Using Color Music:

Building Bridges for Students with Dyslexia in Ensemble Settings

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Professional Development Presentation

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Introductory Essay

For my capstone project, I chose the professional development presentation option because I felt that it would allow me to research an important topic and then share my knowledge with others. I am about to begin my 7th year of teaching K-12 music at South Platte Schools in Big Springs, Nebraska. South Platte is a very small school district of about 190 students. Our district has an unusually high ratio of special needs students. I chose the topic and format of my capstone project based on some issues that I am having in my classroom educating those students.

Students with special needs have always had a special place in my heart. This is probably because I can see myself in their eyes. As a child, I had three disabilities. I was hearing impaired, but I was also handicapped by poverty and pride. My parents refused to get my hearing checked because they would not be able to afford the doctor’s bill. They did not allow the school to do any testing so I never had an IEP (Individualized Education Plan). My teachers all knew that I had troubles hearing, and made small accommodations where they could. Because I was willing to advocate for myself, I was able to sit in the front of the general education classroom. Because I was without an IEP, I was allowed to participate in music. Other students in my grade with disabilities were not able to participate in music beginning with middle school simply because they had an IEP. This was regardless of what their disability was or how well they were able to participate in elementary music. I was very blessed that my band director noticed that I was struggling to hear the differences in partials in the higher ranges of the trumpet and came to me with a solution. He had me switch to tuba and I was able to fully participate and excel. In college, I was able to fill out assistance paperwork and we discovered that my hearing disability was completely correctable by surgery. My struggles in middle and
high school, along with the experience of having friends kept out of music while I was allowed to do music left a permanent mark on me. In my undergrad program, I took a very extensive minor in special education. In my teaching thus far, I have been able to include students with all types of disabilities in music in meaningful ways. I work very hard to find creative solutions for all children who want to learn, even if they are not “identified” with an IEP as having a disability. Several music teachers in my area consult with me if they have a student who perplexes them. Students with special needs are becoming more prevalent in every school district. Most teachers have very little training or knowledge about how to work with students with special needs. Many teachers that I know are hungry for more information and techniques to help them teach these students.

Very early in my coursework at Kent State, I knew that I wanted to do something related to students with special needs. During the Inquiry in Music Teaching II course, I was introduced to action research. This intrigued me! Prior to this course I had not looked at research as something I could do on my own in my own classroom. I began looking at issues that I have in my classroom. Ways to get my students who struggle to read music instantly came to mind. During the Advanced Studies in Instrumental Music course, I created an annotated bibliography investigating that problem. I came across the concept of color music during this project. Color music is a technique used to facilitate enhanced learning in music students by adding visual color to written musical notation. This was a method that could potentially help numerous students, with or without a diagnosed learning disability. This method could be considered a RTI (Response to Intervention) technique and would not require an IEP or parental consent to implement. I knew that I needed to do my capstone project around this topic. My soon to be 5th grade students have an unusually high number of students with various learning disabilities.
Fourteen of my twenty-one students have a documented learning disability. I initially thought about a research study, but realizing that time would be rather limited I decided instead to complete the professional development presentation so that I could do the literature review portion of the research and begin sharing this idea with others. I feel that this would be a topic of interest for several music educators. I am very excited to try using this method with these students as they enter ensemble courses, and hope to be able to incorporate that research with my presentation in the future. I have been asked to present this information at the Nebraska Music Educators Association’s Fall Conference in 2017.
Abstract

The purpose of this presentation is to show music educators what color music is and how they can incorporate color music in their teaching. Color music is a technique used to facilitate enhanced learning in music students by adding visual color to written musical notation. This technique has shown great promise in students with learning disabilities, particularly dyslexia. More research into this topic is needed.

*Keywords:* Color music, dyslexia, learning disabilities, sight-reading
**Statement of purpose**

As educators, we are called to educate the whole student. A quality education includes an education in the fine arts. Students with special needs are students first, despite any disability they may have. Several students with learning disabilities are being kept out of or drop out of ensemble courses because traditional notation becomes too arduous for them. Color music provides a possible solution. This presentation on color music explores the possibility of using color music to reach students with special needs and educating directors on a method to help these students succeed at a higher level.

**Relevance**

It has been suggested that up to 20 percent of the general population can be identified as having some form of dyslexia (Vance, 2004). Much of the previous research done on the effects of dyslexia on music has been done in Britain. British musicians and psychologist use the term “dyslexic” almost interchangeably with the term “specific learning disabilities” (McCord & Fitzgerald, 2006). The term “dyslexic” will be used throughout this presentation. Dyslexia shares many similarities with other specific learning disabilities. No matter the term used, students with learning disabilities deserve teachers who are willing to work with them and advocate for them to have a meaningful way to participate in music classes and ensembles. Students with developmental dyslexia are most often seen in inclusive classroom environments and are more likely overcome with proper treatment and accommodations (Heikkila & Knight, 2012). Most music teachers will likely have at least one dyslexic student during their teaching careers.

