

**AN EXPLORATION OF
MULTISENSORY PRACTICES AND
ITS VALUE IN K-12 ART
EDUCATION**

MELISSA ST. PIERRE

An Exploration of Multisensory Practices and its Value in K-12 Art Education

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By Melissa St Pierre

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Approved by Adviser.

Dr. Paul A. Sproll, Professor,
Head, Department of Teaching +
Learning in Art + Design

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DEDICATION

This thesis is dedicated to my wonderful life partner Samir J. Quintero, and to my family for their never-ending support and love.

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ABSTRACT

In the past few decades, it has been established that the dominant model of art education focuses on a reductive and rigid approach to building knowledge, enforcing conformity of the mind and often dulling curiosity. Making sense of these limitations, the current study delves in an exploration of multisensory practices, an approach that might result in considering options for redesigning the system to support positive change. To do so, my methodology includes a literature review and a case study I conducted with high school students in the 10th grade. The review pertaining to the science and theory behind human senses, photography in the context of multisensory ideas, and multisensory learning and teaching practices in art education. With the case study I was both the teacher and researcher and is presented in a qualitative manner. Concretely, this thesis supports the implementation of multisensory practices in art education and translates significant gains because of the observed positive outcomes that include, but are not limited to, better memorization, an increased sense of empathy, embodiment of complex subjects, augmented creativity and problem-solving skills.

Keywords: Multisensory practices, teaching and learning, K-12 Art Education, photography.

PREFACE

I have taken the opportunity this thesis provides to explore the idea that there is value and power for multisensory experiences in Art Education. It is time, I strongly believe, to break away from the siloed traditional nature of the K-12 art classroom. My experience in photography has taught me a good deal on how to observe. However, it takes more than seeing something to understand it, which is something I have become intuitively aware of over time. My eyesight is not good no matter the strength of prescription lenses, which has caused me to use my other senses to gather more information so that I can understand what I see. This has allowed me to have a clearer sense of what is happening to and around me.

Within this thesis, I investigate how and why we should integrate multisensory experiences into art education. All children do not experience the world in the same way and our methods of understanding vary from one person to another. It seems problematic to me that we tend to have a uniform system of education that perhaps does not work for everyone. I have experienced first-hand the rigidity of this Western educational system due to my visual impairment. And so, I can testify that there are shortcomings in the organization of our pedagogical methods.

I was born with a type of oculocutaneous albinism (OCA), which is a group of conditions that are due to several gene mutations that are inherited in an autosomal recessive manner. These gene mutations can result in no melanin, to very small amounts released over time. The lack of melanin does not only affect the hair, skin and eye color, but also the formation of the eye, retina and optic nerves. This causes, in my case, eye problems such as photophobia, myopia, nystagmus, strabismus, astigmatism, foveal hypoplasia and optic nerve misrouting. To give a visual representation, I like to use the analogy that my eyes are like a digital camera with a low

megapixel count, a broken auto focus, a sensor with missing photosensors, and is only capable of taking pictures at a high ISO.

These issues have caused me to struggle in educational settings. When I was little, I didn't like to read, I remember in elementary school we had a library period on every Wednesday where we read and picked out new books. Gradually as we got older, we shifted from picture books to books with more words. However, I didn't advance as quickly as my classmates as I preferred looking at pictures rather than reading. I have a vivid memory of sitting at a table in the library and an adult asking me why I was only looking at the pictures in the book I chose and not reading the words. I remember saying that I didn't know. She then asked "*are you trying to get a sense of the story before reading it?*" In my young mind, I couldn't think of any other reason to explain why I wasn't reading the way I was supposed to. So I simply replied "yes" hoping with that response she would leave me alone. Now as I reflect back, I think I have always been more attracted to images because they are easier to look at for me than words. Words are made up of fine and small lines and placed very close to one another, so it is harder for me to read than it is to decode an image. Images have colors and varying hues, tints and shades of different forms. Moods and emotions can be expressed through such things, so, who cares about the words. I can figure it out without them!

I fell in love with digital photography during my preteen years. Photography gave me the opportunity to magnify with clarity things on the horizon that I could not distinguish through my vision alone. It also gave me the chance to document my life. Since the age of 10, I have been acutely cognizant of how nothing lasts forever, something that I became all too aware of with the sudden death of my father. Photography gave me comfort by allowing me to freeze time. But it is a futile attempt to immortalize fleeting moments in the hopes of having

control over the passage of time. Alas, photography is so much more than capturing or documenting moments. As with many other art forms, it is also about communication and sharing one's perspective and experiences without having to rely on the use words. When I was younger, I did not know how to talk about what I was feeling, but photography always provided a space to help me work through my emotions and communicate my feelings. When I did not have words, I had art and photography to help me figure it out.

Though I am visually impaired, I am a strong visual learner. I need to see and manipulate things to better understand them. During my youth, I learned how to adapt to my environment and to society so that I could look and function as “normally” as possible. Even though I have a strong belief that it is society that should adapt to persons with disability, this rehabilitation focus in my life has taught me that my eyes are not useless, I simply see differently. However, “seeing” is not easy for everyone, even for those with 20/20 vision. It takes more than our sense of sight to understand what is happening to us and around us; we all experience things differently for different reasons. Over the past few years I have become increasingly interested in learning about new teaching methods and learning environments, especially when I reflect on my own experiences within the education system as a person with a visual disability. I believe that there are many modes of communication that educators could work harder to integrate into schooling. For example, when I was a baby my mother used to put my hands on her mouth as she spoke. At that time, it was difficult to know my level of visual acuity; therefore, she wanted to make sure I learned how to speak. Do not be alarmed, I am not suggesting that teachers place their hands on their students' mouth. I am simply making the point that visual teaching strategies may not always be enough when communicating new knowledge.

CHAPTER 1

INTRODUCTION

This thesis involved a number of qualitative methodologies. I utilized autobiographical notions to provide a personal context to the investigation and these were supported by a critical review of select literature, which I sorted into the following four categories (1) the science behind human senses and the study of the benefits of multisensory experiences, (2) photography as the point of departure for using multisensory learning, and (3) multisensory learning in different educational settings in art. In addition, I adopted principles from participant observation methods in the case study that profiles my implementation of multisensory strategies during an art class with high school students.

As both an artist and art educator, my ideas about teaching and curriculum are often inspired by my own practice and research. My creative practice extends beyond photography as I attempt to connect to the viewer's senses other than sight. I believe that, as humans, we need to trust and rely on all our senses, not just because of my visual impairment, but because of the science that supports this theory. My hope is to make a clearer path towards understanding the importance of multisensory experiences.

Furthermore, I have also for a long time been influenced by the work of photographer and educator Wendy Ewald who is well known for having students intervene physically onto photographic material. Sight and touch are then paired. This pairing occurs in the work of other photographic artists that inspire my work: Odette England, Amy Friend, Kensuke Koike, and Diane Meyer. These artists will be the basis for expanding on how photography can be a point of departure for creating multisensory lessons.

Ultimately, it was important to me that this thesis provided with an opportunity to delve

into how I might connect theory to practice. To achieve this, I utilized my teaching with a class of 10th graders from a Providence charter school as a case study in which I was both instructor and researcher.

Definitions:

- **Autosomal Recessive Manner:** The 22 pairs of chromosomes that contain genes to our general body characteristics are called autosomes. We receive two copies of autosomes, one from each parent. When each parent has one copy of the mutated genes in their autosomes, they are considered carriers of the mutation. The mutation becomes recessive when it is passed down to their child.
- **Foley:** The art of recreating everyday sound effects that are added during the post- production of films and videos to help enhance the quality of the audio. It is named after the sound effects artist Jack Foley.
- **Inferior colliculus:** The principal midbrain nucleus of the auditory pathway which receives input from several peripheral brainstem nuclei in the auditory pathway, as well as inputs from the auditory cortex.
- **Multimodal/multimodality:** To have more than one functioning mode.
- **Multisensory:** When an experience implicates more than one of our senses simultaneously. The theory of multisensory learning is that students learn better when they are thought by utilizing more than one sense at a time.
- **Neuroaesthetics:** The neuroscientific study of the aesthetic experience at the neurological level. Understanding why and how art and music effect our brains.
- **Sound art:** Art which uses sound both as its medium (what it is made of) and as its subject (what it is about).

