigate the classroom. Because these students may also be immunodeficient, it
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poses too big of a risk to have aides and students meet face-to-face. The unfortunate risk is these students may not get the help they need to meet their learning goals.

Abandon the Status Quo

One could argue that UDL is a buzzword, a bandwagon easily jumped on, given its message and appeal. Kauffman (2002) observed that “slogans often work against the acquisition of understanding” (p. 77) in describing the long-standing debate about full inclusion of students with disabilities in general education. As an educator, it is easy to say that you believe in UDL and want to implement it in your classroom. However, it takes work to commit to an emerging practice such as UDL or culturally responsive teaching framework. It is easy to keep the status quo. It is not easy to begin to remove injustices built into the brick and mortar of classrooms and schools. However, with a growth mindset and a willingness to learn and adopt new strategies, educators can create accessible learning spaces for their students.

Suggestions for Future Research

Universal Design for learning is an emerging area of study in music education. UDL can be seen as the next logical step within the inclusive education movement. However, more research is needed to understand the efficacy of UDL strategies within the secondary band room. Researchers could continue to conduct qualitative research on UDL and its effects on specific and measurable data, such as GPA or IEP goals. Future qualitative studies could focus on the experiences of students with disabilities within the music classroom. Future longitudinal research could focus on a universally designed music classroom and its effects on recruitment and retention rates of students with disabilities. Additionally, longitudinal studies of disabled and neurodivergent students could explore their experience of how music plays a role in their lives from childhood to adulthood. Possible ethnographic and narratives studies could focus on
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experiences of disabled music students and their relationship with their music classroom and community. An emergent topic that warrants further study is the connection between UDL and culturally responsive pedagogy in music education.

Conclusions

Universal Design for Learning is gaining popularity every year. School districts and administrations are beginning to implement UDL in yearly faculty and professional development meetings. Additionally, California pre-service educators must implement UDL strategies in cycle one of the California Teacher Performance Assessment (CalTPA) (California Commission on Teacher Credentialing, 2020). As UDL is growing in popularity, educators in all disciplines are looking to refine their teaching practices to be more accessible to all learners. In the era of COVID-19, music educators are looking for ways to engage their students, represent their materials in a variety of ways, and have students express their knowledge of the curriculum. With the removal of traditional in-person ensembles, music educators are reevaluating their methods and using creativity to provide their students with accessible, engaging materials. With a commitment to accessibility (and a little creativity), music educators can continue to explore and utilize UDL strategies in their classrooms to create universally accessible learning spaces for all.


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