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Multisensory Adaptations: Creating Art with Students Who Are Blind and Low Vision

Jasmine L. Begeske1, Leslie Walsh2, and David Ray Gutierrez Miranda3

ABSTRACT

The main purpose of this article is to present approaches and strategies to making 2-D visual arts instruction meaningful and accessible for students who are blind or low vision. The suggestions provided within this article are based on current literature, researcher observations, and the contributions of an experienced, practicing art teacher at the Indiana School for the Blind and Visually Impaired.

Keywords: arts; visual impairments; accessibility; multisensory adaptations

INTRODUCTION

Students with visual impairments are a heterogeneous group, as vision is a complex sense. This disability category refers to students with a wide range of visual abilities and individual needs which vary greatly due to the nature and extent of their disability as well as their adaptations to vision loss. Students who are blind or low vision must be taught knowledge and skills using multisensory approaches that sighted children typically acquire through sighted means (Office of Special Education and Rehabilitative Services [OSERS], 2000). A multisensory approach to learning for students who are blind or low vision is gaining perceptual information through the development and integration of touch (tactile), movement (kinesthetic), taste, smell, hearing, and/or residual sight (Manna & Dheesha, 2017). Given this, it is essential for students who are blind or low vision to develop their fine motor and tactile abilities for concept development, Braille literacy, exploration of the world, as well as for creating and responding to art (Wittenstein & Sovin, 2006).

Access to high quality visual arts education provides students exposure to essential life skills, such as communication, collaboration, critical thinking, and problem solving (National Art Education Association, 2019). Access to arts education can have a positive effect on student achievement, these effects may have the strongest impact on the most vulnerable students (Rabkin & Redmond, 2006). A literature review conducted by Lloyd (2017) summarizes the literature on the academic, social, and behavioral benefits to students in both the general education and special education. Even though students with blindness or low vision may not be able to see well or at all, they have the potential to create and enjoy art. For students who are blind or low vision, arts learning can increase function across a variety of areas. Axel and Levent (2003) described several benefits of visual arts education for blind or low vision students, such as enhancing Braille and map reading skills, development of texture sensitivity and tactile exploration skills, increased social skills, mobility, and participation in community. Students who are blind or low vision can use their residual sight, non-visual senses, adapted materials, and arts-based assistive technology to create two-dimensional works of art in meaningful ways (Axel & Levent, 2003; Coleman & Cramer, 2015). Unfortunately, students with visual impairments are often discouraged from taking visual arts classes because of assumptions and misconceptions about their abilities and the potential benefits of their participation (Hayhoe, 2017; Jay, 1993; Johnson, 2018).

In this article, the authors first reviewed the literature on teaching art to students who are blind or low vision. The authors reviewed the available literature from the fields of arts education and special education to identify practices used to teach art to students who are blind or low vision. Unfortunately, instruction for students with visual impairments in creating and responding to two-dimensional works of art in schools is an under-explored area of research...

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leaving few resources for teachers to turn to for tools or strategies for making art instruction accessible (e.g., Art Education for the Blind [AEB], n.d.; Axel & Levent, 2003; Coleman & Cramer, 2015; Kennedy, 1993; Platt & Janeczko, 1991; The Autism Helper, 2019). Then the first and third authors outlined the practices described in the literature and observed the second author (Leslie), an art teacher with extensive experience teaching art to students who are blind or low vision in grades kindergarten through high school, with the purpose of collaborating on this article. Examples from Leslie’s classroom provided throughout the article illustrate her use of tools and strategies. This article combines what is known from the literature with practitioner knowledge to provide a comprehensive description of possible accommodations and modification relevant to working with this population for accessible two-dimensional art instruction. For all strategies, the authors have provided adaptations using low-cost materials available at most craft stores alongside more specialized resources for students who are blind or low vision.

Creating Two-Dimensional Art with Multisensory Media

Raised Lines

People with visual impairments are often taught to navigate the world by discerning and perceiving objects, places, and shapes based on raised lines or outlines (Kennedy, 1993). Hands-on arts learning can enhance the tactile learning of students who are blind or low vision in turn helping them to navigate the world and improve independence. Traditional two-dimensional art media can be altered to include raised lines by teachers for more meaningful visual arts learning for students with visual impairments. Kennedy (2014) described the study of one woman’s drawings and drawing process making use of raised lines. He found that people who are blind or low vision can make realistic, metaphoric, and perspective raised line drawings and they can be highly motivated to translate their nonvisual experiences into pictures.