Students with dyslexia have a unique relationship with music. Many students with dyslexia are able to find a high level of success in the elementary music classroom even when
they are not able to find success as easily in other classes. It is natural for the dyslexic child to be inclined to right-brain activities, which would probably include music, art, acting, and sports than to be inclined to logical left-brained skills, such as reading and writing (Oglethorpe, 2008a). For some students, music may be the only successful experience that they have in the school day. Unfortunately, when these students get to an ensemble setting, they find themselves confused or lost and are often quickly left behind. Some schools even keep students with dyslexia out of ensemble groups with the rationale that they need to spend more time focusing on “core” studies. Parents may fear yet another failure on the part of their student and refuse to allow their participation (Oglethorpe, 2008a). The sympathetic and understanding music educator can be of great assistance to these students. Dyslexic students who are helped and able to have a meaningful experience in music have said that “music lessons have been the one beacon of hope in an otherwise dark and depressing learning experience” (Oglethorpe, 2008a, p. 59). The universal language of music may offer a new way of communicating that can break down the barriers of isolation and lead the student into a rich and absorbing world with newfound freedom and power (Oglethorpe, 2002). A way that educators can help to bridge the gap from elementary music classes to ensembles is color music.

Color music is a multisensory teaching approach that helps to facilitate learning for all students. “Multisensory” means “involving many senses”; in other words, in multisensory teaching, one does not teach through vision alone or through hearing alone (Miles, 2008). Color music is a technique used to facilitate enhanced learning in music students by adding visual color to written musical notation. It systematically codes each note of the staff with a color. In England, Margaret (Peggy) Hubicki created the Colour-Staff to prevent difficulties tracking from left to right and to help avoid gaze shifting. Gaze shifting is a common problem amongst
dyslexic students where the eyes jump from one line of music to another. According to Hubicki and Miles (1991), “Each color represents one of the seven notes of the scale, C (red), D (yellow), E (blue), F (violet), G (orange), A (green), and B (indigo)” (p. 65). The system is an attempt to help people read music by connecting a color to each space or line of the grand staff (Heikkila & Knight, 2012). Colour-Staff is a way to keep students focus on the note heads and the placement of the note heads in the staff instead of writing in fingerings or letter names above or below the noteheads. The color brings to light the patterns hidden within the black on white nature of the music. With Hubicki’s system, when looking up or down the staff in fifths, the order of the colors is that of the spectrum—red, orange, yellow, green, blue, indigo, violet (Hubiki & Miles, pg. 65).

In America, Boomwhackers were invented in the mid 90’s (Ramsell, 2011). These plastic colored tubes have been used in elementary classrooms nationwide and are a cost-effective alternative to Orff instruments or hand bells. Craig Ramsell developed the Chroma-Notes Colored Music System in the process of designing the look of the Boomwhackers. Unlike Colour Staff, Chroma-Notes use the full chromatic scale. Boomwhackers approximate, but do not replicate, the colors of the spectrum—C (red), C#/Db (vermillion), D (orange), D#/Eb (Saffron), E (yellow), F (lime green), F#/Gb (green), G (dark green), G#/Ab (blue), A (indigo), A#/Bb (purple), and B (magenta) (Ramsell, 2011).

Studies have shown that regardless of the choice of colors used, colored notation helps make more brain connections than traditional black on white notation. Zdzinski (2001) found that “the use of color coded notation may enhance the comprehension of musical notation by students with visual processing and mild mental disabilities, as they tend to learn better with information presented in multiple modalities” (p. 28). In a study by Rogers (1996) on color
being added to rhythmic notation, the colored notation increased students’ affective involvement in the academic task of reading music, with nearly 80% of the students preferring the experimental notation. There are many experts in the field of dyslexia who agree that, with early intervention, the right kind of teaching, support from everyone involved and determination, the intelligent dyslexic pupil will eventually learn the basic literacy skills that will see them through adult life (Oglethorpe, 2002). Students with dyslexia are often able to overcome the problems they face with practice. Using color music to provide them an opportunity to practice with a coping mechanism allows them to see more success early on in ensemble playing. Early experiences of success can help to keep them going until they learn to overcome problems without the color.

This technique is meant to be a bridge into ensemble playing. It is not meant to be used in permanence. Once a student has a firm grasp on the notes, a fading process is recommended. The fading process can slowly subtract the colors until only traditional notation remains (Heikkila & Knight, 2012). Some students only find that they need a color coded notational system for ledger lines to keep track of pitches above and below the staff or landmark notes (Lind, 2000). These notes should be the last to go in the fading process.

Using colored notation will take time and additional resources for the instrumental teacher (Zdzinski, 2001). With a little effort and the use of highlighters, colored pencils, and software, teachers can include learners with special needs in the instrumental classrooms and can help them include instrumental music in their lives. Color music is a way to help students with dyslexia to meaningfully participate in music. Even if the colored notation is something that the student always depends upon to be able to play, it is worth it. As Oglethorpe (2002) wisely remarks, “After all it is not the piece of paper that the audience came to hear but the sound of the
music” (p. 71).

**Intended audience**

The intended audience for this presentation is the secondary music educator who has students with dyslexia or other learning disabilities participating in or wanting to participate in ensembles. This presentation would be suitable for any music educator, regardless of level, because techniques discussed could be implemented at any level. This presentation may be a springboard to discussion for other ideas on how to help students with learning disabilities to participate in music in meaningful ways.
Script

https://video.kent.edu/media/JodyZiola-Capstone-VideoFinal/0_m341qnem

Notes:

1. On the video, please go to the right side of the screen and select one screen. Then in the upper right corner switch screens so you are able to view the presentation.