- **Soundscape:** It is the landscape to an audio track. A composition of musical and/or nonmusical sounds that are made for specific location, image, video, or subject.
- **Superior colliculus:** A structure in the midbrain that is part of the brain's circuit for the transformation of sensory input into movement output. Its major function is to orient an individual, particularly with eye movements, to objects of interest in the outside world.
- **Unisensory:** Pertains to one single sense.

CHAPTER 2

LITERATURE REVIEW

In this literature review, I cover a wide range of information, from scientific theory to unusual photography practices, and new learning and teaching techniques. Yet, all of them have in common a multisensory practices philosophy, which is the motive for this thesis. This is, I fully acknowledge, only a small selection of literature concerning this topic. Though not always easily found, there is a vast selection of articles and research papers that address multisensory learning and teaching. The literature that I have reviewed, but did not mention in this thesis, can be found in the references at the end of this thesis

Science & Theory

Multisensory is innate within us. It happens so fluidly that we are not always aware of it. In a modern society with an increasing visually stimulating environment, we tend to not realize that as human beings, our other senses are just as important when intaking and engaging with the flow of information surrounding us. In the book *The Senses: Classic and Contemporary Philosophical Perspectives* by Fiona Macpherson (2011) the American philosopher John Heil wrote “The function of sensory systems is to extract information from some particular stimulatory source [...] not to create distinct experiences, sensations or internal models of what is perceived” (p.145). It is important to take note that our senses do not work independently but together in our brains to register spatial information. Sensory-motor brain regions rely on each other to perform daily tasks such as memorizing, navigating and even keeping your balance. Dr. Jennifer Groh (2014) writes in her book titled *Making Space* “Your senses work in concert with each other and with your brain’s motor and memory systems to ensure you are aware of your present location and to help guide you when you wish

to go to a new one. [...] our sense of space often relies on remembered information—the view from previous fixations, the number and direction of steps we’ve traveled.” (p.178-187). In Chapter 8 of her book, Groh explains that our sense of balance comes from our vestibular system which is located in our inner ear, and the nerve that carries auditory information also carries information about balance. Our vision is also necessary for balance because of its detecting of optic flow, which is the “consistent motion of the visual scene as a whole.” (p.184) Furthermore, “the relationship between the visual world and the auditory world is fluid and changes with every eye movement.” (p.171) Visually locating sound is done by the detection of which part of the retina the stimulus lands on, and this depends on the eyes positioning. “And there is much to be gained from combining what we see and hear, particularly when it comes to communication.” (p.172) It is much easier to understand someone while they are talking by observing their facial expressions, hand gestures, and lip movements. Likewise, visual forms of a sound stimulus aids with better comprehension of what we hear, it also assists us in blocking other sounds that could be distracting. In addition, Dr. Groh (2014) states that:

Responses to sound interact with a postural signal regarding eye position in multiple areas of the auditory pathway. This effect is found in areas of the brain that are thought to play a general role in all types of hearing, such as the primary auditory cortex, and is not limited to brain regions tasked specifically with connecting different sensory systems. We've even observed effects of eye position on auditory responses as early as the inferior colliculus—a prime hub for incoming auditory information located only a few synapses removed from the hair cells of the ear. But, as my postdoctoral fellow Jungah Lee discovered, it is not until the superior colliculus prepares to turn the eyes toward a sound that it computes the sound's exact location with respect to the eyes. (p.173)

Additionally, our vision can also collaborate with our sense of touch. When she was a graduate student, Dr. Groh and her advisor David Sparks conducted a study with monkeys to find out if neurons in the superior colliculus would keep track of a tactile location with

respect to the eyes, in a visual reference frame. They trained the monkeys to make eye movements in response to sensations they could feel with their hands from a variety of starting points. Then, they tested if the superior colliculus neurons react to any specific tactile stimulus based on the initial eye position of the monkey. The results showed that:

the monkey superior colliculus has a representation of tactile stimuli that seems to have been converted into a visual reference frame. Here, neural responses to touch depend on where the eyes are at the time each touch occurs. In the example shown here, a tactile stimulus delivered to the palm of the left hand evoked a vigorous response when the eyes were directed below the hand (left), but not when the eyes were above it (right). (p.170)

To put it simply, there is proof that seeing a stimulus and then seeing it be touched with your own hand can cause stronger neuron activity than if the stimulus was touched by the hand before or without seeing it.

However, our brains go beyond simply intaking sensory information and making appropriate choices when navigating the world; it can also embody sensations. The multisensory can lead to us having stronger feelings of empathy and reinforce connections with what we see; in the same way art does. In the essay titled *Bodily Framing* by Professor Vittorio Gallese (2016), we are introduced to recent discoveries of cognitive neuroscience concerning ideas about perception, action, cognition and the relationships among them. He also elaborates on something he calls experimental aesthetics. Here, aesthetics is defined by its Latin root *aesthesis*: a bodily sensing. Therefore, in Gallese's writing, aesthetic encompasses "the sensorimotor and affective features of our experience of perceptual objects." (p.238)

Experimental aesthetics is about the correlations between neuro-aesthetics and the brain-body physiological reaction to aesthetic experiences. Moreover, experimental aesthetics tries to explain the ways in which "we receive images through *bodily framing*" (p.238) by exploring the processes in our brains "that connects image-making to image-reception." (p.238) Gallese

explains how through experimental aesthetics, we've come to understand how our senses help us feel deeper meaning in regard to the physical world, such as man-made images or objects. First, he reveals that vision is multimodal. "The observation of the expression of emotions and feelings activates limbic and emotion-related brain regions. Motor neurons not only cause movements and actions but they also respond to body-related visual, tactile, and auditory stimuli, mapping the space around us, the objects at hand in that very same space, and the actions of others." (p.239-240) Then Gallese provides examples of multimodality such as the way the premotor neurons, that control our upper arm movements, can also respond to tactile stimuli applied to the arm, to visual stimuli of an object in close proximity to the arm or even to auditory stimuli that is also in proximity. In addition, objects that can be manipulated, when simply observed, activate premotor neurons that are responsible for grasping and manipulation. Then there are brain circuits that execute mirror mechanism. These circuits are activated not only when performing an action, such as holding, but also when seeing that action performed by others, when imitating the action, or imagining performing the action, even if you are perfectly still. Just looking at an image of someone else's actions can activate brain circuits that would execute the same action. Gallese (2016) writes:

Indeed, empirical evidence shows that motor imagery and real action both trigger a common network of brain motor centers such as the primary motor cortex, the premotor cortex, the supplementary motor area (SMA), the basal ganglia, and the cerebellum. A typical human cognitive activity such as motor mental imagery, far from being exclusively symbolic and propositional, relies upon the activation of sensory-motor brain regions. Mental motor imagery is somehow equivalent to simulating an actual motor experience. (p.241)

In sum, this phenomenon called *embodied simulations*, is an action not engaged physically, but rather simulated. It can also be applicable to emotions and sensations. Embodied simulations help us relate our bodies to space, objects, emotions, sensations, and the action of others through

connections that comes from within. Hence, embodied simulation informs and “serves as a physiological ground for the fundamental role of empathy in aesthetic experience.” (p.242) That is why the multisensory cannot only heighten our awareness of our environment and actions but can also deepen our emotional connection to what is being portrayed in an artwork.