Raised-line drawing is a common approach to communicating ideas as well as teaching drawing to students who are blind or low vision. Textured materials provide an enhanced sensory experience for blind or low vision students (Tebo, 2014). This is one of the most common approaches Leslie uses in her classroom to quickly make learning accessible when teaching with 2-D materials. There are commercially available systems and teacher-modified materials that allow for raised-line drawing. Teachers can collaborate with their local teachers of students with visual impairments or assistive technology specialists to familiarize themselves with technology specific to the blind and low vision community.

The process of creating a raised-line or tactile drawing can be simple and low-tech (such as using a ball point pen on paper resting on a soft or screen textured surface to allow for embossing of the paper) or more complex, durable, and high-tech (like thermoforming a raised image using plastic sheeting or using a Picture in a Flash (PIAF) machine with specialized papers such as microcapsule, swell paper, or quick draw paper to create raised line drawings; Kardoulias, 2003; Wright, 2008). Thermoform machines and swell form machines can be purchased at specialized vendors such as Irie AT and American Thermoform. Picture in a Flash machines can be purchased on Amazon or through specialized assistive technology vendors.

Individualized and handmade approaches are often used to teach two-dimensional drawing and artmaking to students with visual impairments in a school context. Raised lines can also be created with glue, yarn, screen-printed with thick or textured inks, or created with thickened or dimensional fabric paint (Platt & Janeczko, 1991). Leslie makes raised line drawings with hot glue quickly in her classroom as student needs become apparent.

Tactile Elements

Coleman and Cramer (2015) suggested that using alternative media (e.g., sandpaper, cotton balls, puff paint) over traditional two-dimensional media to enhance tactile input might be appropriate for some students with visual impairments. Materials used to create tactile drawings or raised lines can also be used to represent whole shapes or to identify edges of an image. Puffy paint, hot glue, or thermoformed images can be used to represent solid shapes. Solid shapes can also be represented by cutting out shapes from fabric, foam sheets, paper, or other textured materials. These can be used during instruction for shape identification, describing shapes, or creating art.

Teachers can add tactile elements to be responsive to the student needs in the moment. For example, Leslie may add Wikki Stix to images to indicate edges, shapes, or borders. She will often use Wikki Stix to help students to paint within a chosen area. Providing a variety of materials for students to experience is especially important when teaching art to students who are blind or low vision. Materials
with different textures can be obtained from a variety of sources. Leslie recommends obtaining a variety of textured papers from the American Printing House (APH), sandpaper from hardware stores for sandpaper of differing grits, and/or foam sheets, glitter paper, yarn, and various textures of fabrics (e.g., lace, burlap, silk) from craft stores.

In Leslie’s classroom, she also chooses and adapts books which include tactile elements to teach about artists, art terms, and ideas. She has glued tactile elements on the pages of books to enhance learning and comprehension regardless of the student’s level of braille learning or cognitive abilities. One example of a book she adapted is the book “The Artist Who Painted a Blue Horse,” by Eric Carle. She added braille above the text and more tactile elements to the illustrations for accessibility. In the example page (see Figure 1), Leslie added textured blue fabric over the pants of the artist in the illustration, puff paint for dimensional texture on the stripes of the shirt, a textured paper over the shoe for students to identify the shape, a raised outline around the shapes, a string texture added to the face outline, yarn for a hair texture, and puff paint over the blobs of paint on the paint palette. She elicits students’ feedback about the elements she adds to books and closely observes them interacting with the books to improve the experience.

Figure 1
Adapted Book Example

Note. Two-page book spread including a collage and painted image of an artist in a striped shirt and blue pants painting on a yellow canvas with a paintbrush. Printed and braille text included states “I am an artist and I paint...”

Responding to Three-dimensional Models

It is important that students who are blind or low vision are taught to create their own artwork but modifications and enhancements to increase accessibility to exploring famous artwork is also important. Since the 1990s, art museums have worked to increase accessibility of exhibits for people who are blind or low vision including accessibility elements such as audio tours, hands-on activities, guided verbal-imaging tours, touch tours, Braille descriptions, tactile diagrams, or tactile plates of artworks, and three-dimensional and bas-relief (low relief) representations of paintings (Carfagni, et al, 2012; Hayhoe, 2017). Bas-relief and three-dimensional representations of paintings and photographs transform a two-dimensional work of art into a three-dimensional representation that a visitor can touch. Bas-relief and three-dimensional representations of famous works of art have been exhibited in art museums all over the world (Carfagni, et al, 2012).

Students who are blind or low vision often need replica objects or models in the classroom to explore first to discuss and create successfully. Molding materials like clay, Model Magic and natural or man-made found objects are useful, low-tech ways for teachers to offer a quick reference object to a student who is blind or low vision before making their own art. Offering a three-dimensional example for students to feel is a best practice in the blind or low vision community for learning and exploring something new (Stone et al., 2020).