2. Please note that the QR code on the title slide and the conclusion slide does not work. I added that because I know the NMEA uses them on all of their presentations.
Good morning and welcome to the last day of the Nebraska Music Educators Association’s fall conference. Thank you for coming this morning. For your convenience, my PowerPoint and reference list are available for download on the NMEA app. You can also use the QR code to access the materials. [Allow a moment for people to use QR code.] I would like to introduce you to a concept that you have probably not heard of or used in your classrooms. I would like to introduce you to the world of color music and show you how color music can help you work with your students with dyslexia.

It is important to note that much of the previous research that has been done on this topic of color music has been done in England. McCord and Fitzgerald (2006) explain that British musicians and psychologists use the term “dyslexic” almost interchangeably with the term “specific learning disabilities” (p. 50). This is echoed in a more recent study by Heikkila and Knight (2012), who state “Dyslexia has traditionally been an umbrella term for people who
process cognitive information differently” (p. 55). Throughout this presentation, I will use the terms dyslexia and dyslexic instead of students with learning disabilities simply for continuity with my research. Color music could prove useful for any student who struggles to read music notation, regardless of if they have any diagnosable disability or not. [Advance Slide.]
Students with dyslexia have always had a unique relationship with music. Many students with dyslexia are able to find a level of success in the elementary music classroom even when they are not able to find success as easily in other classes. [Advance Slide.] Oglethorpe (2008a) states, “There are many dyslexics for whom their music lessons have been the one beacon of hope in an otherwise dark and depressing learning experience” (p. 59). Unfortunately, when these students get to an ensemble setting, they find themselves confused or lost and are often quickly left behind. [Advance Slide.] Some schools even keep students with dyslexia out of ensemble groups with the rationale that those students need to spend more time focusing on “core” studies. Oglethorpe (2008a) expressed that “Many parents may fear yet another failure on the part of their student and refuse to allow their participation” (p. 59). [Advance Slide.]

One of the most notable reasons for students with dyslexia failing to find success in ensembles is a distinct change in teaching style. At this point in many schools, students change
from an elementary music teacher to a middle school and high school band, orchestra, and choir teacher or teachers. Even in small schools with only one K-12 music teacher, the style of teaching often changes. [Advance Slide.] In the elementary setting, a great number of teachers teach by rote in a sound before sight approach. This approach is very beneficial for all students, but especially for students with dyslexia. As a part of the elementary learning process, the standard notational system is often broken down into manageable bits. The staff is simplified and rhythms are explored separately from pitch.

Let us look at what happens once students start elementary band or orchestra. A new and complex instrument is placed into their hands. The brain goes on overload trying to read the pitch and duration of the music, remembering how to sit and hold the instrument, adjusting the hands to strange fingerings, staying together with classmates, watching the conductor, and so on. While focusing on how to play this new and complex instrument it is expected that reading the music fluently is second nature.

All elementary music teachers teach the students how to name the notes. By the time a student is in the third or fourth grade they know all of the notes on the treble clef. They have spent time with naming mnemonics and have played games and done quizzes to help them learn those note names. However, being able to read the note names is not the same as reading the music and playing an instrument simultaneously.

It is easy to understand how beginning ensemble students get confused, particularly those students with dyslexia. Even students with no diagnosable disability find themselves being left behind when they emerge from a program of being taught by rote or a simplified notation system and are placed into a program that runs on the traditional standard notation system. I have been
confounded by this problem in my own practice and have been looking for ways to help those students with dyslexia to succeed in an ensemble setting. [Advance Slide.]
The discrepancies between elementary music and the ensemble use of standard traditional notation is even more deeply rooted than in the educational world. Toy manufacturers produce musical “instruments”. [Advance Slide.] Many of these “instruments” come with at least a few songs that can be played based on an alternative system of reading music. Cromleigh (1977) states, “Manufacturers recognize that their sales would be significantly lower if they depended on the customers’ learning to play an instrument through a difficult notation system” (p. 30). These alternative systems have been based on numbers, colors, symbols, diagrams, and even textures. They work for the intended purpose, which is to give the consumer a feeling of achievement early and easily. This hooks the consumer so more of the manufacturer’s toys are bought. Sales are their main goal, so after the sale is made they have achieved their goal. Manufacturers have no real investment in the consumer learning anything about music. Consumers inevitably run out of things that they are able to play or feel they have graduated the
toy. This leads the consumer to look for something more, and manufacturers who are smart have the next new and exciting thing ready to go. The consumer will eventually realize that all of his playing sounds rather amateurish and quit the toy altogether.

For example, let’s look at the popular games in the Guitar Hero series. Guitar Hero uses colors to correspond with “notes” that need to be played at the correct moment. As a player, increasing coordination and playing the song with greater accuracy leads to better scores. When the player becomes more skilled, he inevitably gets bored with playing the same songs and buys another game with a different set of songs. The tutorial type songs use three or four buttons, adding the difficulty of a fifth button and simulated chords to later songs. When sales began to dip, the manufacturer came out with Guitar Hero Live. This features a six-button guitar set up in two rows of three. Colors are swapped out for black and white symbols. This system adds more difficulty. Of course, none of the games in this series actually increase your skills as a musician. These games are fun and dupe the public into believing that they are having a musical experience. Many of these products convince parents who do not have a music background into believing that music is easy and requires little effort.
On the other end of the spectrum, teachers of instruments in ensemble settings insist upon using standard traditional notation immediately. This notational system is achromatic and does not offer the same satisfaction that the manufacturers of musical toys have enjoyed. [Advance Slide.] It does not come easily for most students and takes years of practice to perfect. Even in adult piano classes, Van Weelden (2007) estimated sixty percent of students drop out due to an inability to figure out how to read the music (p. 2). Sixty percent!