Nevertheless, multisensory methods have been shown to have an impact in all aspects of learning. The research done by Ladan Shams and Aaron R. Seitz (2008) from the Department of Psychology at the University of California, shows that we could all benefit from multisensory learning in different aspects of education. They too found proof of embodied simulation through a series of studies. The results show “that multisensory training can be more effective than similar unisensory-training paradigms.” (p.5) They as well have observed that parts of the brain that use to be thought of as sensory-specific, are in fact able to be more versatile in “the earliest stages of perceptual processing”. (p.1) In the article, the authors elaborate on a study that “compared auditory-visual (AV) training to visual (V) training for perceptual learning by using a coherent motion detection and discrimination task.” (p.2) The AV group showed more prominent learning in the first session and throughout the ten training sessions, compared to group V. At the end of the training sessions, both groups were tested with exercises using only visual signals. The advantage of multisensory training was thus noticeable. The AV group showed that the number of sessions needed to reach the asymptote, while also increasing the maximum performance.

Shams & Seitz’s (2018) article goes further in depth on how congruency is important in multisensory training and much more effective. In this study, congruency is defined as a sound and a visual coming from the same source and happening at the same time. They also explain how the multisensory mechanisms in our brains, when exercised, can make moments of *unisensory* learning easier. In the same tread, multisensory learning can intensify a unisensory

experience and affect us more profoundly. In all, what is important to take away is that objects and abstract notions can be communicated in many ways such as written words, images, sound. Therefore, using only one method of learning may not be what is best when wanting to encode, store and retrieve information. A multisensory approach is also a much more natural way of learning (Shams & Seitz, 2008). Since birth, our environments are a collection of sensory stimuli. It does not matter how these stimuli make their way into our cognition, what's important is to be able to interpret them and understand the knowledge they give us.

In K-12 art education, there is not only question of fine art, but also of design thinking. We want children to be able to identify poor design and want to improve it by developing their critical thinking and problem-solving skills. As demonstrated in the TED Talk presentation by Jinsop Lee, better design is possible when we think about catering to the five senses: *sight*, *touch*, *hearing*, *taste* and *smell*. Lee introduces the idea by explaining how the best experiences we have involve more than one of our senses. To support his theory, he creates a five-senses graph to evaluate experiences. The x-axis shows the five senses and the y-axis shows the intensity of a particular experience for each sense. He uses it to evaluate his ride on a motorcycle. He also has his friends and students use the chart to evaluate some of their experiences such as eating instant noodles, clubbing and smoking. The collected data showed that some of the more enjoyable experiences had high intensity levels for all the senses. Hence, by simply raising the intensity of at least one of the five senses, a product can be drastically improved. Lee gives an example by sharing three quick ideas he came up with: (1) an aroma therapy iron, (2) a toothbrush that tastes like candy, and when the flavor disappears it's time to change the toothbrush, and (3) a remote control that has buttons that feel like the keys of a clarinet.

Though Lee's theory is supported by a simple collaborative study, it clearly demonstrates

that if we want to have meaningful experiences, it is important for more than one of our sense to be stimulated at one time. The idea of the importance of sensory stimulation could easily be applied to lessons on design in the art classroom. If the multisensory is evidently an important design element and part of the process of creativity, why shouldn't we incorporate notions of it in the earliest stages of art education?

In all, the curated literature reviewed in this section of chapter one gives context to how everything tangible in the world around us stimulates our senses. Also, the context in which we encounter an object or stimulus (e.g. in an art gallery, in a public park, on a sidewalk curb, in a museum, in a classroom) can also influence the way we perceive it as well. While making sense of these several scholars, such as Dr. Groh, we discover throughout their work that our senses work like a symphony orchestra; hearing a string quartet is nice, but hearing the whole orchestra is better and way more stimulating. Concurrently, researcher Vittorio Gallese's research highlights the importance of aesthetics and their implication in body sensing. If we think about cinema, watching a silent movie in black and white is not as engaging as seeing one in color with words and sounds. As a matter of fact, adding these multimodal components will incite greater emotions and sensations in the viewer even if the person does not physically experience the specific stimulation. Hence, adding a variety of stimuli will operate as a corporal foundation when trying to understand an aesthetic experience. Exploiting these findings, are Shams and Seitz. According to them, the application of multisensory experiences can be invaluable assets in the respective fields of teaching and learning. Their findings support my hypothesis since it is irrevocable that students that were exposed to more than one stimulus would learn faster and more straightforwardly. Withal, speaker Jinsop Lee's study stresses that multisensory experiences are not only more enjoyable, but also more memorable. This is useful since no

teacher does not want to have a meaningful impact on their students. We want them to have new and positive experiences. After all, implementing multisensory practices in the curriculum, I believe, can lead young minds to understand the importance of learning about the arts.

Photography as a Point of Departure

In this day and age, taking pictures is no longer about simply *capturing a moment* for its pleasing aesthetic, but also a casual tool to gather information. Image taking has become omnipresent in our daily lives with the help of our smartphone. Therefore, it is not that far-fetched to think of it as a starting point for introducing new practices either in art or education. Yet, we are becoming visually overstimulated by our screens, and it is important to remind ourselves that photography has the flexibility to not only be digital, but also analog. Photography will always be my muse and tool for any of the work I do, whether it is for art education purposes or for personal artistic work. It has always been a point of reference for me, a space to think and analyze. In the following paragraphs, it will be apparent that other contemporaries will have a similar concept of photography.

Most of the professors that have had a positive impact on me were also photographic artists. However, I did not come in contact with photo education until I was in college and was uncertain of what teaching photography would be like with elementary and secondary level students. That is when I discovered the photo educator and artist Wendy Ewald who was born in 1951 in Detroit, Michigan. She holds a BA in Art from Antioch College and studied Photography with Minor White at MIT. Her passion for teaching stems from creating games to help her brother restore his speech and movement after he was hit by a car and suffered from neurological damage. She also enjoyed taking pictures of her large family composed of many younger siblings. Later, during her studies in art, she took an education class in the hopes of one day

uniting her two passions: teaching children and photography. Ewald has been teaching photography to children for more than 40 years with unique experimental projects. These projects guide children to observe themselves in a reflective process of images and words. She has worked with youth from diverse backgrounds and in other countries like Canada, England, and Israel. Ewald believes that people from a community will understand better than someone from the outside what are the most important things to photograph. They will be able to compose a photo in a way that an outsider could never do, no matter how experienced of a photographer they are. Therefore, when she is invited into these communities, her goal is to train her students, and give them the necessary tools to capture their unique point of view.

One of Ewald's projects and resulting published book *The Best Part of Me* was a collaboration with teachers and students from Durham, North Carolina, Public Schools. It was part of the program *Literacy Through Photography*, organized by the Center of Documentary Studies at Duke University. The goal here was to use photography as a starting point for writing. The prompt Ewald gave her students at Club Boulevard Elementary School was to choose the parts of their bodies they liked best or represented who they were the best. Though the students did not take the pictures themselves, they took part in composing their portraits. They guided Ewald on how they wanted to be portrayed. The pictures were taken on Polaroids so that her and the student could instantly discuss its composition and what could be changed so that the final photograph would reflect the child's vision of themselves. Once the child was satisfied with their portrait, they wrote about what the photograph conveyed alongside it. Although the students did not intervene onto the photos with their writing, an element of touch embodied the whole project. First, the manipulation of the Polaroids when discussing its content. The haptic nature of the Polaroid creates a physical representation of an idea and makes it more concrete. Also, the

experience of physically touching the photo, can be a haptic way of creating an embodied simulation.

Let's take for example, Mari Garcia's portrait in the book. According to the child, her best features are her elbows. During her photo-taking session with Ewald, seeing herself on the Polaroids while attempting to highlight the elbows, intensifies the signals in her brain that controls her elbows' movements and feeling, and subconsciously pushing her to make them a priority in her portrait. The chosen photo clearly shows an endearing presentation of Mari's elbows as we see her eyes seemingly narrow down to observe them as she cradles her face in them. Second, the writing that is associated with the picture. These photographs cannot portray on their own their significance. Moreover, the photo and the text are one project, so writing a statement is just as important as the photograph itself and creates a multisensory layer to its entirety.