As the availability, technological advances, and ease of use in 3-D printing technology evolve, more opportunities for access to reproductions of artwork in classrooms where students who are blind or low vision have begun to appear. Knochel et. al (2018) describe two student projects using 3-D printing technology to increases arts learning for people with visual impairments and discuss the possible implications for K-12 classrooms.

In Leslie’s own classroom, she has had limited success with introducing 3-D printed objects donated to her classroom. She described some rough edges on replicas of famous examples of architecture that needed to be sanded down and objects that had textures that were hard to for her students to perceive. 3-D printed objects are a promising opportunity that might become more refined and available over time for the blind or low vision population for art instruction.

Colors

Research

Two approaches for using color for students with visual impairments include adding scent or texture. Kandalam et al. (2019) described developing and
using six textured crayons with blind or low vision students. Each crayon had a specific textural quality associated with a color described as rough, sticky, hard, smooth, slippery, or soft. Platt and Janeczko (1991) described a similar approach to color discrimination but suggested using scented markers with specific scents associated with each color.

In Leslie’s classroom, she adds scents to paints to cue students as to which color they are using. She also experiments with Kool-Aid and essential oils to associate scents with colors. Mixing Kool-Aid into paint provides a familiar childhood scent to associate with a color name, lemon is yellow, cherry is red, and so on.

Identifying Borders or Edges

Students who are blind or low vision might benefit from and find more independence in having tactile cues to identify borders or edges of an image, paper, or canvas. Leslie has found that students with low vision may need a Sharpie or felt tip pen for a thick black outline as opposed to using pencils for drawing. For some students in Leslie’s class, she has created raised lines for students to feel or use as borders to identify areas to color or paint. She also suggests using a rotary sewing wheel tool or APH tactile line-drawing tools for creating this type of tactile border.

Often the first step in Leslie’s classroom is to find and feel the paper you are going to draw or paint on. Leslie has found that it is useful to either have students tape their paper down, so it doesn’t move (and the tape acts as a tactile cue for the edge), or to put the paper into a tray to give students a border so they know where to stop drawing or painting. While simple, these adaptions make the difference between independently enjoying art making and relying on an adult to assist in many cases.

Individualizing Supports Based on Student Needs

Like students with other disabilities, it is important to individualize the supports we provide to students who are blind or low vision. By understanding the individualized needs of the students, teachers identify supports that enhance student’s art experiences.

Selection of materials should be based on individual needs, increasing the tactile experience with materials might be a more meaningful interaction with the materials for some, such as adding sand to paint or drawing with crayons on sandpaper (Platt & Janeczko, 1991). Materials and tools can be provided to support student success while promoting independence. Teachers should consider adaptive or assistive non-art tools that can promote student independence while completing tasks such as providing magnifiers, a CCTV, a lightbox, or other technologies to help enlarge materials, or considering the classroom lighting (Tebo, 2014). Teachers may need to use various materials (e.g., black paper under white, yellow, or light blue paper as a contrast paper) to enhance the contrast depending on the student’s type and degree of vision loss. Students with specific vision impairments may prefer certain materials, Leslie has found that her students with Cortical Visual Impairment (CVI) often respond to a shiny material.

It is also important to consider how students react to various arts supports. Some students are very tactile defensive and may need to use gloves or other tools, so they don’t directly feel clay, paint, or glue. Leslie states that she encourages her younger students to really try to fully experience materials and touch as much as possible but when in high school if a student is still defensive about certain materials, she lets them wear gloves. Being responsive to student’s needs and preferences while providing tools to increase independence, students can participate, create, and have a positive experience with 2-D visual arts-based learning.

In Leslie’s classroom, she encourages others to “not make assumptions about students with visual impairments.” She wants the adults offering support to ask the students what they need to be successful in creating. Ideally, students should be empowered to advocate for themselves and their needs in the art room. For instance, although physically prompting students through the artmaking process can help students learn how to make art, it may be aversive to some students. Leslie’s advice when providing hand-over-hand instruction is to not immediately grab the student’s hand to guide them but ask first if they want help before prompting them.

CONCLUSION

The arts can and should be part of the curriculum for all students, including those who are blind or low vision. Currently, there is limited research on how to best support students with visual impairments in arts education. However, by synthesizing the available literature on art education and special education, with seasoned practitioner experience, the authors have provided practical suggestions and resources that teachers may consider when teaching art to students who are blind or low vision. By incorporating these strategies, art teachers will be
better prepared to include their students who are blind or low vision within their classroom activities.

References


https://theautismhelper.com/focus-on-five-teaching-art-to-students-with-visual-impairments/