The disconnect of preschool toys and “music like” games to serious musicians is beginning to close. [Advance Slide.] The invention of Boomwhackers and other “toy” based color systems are becoming popular and are making their way into the elementary music classroom. These instruments are more readily available and financially achievable by many elementary school districts than Orff instruments or hand bells and help to teach the same musical concepts. Some teachers choose to use Boomwhackers with the designated Chroma-
Notes color system, other teachers use Boomwhackers with traditional notation. Regardless of if or how these are used, once formal band, orchestra, and upper elementary choral classes begin, these so called “elementary” systems are abandoned for the traditional standard notation system.

This sudden abandonment often leads to dyslexic students also feeling abandoned in a subject where they had been finding success and joy. Some dyslexic students, who are used to adapting for survival will actually succeed in the first semester to first year of ensembles. [Advance Slide.] Brand (2001) explains, “The pupil observed where her classmate’s hands were, heard the sounds (her ears told her about tune and rhythm) and she played the piece correctly” (p. 19). Because the student was essentially adapting to learn to play by rote, she even appeared to be following the music propped in front of her. Eventually, however, the traditional notation becomes more laborious and adaptations made cannot continue to sustain the student. In frustration, the student will give up on practicing. Then the student will begin to “forget” her instrument or even break it so that she does not have to play in class. Eventually the student will quit. [Advance Slide.]
Cromleigh (1977) asked the question above [Allow time for audience to read the question.] [Advance Slide.] Who do we serve? As public-school teachers, we are required to serve all students who come into our room. How can we bridge the gap to help all students achieve success in the ensemble setting, particularly students with dyslexia? [Advance Slide.]
Music uses the right (or creative) side of the brain. However, several of the conventions used in music are also used for processes or items primarily found on the left (or logical) side of the brain. As Westcombe (2001) points out, “The time signatures are not fractions; notes that have to be played on a horizontal keyboard are written vertically on the stave” (p. 12). [Advance Slide.] Look at this fingering chart for a flute. The chart is presented with the flute shown in a vertical position. A flute, of course, should be played in a nearly horizontal position. Westcombe (2001) reminds us, “A non-dyslexic musician may either not notice such things or not be troubled by them; the dyslexic musician, however, is more vulnerable and cannot always make the necessary adjustments” (p. 12). I had a flute player in my classes that would look up the note needed on the fingering chart with her flute held vertically. Her stand partner would then point at the fingering while turning her paper as she raised her flute to playing position. She could not understand the fingering without that little bit of assistance.
Speaking of fingering charts, look at how this one shows that the same fingering is used for notes of different octaves. [Advance Slide.] Of course, looking at a trumpet, baritone, French horn, or tuba fingering chart would be even more confusing as each fingering combination can play a variety of notes. If a student is simply decoding well enough to know the fingering of a note, they are likely to miss the partial of the note and will be inconsistent at best.

While researching the relationship between music and phonological processing, Forgeard et. al (2008) discovered that, “Reading music notation requires the same decoding of symbols (moving from left to right, pattern recognition, mapping of sounds to symbols) used by written language” (p. 384). It should be of no surprise that a student who struggles to read in the general education classroom will also struggle to read music. Let us look at the letter names that we use to label notes. In any letter based language, the letters form patterns that become words and are read in chunks. In music, patterns of letters appear, but they do not make sense to the linguistic side of the brain. The naming conventions pull from other parts of the student’s brain and unconsciously tries to form associations that are not relevant. [Advance Slide.] For example, this is a letter representation of “Mary Had a Little Lamb”. [Advance Slide.] Now, this is a letter representation of the same tune with word associations highlighted that can slow a dyslexic student down. [Advance Slide.] Over 150 words can be created by using only the letters of the musical alphabet, excluding proper names. [Advance Slide.] These associations cloud the memory and cause confusion in the moment. [Advance Slide.]
Slide 7: Why is music so difficult?

Besides the words that can be spelled by the musical alphabet, every piece of music and music class has numerous vocabulary words to contend with. For example, let us look at the word “Bass”. [Advance Slide.] In music, “Bass” can refer to the bass clef. It also refers to a number of different instruments such as [Advance Slide] bass guitar, [Advance Slide] double bass, [Advance Slide] bass clarinet, [Advance Slide] bass drum, or a bass singer. It can also refer to the bass section as a whole or a low sounding part. When most teenagers think of bass, [Advance Slide] they are thinking of the low boom-boom coming out of their speakers. [Advance Slide.]
As Hubicki (1994) points out, “These vocabulary words can be confusing because so many of them have various meanings and references within music itself—quite apart from the different meanings they have in everyday life” (p. 184). Let us further examine at our “bass” example. [Advance Slide.] If all of those musical meanings of bass were not enough, non-musical meanings include a brand of beer. This could lead to some interesting conversations in class. [Advance Slide.] Then, of course, we have bass. A bass is everyone’s favorite instrument.