Another project Wendy Ewald did with children who lived in the town of Margate, England is documented in the book *Towards A Promise Land*. It is meant to be the prequel to the film *The Margate Exodus* by Penny Woolcock and Michael Morris (2006). The project began in 2003 and ended in 2006. The book was published in 2006. Margate is a port town where people from near and far, migrated to. Ewald worked with children that had moved from within the UK and that had sought political asylum. Ewald wanted to have these children from diverse background and cultures to recount their migration experience with photography and writing. She hoped that by having them share their stories and bringing them together would show commonality and go beyond ideas of division of race, faith and politics.

The photographs of Margate's youth explore themes of struggle, expectation, disappointment and fulfillment that are transformed by their imagination. The final form of the

project, besides the book, was banners of the children's photos hung around Margate, and a gallery show. But before this could happen, Ewald had to teach her pupils how to use a camera and how to take a photograph. The first step in the process for Ewald was to take their portraits with a large-format camera. She also made Polaroid tests so that the child could propose changes before taking the final picture. While taking the Polaroid tests she showed them how to use the Polaroid camera and positive/negative film. Because they had to measure the distance between them and their subject and carry a buckets of sodium sulfate to dip the negatives into. This slowed down the process and force the children to carefully ponder over the way they would photograph a subject. Here, photography in itself is a multisensory experience. For the next step, Ewald asked the children to identify objects they brought with them to Margate so she could photograph them for the banners. During this time, her students would take pictures of their surroundings, stories and dreams. When Ewald's time with her students was coming to an end, Lucy Pardee, the researcher for the project, interviewed them with the help of translators. She asked the migrant children about their lives, their journey, where they came from, what it was like to be in Margate and more. Afterwards, the interviews were transcribed, and Ewald edited so they would be more coherent. She then spent time with each child to determine what they would like to have written on their portraits that would be hung as banners. She had them write their chosen sentences on a sheet of Mylar placed on a copy of their portrait. These words are what they believed best represented who they were as people, as human beings. It was subtle, but there was a practice of multisensory in Ewald's methods of educating and creating. Polaroids are a reoccurring tool that she utilizes to not only teach students about composition, but also a way of communicating through the sense of touch and sight. Also, having the children write atop of their photos was another tactile component. I saw this as way for them to add an element that

deepened their sense of individuality. Ewald attests that through this project, the children she taught and collaborated with were able to open-up. Though many have been through trauma, they were able to welcome the process and transform their uncertainties into art. Wendy Ewald's work with children might not have been multisensory per se but was definitely *multimodal*. It is a great example of how photography can be the starting point to a project and help carry its main themes.

There are artists that explore the idea that the two-dimensionality of a photograph is perhaps not enough to emphasize their connotations. Sometimes the multisensory experience does not have to come from the artwork itself, but instead how you create the work, or how you come to analyze and understand an art piece. Let's consider four artists that physically manipulate photographs in their practice.

Firstly, we have Odette England, Australian/British artist whose work consists of physically manipulating the negatives or prints of the photographs made by her family. Throughout her practice, England has worked with expired film, damaged negative, and alternative phot processes. At the mercy of her hands, the photographic material undergoes precise and labor-intensive process of being partially erased and obscured, scratched, sanded, pierced, trampled on, layered, cut, buried, etc. In her series *Excavations*, she uses her family archive to take on new considerations about what we remember and what we forget. Each cliché in the series has evidence of her hand gestures as it almost destroys the original image. Yet, these intentional gestures were done carefully to show glimpses of visual information like a sitting figure, a landscape, a tree, a lamppost, etc. Though she might not have taken the photo, England appropriates it we the power to control what visual information viewers are allowed to have.

Secondly, there is Amy Friend, a Canadian artist that mostly works with the medium of

photography. In her series *Dare alla Luce*, she plays with the elements of photography and “re-uses” light. She collects vintage photographs and hand-manipulates them by making holes from the back of pictures. Then, she re-photographs them with light shining through from behind the photos. Friend sees it as a literal way of returning the subject of the photographs back to the light while at the same time bringing them forward. By doing so, she examines what she sees and asks herself; why is she drawn to specific photographs, why is a photo interesting or not, what is a photograph, what does its material mean and how does our relationship with a photo change over time? As the pictures are permanently altered, an opportunity for new readings of their subjects can be had.

Thirdly, Kensuke Koile is a Japanese artist who sees photographs as reflections of the real world, and by altering them we can create other images, but they will always be based in realism. Just like England and Friend, in his series *Single Image Processing*, Koile appropriates photographs and alters them. With the simple notion of no more, no less, he meticulously cuts out pieces of a photo and repositions the pieces back seamlessly. This creates an abstract composition that change the narrative of a picture.

Finally, there is Diane Meyer. Born in 1976 and is an American artist that combines photography and embroidery. With cross-stitching, she manually gives the effect of pixilation on photos that were taken with a film camera. Many things happen as a result of this practice, such as subtle details appear when parts of an image are obscured by the thread. It expresses the supplant nature of photography on our memories. Also, the tactility of her pieces references today’s ubiquitous digital imagery being rarely printed into something tangible as they live on the internet or hard drives. Meyer’s work comes from a place of frustration as well with the lack of tactility of digital photograph and longed to have a more hands-on process of art making. She did

not like the perfection photoshop procured and is more interested in embracing a process that created imperfections while borrowing the visual language of pixelization and digital imaging.

With the review of two of Wendy Ewald's photo education projects, we see how photography can be used to initiate creative thinking. As for the four artists I introduced here their work provides four examples how two of our senses (visual and tactile) can be combined to create meaningful and contemporary art coursework. Furthermore, they are inspirations for lessons that can be done in the art classrooms. All of these artists, including Wendy Ewald, have in common a deep interest in analog photography and are keen to tactile processes in artmaking. Though, this keenness might be related to the generation in which they grew up in. But on the other hand, the majority of today's youth will have grown up with digital devices in their daily lives and might be numb to their innate natural tactile senses. This further supports my idea of there being a too great emphasis on the arts that can only be perceived and understood visually. Art is a space in which any method of learning and making is acceptable, and so classrooms should be that space as well.

Multisensory Learning and Teaching in Art Education

Now having presented in this review some definitions of the science and theory surrounding the concept of the multisensory is and how photography can be a process for introducing notions of multisensory practices in the education of art, the following review provides examples of multisensory learning and teaching being implemented in different contexts. Though multisensory practices in art education have not been readily evident in K-12 schools, it has made an appearance in workshops and museums in the form of programming and research. The following paragraphs contain examples of how multisensory practices for learning art is not only possible and but importantly can have positive outcomes.

Growing up, I was fortunate to have the opportunity to go to museums with family and during school fieldtrips. I have always enjoyed these excursions because it felt like I was being transported into a new world that I had not experienced before. Even if the building was the same, the changing exhibitions and the people I was with gave the space a new atmosphere. Yet, one might be thinking how can someone with a visual impairment enjoy herself in museums. Well in fact, though I find it enjoyable, I do sometimes feel frustrated by the lack of accessibility to the art. Many times, have I been asked to step away from art, or given up on reading wall text. Or when I do take the time to look, I often move too slow through the exhibitions for my accompanying peers. I have used audio descriptions and taken photos to better see objects up-close, but they are unsatisfying ways of experiencing and learning. Luckily, more and more museums and galleries are trying to change the dull and traditional ways of museum-going by creating inclusive programs and exhibitions.