All of the previous meanings for bass are spelled the same, but what about meanings where the word sounds the same? Base means the bottom of something or could connect a student to [Advance Slide] math or [Advance Slide] science class. [Advance Slide.] It sounds like a base as in baseball. [Advance Slide.] A student from a military family may think of a difference kind of base altogether. [Advance Slide.] Bass also looks and sounds very close to
brass, which has its own set of musical meanings. Is it any wonder that the vocabulary of music can cause confusion? [Advance Slide.]
Besides the confusion that can be found within the naming conventions, there is confusion within the notes themselves. The notes represent both pitch and time. Rhythm and melody are wrapped within the same symbols. Until an ensemble setting, rhythm and melody tend to be taught separately. Many students with dyslexia are typically able to focus on the rhythm or the melody, but not both.

Aside from rhythm and melody, a student is also expected to derive a fingering and style from a written note. [Advance Slide.] Minute changes make these two notes the same, [Advance Slide] but different from these two notes. While they are the same, [Advance Slide] these two notes are different still. And then you look at other slight differences in notation. [Advance Slide.] Is this a down bow or a marcato? Wait, if you turn that on its side it is an accent…or is it a small crescendo. Speaking of dynamics, each of these means something different. These
letters mean something different yet. Then dots can appear above, under, or on the side of a note. But a dot is also found in a fermata, which looks similar to an upbow. Whew, talk about confusing! As Hubicki (1994) states: “It always has to be remembered that for a dyslexic learner the potential confusion within words and/or the uniformity of blackness or whiteness of symbols is able to create a bewilderment that is defeating and depressing enough to discourage even a willing student from learning—even one who has a natural instinct and feeling for music” (p. 184). [Advance Slide.]
Dyslexics often have poor binocular control. Binocular control is the ability to focus the eyes together on a single point. [Advance Slide.] Oglethorpe (2002) explains “Unstable binocular control can give rise to the impression that the note is moving about” (p. 53). This unstable binocular control can lead to a phenomenon known as gaze shifting. Gaze shifting can cause a student to jump from one line of music to another. Poor binocular control and gaze shifting contribute to problems that dyslexic student have with tracking. It also makes the dyslexic student more susceptible to the glare that is created from black on white. [Advance Slide.]
Oftentimes, a teacher is faced with the arduous task of adapting music for a student who “doesn’t get it”. Oglethorpe (2008a) shares, “It does happen that, sometimes, parents do not realize that a dyslexic is likely to have just as many problems, and possibly more, with learning to read and play music as they have with literacy in the classroom.” (p. 59). The teacher and student are frustrated at the situation. If the student does not simply drop out, the teacher is left adapting the music and having a less than stellar performer. Some teachers choose to move these students to playing bass drum or auxiliary percussion parts. What if, instead of spending time arranging the music and simplifying parts, we could find a simple solution that would allow the student to play the music as it was intended? What if this solution was simple and cost effective?

[Advance Slide.] Color music is a multisensory teaching approach that helps to facilitate learning for all students. Color music is a technique used to enhance learning in music students by adding visual color to written musical notation. It systematically codes each note of the staff
with a color. Color music can be implemented instantly in any classroom with simple materials such as highlighters or by using computer software for more lasting results. Using color music, along with other strategies, music educators can help to reach the students we aim to serve.

[Advance Slide.]
Color music can help dyslexic students as well as students with ADHD, specific learning disabilities, students on the autism spectrum, and students who are not identified as having special needs but who struggle to read. Overy (2008) reminds us that, “There are striking similarities between music and language, since both communicate via complex, highly structured and culturally specific sequences of auditory units, both take place in time, and thus require sustained attention and memory in order to process and interpret incoming information, and both develop naturally in infants but require hundreds of hours of training in order to achieve literacy” (p. 26). As Hubicki (2001) points out, “It is widely agreed that in the teaching of literacy skills to dyslexic children and adults a multisensory program is needed – that is, a program in which learners are encouraged to look carefully at the text, to listen to the words thoughtfully, to touch the teaching materials, and to pay attention to their mouth movements when they say the words
and to their hand movements when they write them” (p. 85). Using color music adds to the multisensory approach that is learning music. [Advance Slide.]
When looking at “real world” situations, color is everywhere. [Advance Slide.] While speed limit signs are achromatic, a majority of traffic signs are not. In Nebraska, names of towns and distances appear on green signs. Hospital locations and rest areas are highlighted on blue signs. Orange indicates construction while yellow alerts us to changes in the road and to yield. Names of streets could appear in a variety of colors depending on what town or county one is in. We know to stop when we see bright, bold red. The colors cue us and draw our attention. Rogers (1996) explains, “Different groups of neurons in the visual cortex are excited by different aspects of the visual stimulus: color, intensity, shape, movement, and so forth” (p. 16). [Advance Slide.]
The use of color in instructional materials has been researched in many subject areas outside music, and there is considerable evidence to suggest that the use of color in instructional materials results in improved student performance and retention. According to Rogers (1996), “One explanation for the efficacy of color in instructional materials is that color increases students’ attention to the material” (p. 16). In an earlier study, Rogers (1991) explained that “Stimuli received through several senses excite more neurons in several localized areas of the cortex, thereby reinforcing the learning process and improving retention” (p. 64). In the music realm, teachers often use color to alert students to differences in form. Looking back to the toys made by manufactures, bright contrasting colors are a staple for young children. Studies have suggested that young children attend longer to colors than to achromatic stimuli and infants attend longer to more intense hues of a particular color than to less intense hues.
Color music can build an association of a written note to a color. It must be stressed that the learner is not expected to associate any particular color with the sound of pitch. That would be an added difficulty. Hubicki (1994) suggests, “Colour, if used, should be thought of simply as an aid for recognition of pattern or identifying detail” (p. 191). As we discussed earlier, patterns created by the letter names of notes often leave the brain confused. [Advance Slide.] Color patterns, however, seem to help the brain to process music. Hubicki (1994) suggests, “Those who have difficulty in associating symbols with their names are likely to be helped if they are made aware of patterns” (p. 191). [Advance Slide.] Use of color shows up these patterns. Sand and Westombe (2008) describe written music as a drawing (p. 110). [Advance Slide.] Just like in the art world, using color can only enhance the depth of this drawing and make the patterns easier to see. [Advance Slide.]
Slide 15: Use of color