A museum that is making such efforts, is the National Gallery of Canada. Even if its programing has been geared towards people with disabilities, it is open and accessible to all who are interested. These efforts have been going on for more than 30 years. However, a focus will be placed on one of the programs motioned in Elizabeth Sweeney's (2009) article *Walking with Janet Caldiff, sitting with Massimo Guerrera, and eating apples with R. Murray Schafer: Meaningful Museum Experiences with Participatory Art for Visitors with and without Visual Impairments*. The program is called Stimulating the Senses and is open to people of all ages, with or without blindness and visual impairments. The goal of the program is to allow visitors the opportunity to share their understanding of art that they have experienced using senses other than sight. During one particular gathering in the Canadian National Gallery's Rideau Street Convent Chapel, Sweeney describes the experience of ten adults from ages 24 to 75. As they sat in a circle, those who were sighted had a blindfold or had their eyes shut. All are listening to Janet Cardiff's Louisiana

Walk from her series of audio walks made in 1996. In this session of Stimulating the Senses, the context of the artwork is given after listening. Some information was given about the artist, her work, and audio-based art as well. Participants then share their experience, relating it to a memory or what they visualized. The listening of the sound piece lead to an engaging conversation between participants. This mutual sharing and listening to each other's experience with the piece is what makes this program accessible and shows how the knowledge of art, art history, or of artists is not necessary for participation. It also gives everyone an equal opportunity to have an enriching education. Additionally, Stimulating the Senses has provided its participants with experiences such as touching Marcel Duchamp's *Readymades*, smelling the aromas of a gas station while learning about George Segal's installation *Gas Station*, and listening to stories that have imagery from paintings in the museum's collections.

However, the museum's curators and educators are aware that it's not always possible for a visitor to touch a painting due to the risk of damage. Also, the tactile experience with a painting can simply be uninformative on its own. And so, the curators direct their focus on multi-modal techniques to describe the artwork to participants. The verbal descriptions include storytelling and music. Non-art objects can help convey an understanding of the art such as a piece of material used in the artwork being described or an object depicted in a still figure painting. These teaching techniques work as a way of translating or interpreting which can give greater access to a variety of art. Yet it is important to remember that too many repeated translations can if not careful lead us away from the actual meaning behind an artwork. Therefore, having more interaction with the authentic artwork is what gives the best understanding of a meaning. On the other hand, we must be cautious when introducing a multisensory experience to someone as it is unconventional and can be confusing. Moreover, most people have been conditioned to think that we either "get it" or "don't get it" when it comes to the meaning of an art piece. We rather hide our confusion than give a wrong answer or admit that we do not understand. That is why

communication is key when dealing with new methods of teaching art because, as educators we are demanding participants to step outside of the norm, the habitual. In the article, Sweeney (2009) writes about the testimonies of people who have experienced confusion when encountering a multisensory experience during a program or exhibit at the National Gallery. For Christine, a blind visitor who was a participant and artist in a program called Master Series Workshop, she felt frustrated with this new and unpredictable environment. But after having a discussion with the artist about some of the objects in the exhibition, she gained better understanding and appreciation. So much so that it inspired her own art making. Another woman who was a sighted participant in Stimulating the Senses shares how having to wear a blindfold during the description of an artwork was stressful because she wanted to get the mental image right. But she noticed the anxiety building and chose to let it go and realized that anything that helped her give up on needing to get it right was a positive thing. Sweeney (2009) states:

Typically, sighted participants in Stimulating the Senses often report a similar experience—that the experience was new, challenging and at times difficult and even scary. What is most important here, is that almost all of the time, it was observed that the same participants reported being thankful for the opportunity. This leads to the suggestion that visitors are looking for precisely those kinds of challenges and opportunities to engage with art, in ways they have never tried before, even if it's hard. Does art not in some capacity aim to challenge us, challenge what we think we know or feel? This in turn, often requires us to also reflect. (p.246)

It is because of testimonies like these that curators and educators at the National Gallery of Canada believe in prompting visitors to step outside of their comfort zone. By letting go of their previous knowledge of how a museum functions, they will have a more fulfilling engagement with the art and gain greater knowledge. What is important is that the visitors, no matter who they are, can independently form an opinion and their own understanding of an artwork. This is much more freeing than being told what to think. I, myself agree with this philosophy because of my own personal experiences with the normative conventions of

education. I was and still not able to conform to the current standards of western education. But, if I had not taken risks, such as studying in a predominately visual field of study as a person with a visual impairment, I would not have become a graduate student writing this thesis.

Museums seem to be the setting in which the most research has been done in multisensory practices for art education. In Vaike Fors' the article *Teenagers' Multisensory Routes for Learning in the Museum: Pedagogical Affordances and Constraints for Dwelling in the Museum* from the journal *The Senses and Society* there is a focus on students of secondary level of education, and their learning strategies in the museum. Fors writes about her research that is in part driven by the opinion that a media-saturated environment might actually lead to developing new multisensory learning strategies in our everyday lives. I find this opinion extremely interesting because it challenges my notion of media-saturated environment being more of a deterrent to the sensitivity of our senses than an enhancer. It is theorized that teenagers have embodied knowledge learned through the sense of touch from the frequent use of keypads and computer mouses. Also, the haptic and visual experience from taking photos with a camera phone has evolving embodied sensibilities and also highlights non-representational ways of making sense of an environment. The behavior of a group of eight teens was observed and compared during two exhibitions titled *Drömmens system* and *Take Action!* at the Museum of World Culture in Gothenburg designed for teenagers and "appeared to be based on similar multisensory pedagogical ideas." (p.271) Both of the exhibits had:

still and moving photographs, the sound of voices telling stories, multiple choices in how to walk through the exhibit, and political messages. State-of-the-art technology was applied to afford different modes of engagement and to invite the visitors into multisensory experiences of the exhibits. (p.281-282)

The teenagers were given video cameras to document their visit through the exhibitions.

This would give more insight into their relationship with the environment. Afterwards, Fors

watched the footage with the teens, they had a conversation about their experiences in both exhibitions. Though the exhibits were built with the same ideas in mind, the teens gave very different opinions of them. The teens found *Take Action!* boring and difficult to understand, yet *Drömmens Syster* was inviting and calm. Though both displayed multisensory and interactive components, the organization of the space and their content were unlike. *Take Action!* was in a small space with too many objects and displays affecting too many of their senses at one time. There was no clear feeling being conveyed. This exhibit was designed to cater to the five senses and created distinct perspective that lacked harmony. As for *Drömmens Syster*, in contrast, created a “unified sensory experience” which gave the teenagers a clear feeling of calmness. This exhibit manipulated all our senses to work in harmony so that a feeling of calm could be communicated to the visitors. In addition, it permitted the teenagers to use their capacity to easily embody new information through more than one of their senses.

This research on teenagers’ multisensory sensibilities for learning in museums demonstrates how important the organization of an environment is important when thinking of using multisensory practices. It is something that needs to be taken into consideration when organizing the space of a K-12 classroom when attempting to use a multisensory approach to teaching and learning.

Moving away from the museum space, multisensory practices have been used in the form of workshops in juxtaposition with regular school pedagogy. The artist Ehsan Akbari (2016) wrote an article titled *Soundscape Composition for the Classroom* for the Art Education Journal. Akbari’s artistic background is in visual media but has been focusing on sound art and soundscapes in more recent years. One thing he has learned while making videos is the importance of sound in setting mood and conveying meaning. Based on his experience, Akbari

has developed and conducted a four-step workshop with secondary students. The steps are *Listening, Recording, Editing, and Presenting*. He teaches his students how the human ear registers different sound frequencies and what are the signals (high-pitch), keynotes (low-pitch) and soundmarks (mid-pitch) in the composition of a soundscape. These three elements must be carefully arranged to create a balanced piece that conveys an intended feeling. Other than using sound as a medium, what makes his approach multisensory is the color analogy he makes when explaining how signal, keynotes and soundmarks must be organized in a soundscape by comparing it to the composition of a painting. He uses *The Harvest* by Vincent Van Gogh:

we can see how cool colors appear to recede into the background, while warm colors appear to move toward the viewer. For Van Gogh, the relationship of warm and cool colors was key to painting his landscapes. In composing soundscapes, thinking about the arrangement of high, mid, and low frequency sound is crucial for conveying a sense of depth and richness. (p.21)

Akbari also notes that creating soundscapes with students is a flexible project with multiple creative ways of being presented. The soundscapes can be paired with a video, be uploaded to social media or sights like *Soundcloud*, create an installation within the classroom, and even paintings, performance and photos can be incorporated into the project. All of these ways of presenting sound create a layer of multisensory to art education in the classroom.