[Advance Slide.] In music, color is currently most often used in method books to highlight new concepts. What if color was put onto the notes themselves? The addition of color to an achromatic symbol such as a note or rest would add to the neural activity as compared to the activity resulting from the shape alone. [Advance Slide.]
Slide 16: Color systems in use:

Three color systems are commonly in use in the music realm:

1. Student or Teacher Preference: As the name implies, this could be different for each student. The choice of colors may be personalized provided that the order remains consistent. Some teachers use a color system for students in their studio to suit their needs.

2. Colour-Staff: This is Margaret Hubicki’s system. This system is diatonic and highlights fifths. Hubicki designed her Colour-Staff to match the colors of the spectrum if you continue in fifths.

3. Boomwhacker/Chroma-Note System: This is the system Craig Ramsell developed in the mid-90’s. His system is chromatic and works with the basic color wheel.

[Advance Slide.]
The color staff was created by Margaret Hubicki to prevent difficulties tracking from left to right and helps avoid gaze shifting. Heikkila & Knight (2012) share, “Her goal through using the color staff was to help people read music by connecting a color to each space or line of the grand staff” (p. 58). Her suggestions were not specific to any learning disorder, although her work is hailed as a great tool in the special needs community. She hoped to help any student, dyslexic or not, who finds notation difficult. Some students may never be able to completely embrace traditional notation, but if they are able to find success in the traditional ensemble, then the accommodation is worth the time investment.

*Colour-Staff* is a system that anyone can instantly use in the classroom. Margaret Hubicki (1994), the creator of *Colour-Staff*, states, “If the teacher does not have access to *Colour-Staff*, it is possible, to some extent, to improvise with coloured chalks and home-made materials” (p.184). You will note that in Hubicki’s materials, the notes themselves are not specifically
colored, but guides are provided on the exaggerated and colored staff. It has been found, however, that colored notation is easier to track than shaped notes or parts that have been blocked or highlighted in some way. McCord and Fitzgerald (2006) discovered that this is due to the colors within the notes attracting and keeping the attention span of the student on the notation itself, rather than the attention fading away because the notes begin to look the same as black on white tends to do (p. 47). For this reason, Ditchfield (2008) has found that “It is helpful to use (not slavishly follow) the Colour-Staff method” (p. 76). Ditchfield found great success using Hubicki’s color scheme on the notation itself. Hubicki herself (2001) states, “There is no one way in which to use Colour-Staff. My hope, therefore, is that music teachers will be able to adapt its principles in ways that suit the needs of individual pupils.” (p. 85) [Advance Slide.]
Since the invention of Boomwhackers and the Chroma-Notes system in the mid-1990’s, colored notation has become easier to access. Craig Ramsell, the creator of the Chroma-Notes system, had hoped to have software available by 2015, but has been having funding issues. However, Sibelius and Finale now both have the options to have colored notation, although depending on the version you own it can be difficult to find. One also has to be careful—sometimes the colored notation will be slightly different than a previously used system.

Due to the availability of software that makes the implementation of this system easy to use, I recommend using the Boomwhacker/Chroma-Notes color system. This can at least be a starting point to see if the use of color music will help the student. I also prefer this system because of the chromatic capabilities. [Advance Slide.]
Color-coded notation was not meant to replace the present notational system; rather, it was intended as a pedagogical aid for beginners. Rogers (1991) stated, “The assumption is that, while traditional notation is a ‘given’ in the process of music education, any reasonable approach that might facilitate music learning should be investigated” (p. 66). Once a student has a firm grasp on the notes, a fading process is recommended. 

The fading process slowly subtracts the colors until only traditional notation remains. Some students with dyslexia only find that they need a color coded notational system for ledger lines to keep track of pitches above and below the staff or landmark notes. These notes should be the last to go in the fading process. Lind (2000) shared, “sometimes in the fading process I use colored staff lines as landmarks” (p. 29). This would align with some uses of the Colour-Staff method. Some students need a reference or landmark note or colored staff line. This note could be in the middle of the staff (B for treble clef and D for bass clef) or all of a specific note, for example
(C’s), in a piece. Some students with dyslexia or other learning disabilities may never be able to give the colored notation up completely. Others may only need to use it in tricky passages. Many only need it while they are getting a firm grasp on how to play or sing with an ensemble.

[Advance Slide.]
The difference between the shape-note system and the color-coded system is mainly that the shape-note system is based on a movable tonic, whereas the color-coded system assigns specific colors to specific pitches without reference to the tonic. Rogers (1991) points out, “The similarity between the systems is that both heighten visual differences between notes, thus making notation for separate pitches more distinct.” (p. 65). Color music is more ideal for instrumentalists than shape music because it is on a fixed do system. As Schleuter (1996) noted, “Instrumentalists are often preoccupied with pitch notation as fingering cues at the beginning stages of learning” (p. 41). The use of color on a fixed do system allows the student to find fingering patterns with the colors. While forced association of the colors to the notes is not a goal, using a movable do system as in shape music would confuse any associations that are subconsciously made.

Some band directors have asked what makes this approach different than simply writing
the note name or fingering underneath of the note? Writing the name under a note at the
text of some method books is another way to reduce the information that one needs to
process. This “crutch” is normally taken away rather quickly because the student stops reading
the notes and only reads their writing, which does not take into consideration duration of the
note. Color music keeps the focus on reading the music, and thus reading both duration and
pitch at the same time. This is a higher-level skill than simply reading the note names written
below the pitch. [Advance Slide.]
In the most recent version of Finale, two ways of creating colored notation exist.

First, in setup wizard you can choose “Boomwhackers” or “Chroma-Notes Instruments”. Colors can be further modified in “Document Options” under “Notes & Rests”.

If you need to apply colored notation to an existing score, you can use the “Score Manager” under the “Window” heading. Once in “Score Manager”, click on the instrument needed and select “Colored Noteheads”. I use this option the most in my classroom.

This video clip is a tutorial on how to create colored notation in Finale 25. [Show video clip.]
Slide 22: Sibelius

The note input menu on the most recent version of Sibelius is your friend for creating colored notation. [Advance Slide.] Under this menu, clicking on the plug-in options brings up “Boomwhacker Note Colors” or “Color Pitches”. [Advance Slide.] If different colors than Chroma-Notes are wanted, “Color Pitches” is where you want to look.

With software capabilities, it is easy to create professional looking music for students that can be reprinted if necessary. This also has the option of saving the music for future students who may need it. Software also allows an educator to easily incorporate fading and to individualize for students quickly. [Advance Slide.]
Slide 23: Practical classroom application

How does use of color music work in the classroom? First of all, I would recommend using color early and often, although not necessarily color coding at the beginning. When Rogers (1996) assigned arbitrary colors to rhythmic figures, changing the colors daily or weekly, he found evidence that color stimuli resulted in more neural activity than achromatic stimuli and may thus reinforce the learning process (p. 16). Elementary general music teachers should take a page out of elementary classroom teachers books and use a multisensory teaching approach that includes color. Using color to help activate more of the brain in multisensory learning early on may help eliminate the need for extra assistance later. In the words of the dyslexic educator Debbie Ditchfield (2008), “Obviously, speaking metaphorically, there is no point in building a wall unless each layer of bricks is firmly and correctly established from the foundation upwards” (p. 76). A solid foundation can help to set up the student for success. This is as simple as ordering colored markers for the whiteboard to do
rhythm work on or printing flashcards in color. Oglethorpe (2008b) reminds us that “Patient, systematic teaching in the classroom is likely to get a dyslexic pupil to a reasonable standard of proficiency in reading” (p. 83).

[Advance Slide.] Consider using Boomwhackers or something similar in your classroom. [Advance Slide.] Consider using Orff instruments with colored stickers placed on the bars. Boomwhackers can be banded together to form a xylophone. Consider using colored and non-colored notation when you learn recorders, ukuleles, or melodicas. Using both systems will allow you to see which students truly need the extra help. [Advance Slide.] With my fourth-grade recorder students, I do “round the room” testing. We form a circle and the students play for each other and myself. Sometimes the tests are in traditional notation, and sometimes I use color music. It is amazing to me how a student can sound like they do not know which end of the recorder to blow in on a traditional notation piece, but sound fabulous on a color music piece.

You may find, however, that students prefer the colored notation over the traditional notation. In his 1991 study of colored vs. traditional notation, Rogers discovered that a surprising 40% of the control group chose the color-coded notation as easier to play, even though it was unfamiliar to them at the time of testing (p. 66). I have found that my students are very preferential. Last year I had a third-grade class of just eight students. We performed “Jingle Bells” on Chroma-Note handbells. I had color-music printed for us to use and somehow misplaced it after the first day. In my rush to reprint, I printed it in traditional notation. On the third day, I found my original handouts. So, I asked the students to choose which handout they would like to use. Five of them found the colored notation easier to play and three of them found the traditional notation easier to play. I should also point out that I asked them to try and switch to the notation that they did not favor and the resulting run-through was terrible.
One exercise that can be helpful for the tracking of all students is to highlight their own music. Using colored pencils or highlighters, have the students mark the music. You can decide if they choose the colors or if you wish to use a system. I, personally, like to use the Boomwhacker/Chroma-Notes system because they have experienced it in my classroom. The chromatic capabilities of this system are very valuable to me. It also allows me depending on the kind of exercise we are doing, to very quickly glance down the rows and double check them.