CHAPTER 3

SOUND as an EVERYDAY THING: A CASE STUDY

There has never been one way of learning. One ultimate way of comprehending does not exist. Just like perfection or normalcy does not exist. I do have to admit that I have for a long time tried to fit into the mold that the educational system has put in place. But the mold is breaking at the seams and my energy is fading. I am tired of feeling that I am not good enough and always fearing failure and disappointment. It is how I have felt my entire academic career. Yet, I have pushed forward because I love to learn. I love meeting people who think alike and have similar interests. I know I am not the only one who feels inapt, and it needs to stop. Children should never feel like they are not good enough. School should be a place where they find encouragement, hope and possibilities. Art class, despite of everything, was the place where I came close to feeling like that in school. I think it was and still is the same for many others. And even if it is not, the art classroom has the potential to become that kind of place, more than any other curriculum subject. That is why a big part of me wants to be an art educator. I want to change what is conventional and create a space of growth and self-worth for the next generations.

My case study with the students from the MET School was the first time I had an opportunity to do so. It was not perfect, but I was proud of the outcome. My crazy ideas of multisensory practices were good and worth it. In this chapter, I will share and describe the events of this case study where I have 10th grade students use their senses of touch, hearing and sight to learn about selected works of art by simultaneously creating their own sound art pieces in collaboration with their peers. I will first explain the lesson I planned, then I will describe the environment I made for it to take place and lastly, I will describe what happened during the case

study. I believe that they learned a lot without realizing it.

The Lesson: Sound as An Everyday Thing

For a case study, I wanted to create a lesson that I would have been excited to be part of in high school. To do so, I needed to push the envelope of the stereotypical combination of visual and tactile when speaking of multisensory aspects. This lesson is a direct inspiration from my work as an artist. Over the years I have gain the skill to adapt and be flexible, so taking the basics of my current art statement, I was able to translate it into the basis of my lesson.

My goal with this lesson is to have students work on a project that involves the use of more than one of their senses. The main focus will be on their senses of hearing, touch and sight. In teams, students will create a one-minute soundscape to match what is happening in an image. They will have to pick their image from a selection of paintings and photographs chosen by me. To record their compositions, they will use their phones. Their materials for creating the soundscapes will be found objects that I provided. Through creating soundscapes, students will experience embodied simulations as they observe and analyze what is happening in the image that their team has chosen with the goal to translate it with sound.

At the end of the lesson, a team at one time will present their soundscapes alongside a projection of the image. To do so, they will connect their phone to a speaker that I provided. The teams will give a brief explanation of what they did, before playing the soundscape. After the class has listened, there will be a mini critique where I ask questions and the students are open and to give feedback.

A list of materials at Met students' disposition:

Bubble wrap	Glass jars	Plastic Utensils
Bucket	Makeup bag	Recycled cans
Buttons	Marbles	Rope
Cardboard	Metal tubes	Shower cap
Chopsticks	Paper bags	Tape
Fabrics	Paper towel rolls	Toilet paper roll
Foil	Plastic bottles	Wax paper

List of images to select from:

- Fernando Botero, *Card Players*, 1991.
- Jeff Wall, *A Sudden Gust of Wind*, 1993.
- Julie Mehretu, *Retopistics: A Renegade Evacuation*, 2001.
- Nicole Eisenman, *Seder*, 2010.
- Jay Simple, *The Plantation*, 2016.
- Justin Bettman, from the series *Set in the Streets*, 2017.

Studio Setup

Setting-up the space for this lesson was tricky as I wanted to create an environment favorable for sound recording. Unfortunately, the space for the classroom was a large and echoey studio. Though having a lot of space was good, it was not meant for making clear sound recordings without background noise. Therefore, I did my best to separate the room and soundproof some parts of it. The front of the room would be the presentation area with stools placed in a semi-circle in front of the projector's screen. This is where all the students will be at the beginning and end of the lesson. Behind the presentation space, I arranged a large table covered in everyday objects that I had collected as materials for composing the soundscapes. Lastly, at the far back of the room, I tried to divide this area into small sections with large moving panels. The sections were meant to be makeshift sound studios. I covered the panels with

blankets and fabric to help reduce the intensity of the sound frequencies as they bounce off the panels. I added one more of these mini makeshift studios at the front of the room, on the left side of the presentation area when facing the screen, to give some extra space for creating, and hopefully disperse some of the inevitable cluster of sounds.

What Happened?

Before I go on into detail about this experience, it is important to understand that this group of teenagers I taught to were very open-minded, cooperative, and engaging. They were also a tightly knitted group with mutual respect for one another. This made my experimental lesson much easier to execute and contributed to the outcomes being mostly positive. In addition, I was assisted by my grad colleagues and advisor Dr. Paul Sproll, Head of RISD's Department of Teaching + Learning in Art + Design who were of great help with setting-up, documenting, and supporting the students.

Upon arrival, I asked the students to sit in a semi-circle in front of the screen. I then sat among them at the top-middle of the semi-circle next to my laptop. I introduced myself and gave some background information about me. I shared with them about my visual impairment and how my other senses help grasp a better understanding of what I have trouble seeing. Afterwards I began my slide presentation and I introduced the lesson with the titled Sound as An Everyday Thing and went on to explain what sound art is. I asked them what their everyday sounds were. One after another, they gave answers such as cars, kids yelling, a cat meowing, music, footsteps, their teacher's voice, their phone notifications, skateboards, and more. I then moved into conducting a little experiment with the students. I chose two videos demonstrating the sound artist Zimoun's work. Before playing the first clip, I asked them to close their eyes and listen carefully. The sound of the video is from an installation titled *658 prepared dc-motors, cotton*

balls, cardboard boxes 70x70x70cm, and it was made in 2017. After I played it for about 30 seconds, I paused the video and minimized the window to hide it before asking them to open their eyes. My follow-up question was ‘What did you hear?’ One after another, the students gave suggestions like an airplane taking off, rain, bees, a train in the distance, white noise, balls bouncing... I then opened the window containing the video and showed them what was actually creating the sound they heard. The installation was a room with walls of cardboard boxes, and on each box, there is a dc-motor spinning a wire with a cotton ball attached at the end. 658 balls are each hitting a box at the same time, creating a rumble. They were very surprised to see the unexpected source of the noise and that one of them kind of guessed what it was before seeing it.

I repeated this exercise a second time but with a different video of Zimoun’s work titled *43 prepared dc-motors, 31.5kg packing paper*, which was made in 2013. This time students suggested rain, leaves blowing in the wind, a bonfire and “a million people crushing a cockroach at the same time”. After that, I pulled the window back up and showed them what kind of installation was at play this time. The clip reveals a giant room with a curved ceiling and an indentation in the floor holding 43 dc-motors covered with 31.5 kg of brown crumpled packing paper. The motors move the paper in an up and down motion, brushing the pieces of paper together. The students were slightly less surprised since they were expecting something outside the box, yet they remained intrigued. I finally give them more details about Zimoun, the Swiss sound artist, composer and musician who created these sonic creations and who is well known for his sound sculptures and immersive installations made of simple industrial materials such as cardboard, dc-motors, cables, ventilators, welding wires and wooden spars.

I continued the presentation by talking about the art of Foley. And, in order to provide the students a quick and comprehensive definition of what Foley is, I showed them a video made by

the global media company Great Big Story titled *The Magic of Sound*. The first few minutes of the video give a great explanation and an example of two Foley artist working together. This led us into introducing the work that the students will have to do. I explained that they would in teams have to create a one minute soundscape to match what they believed was happening in one of the images I had chosen for this project. More than one team could use the same image. I challenged them to make these soundscapes from the found objects they would find on a materials table they were to record their soundscape with a designated team cell phone. I then gestured to the makeshift studios at the back of the studio and explained their use. And before we began anything, we went over the schedule for the rest of the class time that was posted on the final slide of the presentation. (1) Divide the class into teams, (2) give a brief demonstration of what can be done with the everyday objects, (3) the teams can explore the materials and choose an image to work with, (4) they will have an hour to create their soundscapes, and (5) we will have 15 minutes to listen to everyone's work with questions and a guided critique. Finally, I presented the images from which they had to select one. I had printed these on plain printer paper and passed them around so everyone could take a close look. I asked them to group themselves into four teams of 3, which was convenient strategy as I did not then have to manage who would work with who. Once the presentation was over, we headed over to the table that on which I had arranged all the materials. Everyone gathered around and I made sure I was visible to all. I gave quick demonstrations of what could be done with particular objects. For example, I took the rope and swung one end in a very fast circular motion to create wind-like sound. I one last time reminded the students what the assignment was and let them go free!

All at once, the teams chose an image and began picking out objects. I reminded them that they had space in the rear of the studio to work. But I soon realized that the space was not

going to be suitable for all these students making noises at the same time. Unfortunately, I did have a feeling before the class started that the mini-sound studios were not going to be good enough. Yet, I find it more informative to try and fail, than not trying at all. Luckily, my advisor, Dr. Paul Sproll had the idea to bring a team to the TLAD's seminar room where there would be less disruptions and which proved to be an ideal for recording. I also had the idea to use the studio's storage walk-in closet as a new makeshift recording studio, so one of my peers helped me quickly make room for at least three people to fit comfortably inside the closet. Now, the environment was organized so that the teams could experiment and practice in the studio and take turns using the closet or the office space to record their compositions.

There was an abundance energy of excitement in the room. I could feel that everyone wanted to succeed at creating a soundscape compatible to their image, and my adviser and my assisting peers were enthusiastic to see the students engage with the assignment. They helped me supervise and assist the students as the work begun to go outside of the classroom. Nonetheless, I was very pleased to see that certain students were experimenting with some of their own personal belongings, such as keys. Others had found materials around the studio to use that were not on the table, which was completely acceptable. There was not much I needed to do except give advice or ideas as I moved around to each team. I did notice there were moments where it felt like there was nothing happening simply because the teams had to wait their turn to use the recording spaces. I think perhaps, if I was to redo this lesson, I would have some kind of work sheet for students to fill out during any such down time. It could have questions such as "what is the title and the artist of your chosen painting or photograph?", "list all of the objects used to create the soundscape" and "what are the key sounds being recreated?". This could be an added

element, so the students would become aware of who the artists behind the artwork they are looking at.

An hour came and went, and it was time to hear each team's compositions. We were running late, so I could not ask questions for critical thinking. Yet, things happened organically. Without needing prompting, each team described what they did before playing their soundscape. Everyone gathered back to the front of the class and sat back down in a semicircle. I had set up in the middle a speaker with an audio auxiliary cord for them to plug their phones in. As the teams presented, I projected their image so to pair it with their soundscapes. The first team to present had chosen the photograph from Justine Bettman. Interestingly, they did not create one continuous soundscape, but instead created singular sonic moments to define different parts of the photograph. For each small segment they described in detail which part of the photograph it was recreating the sound for. They made the sound for a clock, people moving on the city streets, the hotdog stand, the static coming from an old fashion television, a woman reading a book, and what it would sound like if the depicted family was to all sit down on the couch at the same time. Not only did they pay attention to what was happening in the background of the picture, but they imagined what could have happened before or after this moment was captured. The second team chose the painting *Seder* by Nicole Eisenman. Their composition had layered sounds of glass clinking, utensils scratching plates, drinks being poured and an expressive voice. They had tried to imagine what could have been said during meal depicted. If I had had more time, I would have asked why they chose those specific words to say. The third used Julie Mehretu's painting *Retopistics: A Renegade Evacuation*. I was pleasantly surprised to see that one of them had picked the abstract painting. I had included it because I wanted to see what would happen. I thought maybe it would be an easy target because there is no wrong way to create a soundscape

for it. Or it would be too confusing and intimidating because it is an abstract composition. But what this team did was reminiscent of a John Cage's experimental scores and performances. However, they did not layer sounds, but instead had a variety of them follow one another with some pauses. It was captivating to listen to because you were never sure what to expect after one sound segment ended. The students in this team seemed embarrassed while their soundscape was playing. Be as it may, as soon as they heard supportive comments and questions, they gain some confidence. Their homeroom teacher asked if one of the sounds was the purple in the painting and one of the girls in the team said she had no idea. Nonetheless, it was an insightful question. If the composers were not in the room and there were no instructions, someone could instinctually ask themselves what parts of the soundscape and painting are associated. As the soundscape progressed, students were commenting on which sounds they enjoyed. Everyone seemed to really appreciate wobble and crunch sounds that one young man in the team was proud to say he made them. After the audio recording ended, one would think it was improvised amalgam of noises. But I did see them not only experiment, but also rehearse sound piece until they were satisfied with the recording. As for the fourth and last team, they chose Fernando Botero's *Card Players*. I was very impressed with their soundscape. The sounds were controlled and subtle, yet specific and recognizable. You could hear the laying down and shuffling of the cards, the pouring of a drink, the friction of arms on the tablecloth, a slight throat clearing and the footsteps that could be easily attributed to the man standing in the background picking around the curtain. Again, an instance of students imagining scenarios of what could have happened before or after the scene depicted. They were one of the teams that recorded in the TLAD offices, which I believe was a key reason for the clarity of the sounds. After every team had played their soundscapes, our two hours together were up. I thanked the students for their

positive and engaging attitude during this experimental lesson and for baring with me through the hiccups. I also told them that I was proud of the work they had done and hoped they learned new things, or perhaps found new ways of thinking creatively. Before they left, I asked, with the students' permission, if the homeroom teacher could collect the soundscapes and sent them to me via email.

Summary

This case study was an insightful experience for me. I created a lesson that incorporated ideas that I have been contemplating for a while. It was a space for me to test my theory on multisensory practices in art education. I wanted to assess how I could create a curriculum based on these practices that could be used not only by me, but by other educators in the future as well. Most of my speculations were validated in this case study. Though things did not go exactly as planned, which was to be expected when attempting something new for the first time, the overall outcome of the lesson was successful.

Through this experience, I came to understand how it is crucial for educators to be flexible when incorporating multisensory techniques in the art classroom. And how important it is for students to be encouraged to explore and experiment beyond the initial instructions. We want our students to go beyond what is conventional and not be afraid to take risks. Additionally, there will always be technical difficulties when working with technology; for instance not every student has a smartphone, or the speakers might not work, or the computer is not cooperating, or student does not handle aggressive noises, or the opposite hard of hearing; so, having back up plans is always useful. It is also important to be highly aware of what can be done in your classroom. We often cannot choose the spaces in which we teach therefore we must adapt. It is not productive to ignore the limits of a space. I candidly was ill prepared for the unforgiving

acoustics of the studio and lacked the resources on my own to modify the space so it could be suitable for the main component of the lesson. I luckily had assistance to help trouble shoot and move things around to adjust. However, not everyone can have that kind of help all the time.