When working with a student who benefits from using color music, I recommend using the colored notation for longer than you think they need it. [Advance Slide.] I only attempting the fading process while working on a piece. When we are working out of a method book, I use color music. On a piece that we are working up for a concert I attempt the fading process. Usually, the student is going to “live” with these pieces for a longer period of time and at allows the fading process to work. Using the fading process on a piece or two does not always translate into a student being able to go directly into standard traditional notation in the method book, but it tends to get them a step or two closer to that goal. I find that if I was able to fade five notes in the pieces, I may only be able to fade three in the method book. I involve my students in choices during the fading process. With my Finale software, it is very simple for me to differentiate for individual student needs and requests. I ask the students to help me choose which note they think they can do without the color. This gives them some ownership in the process. [Advance Slide.]
Color music may be enough to bridge the gap from elementary to ensemble for most students. It may break down enough of the barriers that dyslexic students have to allow for a more meaningful ensemble experience. [Advance Slide.]
When beginning ensemble classes start, identify students who are struggling quickly. Too often, we as music educators forget that help is available for accommodating these students in our classroom. McCord and Watts (2006) remind us, “Although the challenges of including students with disabilities may seem daunting, some of the best resources are the special educators in your school and the information in each student’s IEP” (p.26). Collaboration with special educators can make all the difference for a student.

Often, the special educator has worked with a student for a few years before reading music notation becomes an issue. This has given the special educator time to discover solutions that work for that student and can save you a good deal of time and frustration. Even if you are faced with a new student or a student who has a different special education teacher, adaptations and accommodations for each student are kept on file. Collaboration with classroom teachers, special education teachers, and parents allows for the best possible outcome for the student.
Also remember to talk with the student. Lind (2000) reminds us, “Singers with learning disabilities have often found ways to work around their problems” (p. 28). They are used to adapting to survive the educational setting. The student may have an idea that we would have never thought of on our own.

It is also important for any accommodation that we make for a student to be a part of the student’s IEP. If the accommodation is listed in the IEP then special education funds can be used to help support that student in your classroom. It also helps the student if they suddenly move to another school or have a change of music teachers.

Any student who is struggling, regardless of special education label, should be offered the music written in colored notation. Pratt (2008) also suggests worksheets be clear and uncluttered with a clear, unfussy font (p. 20). Using pastel blue, yellow, or pink paper may be preferred to cut down the glare of black on white. An overlay may also be useful. One of my students struggles with tracking her music, until I put a pink overlay on top of it. It is almost like a magic wand that keeps her able to stay with us and eliminates her problems with gaze shifting.

[Advance Slide.]
Due to a physical malformation of the mouth, I was working with Dee, a 5th grade student of high intelligence on making the switch from alto saxophone to tenor saxophone. It was during the course of these lessons that I noticed something did not seem to be progressing in the typical way. During review at the beginning of each lesson, Dee would act as though everything was new information. I knew that she was diligently practicing at home and after finding a landmark note or two she did fine. As we progressed, troubles arose with quarter notes. She would play ascending notes in a descending pattern. Notes that were close to each other were often transposed.

I talked to Dee and she expressed that, “I can’t figure out what note it is when they are so fast,” and “notes all look the same because they are close in the alphabet.” I have taught Dee in music since kindergarten and knew that she was very bright. I also remembered that she struggled with recorder whenever we played at quicker tempos. We talked about how her other
classes were going. Dee is an honor roll student and loves to read, but she shared that she really struggles to spell correctly and she often has to read sentences over again because they didn’t make sense the first time.

On a whim in a lesson, I grabbed some of my daughter’s crayons and crudely colored over three notes of an ascending pattern at the end of an exercise. I did not explain the colors in any way and asked her to play it. Dee played it perfectly and, after finishing, looked at me incredulously saying, “Mrs. Z! That is the first time the notes haven’t gone swimming while I was playing!”

Since that day, she has been able to rapidly progress in her lessons. [Advance Slide.] This video clip shows her sight-reading “Go Tell Aunt Rhodie” in standard, traditional notation. [Show video clip.] The tune is completely unrecognizable. [Advance Slide.] This video clip shows her playing the same piece about a minute later after I colored in the notes. [Show video clip.] The difference between the two clips is astonishing. She did not play this one perfectly, but it is so much better. [Advance Slide.]
Color music is a simple multisensory approach that may be able to help students with dyslexia to participate more meaningfully in ensemble music classrooms. Zdinski (2001) reminds us, “These strategies will take time and additional resources for the instrumental teacher” (p. 30). With a little effort, however, teachers can include learners with special needs in ensemble classes and can help them to include meaningful ensemble music performance in their lives. While these students may never be able to use standard traditional notation while participating in an ensemble, if they can have a meaningful ensemble experience, that is more important. Oglethorpe (2002) reminds us, “After all it is not the piece of paper that the audience came to hear but the sound of the music” (Pg. 71).

Thank you for your time this morning. Before I open the floor up for questions, I would like to call your attention to my contact information listed above. Feel free to contact me if questions arise later or if you would like more information. Again, the PowerPoint slides and
bibliography from this presentation are available for download on the NMEA conference app or by using this QR code. Does anyone have any questions? [Time for questions.] Again, thank you for your time and I hope you enjoy the rest of the conference. [End Show.]
References