As for transferring knowledge into these young minds, my goal was to use sound and touch as devices for learning how to analyze artwork and to question what they saw. I wanted through my instruction to forget about conventional ideas of what art is and give them the tools to think about it from a different perspective. Consequently, while each team was describing what they did to create the soundscape, they were also describing the paintings and photographs in detail. Without realizing it, through multisensory exploration, they were learning to *observe*. They even were thinking about the context of the artwork and attempted to gain understanding of the scenes depicted. This typically occurs in post-secondary art education settings but seldom in high schools.

Furthermore, during the final presentation of the students' soundscapes, I could see that they had become much more curious about the artworks they were working with. Some wanted to know the reason why a picture was taken, or who an artist was. At the beginning of the lesson, I introduced the selected photos and paintings but gave very little information about this work. The reason was because the point of this lesson was not to give a lecture on artists and art history, but to introduce students to ways they might embody information through the senses and create a new way of interpreting what they saw with the in the hope they would develop new understandings. Still it potentially left the students wanting to know more as a result of them formulating their own understanding of the art. Interestingly, realizing that this lesson sparked curiosity has inspired me to develop follow-up assignments. I believe that the Met students have as a result of this experience a connection with the content of the images and were open to

learning about the context. And so, the building of a second lesson that would give them the information they seek could be a possibility and something I look forward to delving into.

CHAPTER 4

CONCLUDING THOUGHTS

This thesis has its origins in my belief that the K-12 educational system in particular is falling apart and in so many aspects has become obsolete. Through my personal struggles I can attest that the gaps in this system are deep and can say with confidence that the first steps towards a better system is one that needs art in elementary and secondary art classroom. I say this not only because of art education's potential as a space for creative problem solving, but because of its own current rigidity that needs to be loosen. There is still hope!

To overcome these educational problems, numerous studies, experiments, as well as informed observations have been conducted by researchers whose curiosity for neuroscience and passion for the arts have identified strategies to improve education. These researchers' ironclad keenness for change, has had a positive impact in some art classrooms and has caused art teachers to innovate and integrate teaching approaches such as multisensory learning. As has been suggested previously in this thesis, the implementation of such techniques brings, I and others' argue, numerous benefits and elements of welfare to a child's educational journey that can easily be applied to art education. These aspects of wellbeing include, but are not limited to, increase in self-esteem, more rapid and better assimilation of complex subjects, a developed sense of empathy and acquired observational skills. This belief is supported by researchers such as Jennifer Groh and Vittorio Gallese who in their work have examined the many facets of the human senses and their crucial roles in our everyday lives. Vittorio Gallese digs deep into neuroasthenics and explores how we experience art with our senses - even with senses that we would the least expect to exist within us. Ladan Shams and Aaron R. Seitz draw our attention to how multisensory learning is much more beneficial than unisensory learning and discuss how to

make it the most efficient technique for learning. Yet, let's not forget the relationship or senses can have with design. Assuring a focus on designing products that serve more than one of our senses creates more enriching experience for the user.

However regrettably, these concepts on the multisensory can be overwhelming for teachers to adopt but I discovered that an ideal way to introduce teaching with multisensory practices was through photography. After all, the camera is an omnipresent tool that does not demand a great deal of experience to use it to the user's advantage. Inspiration can be found with the work of educator Wendy Ewald with her students in projects such as *The Best Part of Me* and *Towards A Promise Land*. While the multisensory elements are subtle, they have shown to help with the creation of the children's artwork, which was then transformed into captivating books. Ewald's work is a prime example of how photography can be the starting point to a multisensorial project. Alternatively, there are numerous artists who have used photography for the purpose of manipulation with the help of their haptic senses. Alternatively there are artists such as Odette England, Amy Friend, Kensuke Koile, and Diane Meyer who in their work intervene physically onto printed, often appropriated, photos with various methods. In their photographic artwork, there is cutting, puncturing, cross-stitching, scratching, trampling, reassembling and much more. These artists' methods provide teachers with numerous ideas of how to examine and analyze colors, composition, subject and content of any kind of visual art.

Multisensory practice in K-12 art education has not yet been fully recognized or utilized in schools' art curricula. However, many museums have taken steps towards incorporating multisensory experiences in their galleries and exhibitions, and this relates to issues of accessibility for all in institutions. Notably, the National Gallery of Canada (NGC) has organized programs that make art more accessible to people no matter their age, their socio-economical

background or their disabilities. I focused because of my own personal experiences in this thesis on a program whose participants are sighted, visually impaired or legally blind. In NGC's program we see evidence of how experiencing art through more than one sense is beneficial for all. It permits museum goers to encounter new perspectives that can lead to profound insight.

Museums have also been sites for research on learning about art through multisensory experiences. The study, for instance, conducted with teenagers acknowledged that teens today have a greater capacity for embodying information through more than one of their senses simultaneously (like touch and sight at the same time) because their affinity with computers and smartphone. Therefore, the researchers suggest are more capable of evaluating multisensory art. This information challenged my personal conviction about how visual media experienced through technology is detrimental to our capacity to be aware of our senses and thus leading to closemindedness towards new information and perspectives. I realized therefore that perhaps it could be more of an ally than a foe, especially with our younger generation and provided a path for me to explore more attentively. I included this particular study for review in this thesis because of how it demonstrated the do's and don'ts of multisensory exhibition. And this information can be applied by educators to an art classroom space when adapting multisensory practices. An invaluable article for this thesis was *Soundscape Composition for the Classroom* by Ehsan Akbari. His work workshop with secondary students provides a concrete example of what could happen in an art classroom when thinking about our senses other than sight. With the use of his own artistic practice with sound and video, editing, Akbarai was able to devise a lesson that engaged students and teachers on how to listen, record, edit and present sound pieces. He also relayed the importance of sound, not only in video editing, but also in our everyday lives. Using examples of what had already been done, I wished to create a lesson that incorporated not

only the most common combination of touch and sight, but also included hearing. Ehsan Akbari's workshop inspired me and combined with ideas that stemmed from my own artmaking practice that is heavily inspired by the multisensory. Fortunately, I was given the opportunity to put my ideas to the test with a 10th grade class from the MET high school in Providence, Rhode Island. The results exceeded my expectations, and I even discovered things I was not expecting. I did however struggle as I mention previously with making the environment of the classroom work for the lesson and ran out of time for a proper critique at the end while the soundscapes were being presented. Yet, all the students participated and were able to complete very successful soundscapes. All the while, they were learning to embody what they observed, analyze and think critically about art. I also discovered that such types of activities and methods can induce the students with an organic curiosity. Notwithstanding its weaknesses, the experiment was still valuable since I learned the value in having more than one back up plan and being very familiar with the environment you are working with because these kinds of lessons can be unpredictable. However, if I could do something differently in this research it would be to have been to have developed a second case study as the follow up having observed how students were interested in learning more about the artworks. A second experiment would enable me to push the boundaries of what I had initially created. But also, to have the opportunity to compare and contrast between to different experience and see if some observations reoccurred or not and if new information could be collected.

Lastly, my hope is that this thesis research has lit a new spotlight on to why art teachers should use multisensory practices in their curriculum. It is a less researched area that deserves more attention because I believe it can help in expanding our knowledge of what it means to teach our youth in this day and age. Art is a force that can bridge differences and Art Education

in K-12 schools as it can be a place for growing problem-solving skills, creativity, understand, empathy and community. The use of multisensory practice can enhance these qualities, because at our core, humans absorb information through their many complex senses. Therefore, we should work with them, not against them, especially when the main purpose of art is to stimulate us.

Finally, multisensory practices are much more than a better way of teaching art; they are about creating connections. Learning about and establishing a habit of seeing things from more than one perspective is paramount because the more perspectives we gain, I believe the more empathy and compassion can grow. It is crucial, especially at this moment in time, for humankind to collectively cultivate empathy and compassion so that it can spread. But all of this will never happen if we do not take the time to pay attention to what we are *sensing* so that we can connect by communicating it.

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