Tailoring Student Learning: Inquiry-Based Learning

in the Elementary Art Classroom

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ABSTRACT

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This research study explored the role of the elementary art educator in facilitating individualized learning experiences for students in contrast to a standardized culture of education. The methodology of a/r/tography was used to investigate the role of the teacher, as well as artist and researcher, within an inquiry-based art curriculum for a fifth grade class. Inspired by contemporary art practices, students used inquiry to investigate, research and experiment with their ideas around an integrated topic of compare and contrast as found within the fifth grade science and language arts standards. Students created a work of art as a means to inquire or in reaction to an inquiry. This study hopes to persuade educators, specifically elementary art educators, to guide students toward personal and meaningful learning.

Keywords: a/r/tography, elementary art education, inquiry, inquiry-based learning, integration, contemporary art
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Chapter 1: Introduction

Perched on a stool in the lab, I eagerly listened as my pencil jotted down notes. The air conditioning blew to counter the heat of the California sun. A pet store stench emitted from the glass and wire cages surrounding the room. “Melanin is a substance in your body that gives your skin its color. When you lie out in the sun and get a tan, your body produces more melanin causing your skin to turn darker. As it regenerates, the skin produces the lightest colors of your complexion,” said Mr. Stewart.

It was the third week of an anatomy unit in high school biology. I was fascinated. New discoveries about my own complex body happened almost everyday. I never felt such a strong desire to learn. On this particularly day of studying the epidermis, I was curious about the fluctuations of skin color with the seasons. My curiosity formed into a question, “Mr. Stewart, how long would I have to stay in a dark closet before my skin turned completely white?” A couple snickers came from the class. “Oh, it would take quite a while,” replied Mr. Stewart. “Well, how long?” I restated, quite unsatisfied. “Um...it would probably take several weeks.” I was not convinced and was certain he had no idea how long it would actually take.

Mr. Stewart resumed his rehearsed lecture and my mind began to wonder. My thoughts inquired into ideas of pedagogy (although I had no idea that word existed at the time). For the first time, I thought the words “If I was a teacher,” followed by, “I would start class with a question and answer section. Students could ask any question they wanted about the human body and I would teach students based off those questions.” In my mind, I thought about creating a learning environment where students felt comfortable asking embarrassing question like, “Why do we pass gas?” Even as a high school student, teaching in response to students’ interests and questions felt like an effective way to teach.
Problem

It is not surprising that Mr. Stewart did not answer my question, nor take advantage of an opportunity to extend learning. With all the demands on teachers and students, there is little time for individualized and engaging learning through exploration and discovery. Education scholars Jabari Mahiri (2005), Daniel Rubin and Christopher Kazanjian (2011) argue that teaching has taken a one-size-fits-all model. Schools run like a factory, coercing students to become automatons instead of autonomous, learning the same things, at the same pace, in the same way.

Paulo Freire (1996) describes teaching and learning in this way as the “banking concept of education” (p. 53). This type of education is described as knowledge that is given from the knowledgeable to those that are considered to know nothing. Children are not seen as individuals full of meaning but rather receptacles that need to be filled.

Art educator Olivia Gude (2013) discusses the idea that art in the schools is a way to individualize learning within the culture of standardization. Art can facilitate a focus of teaching and learning on the whole child, extending beyond the mental capacities and into realms of the physical, emotional and spiritual. While not considered an essential part of student learning like reading and math, art in the schools is heralded for its ability to provide the lacking creativity, autonomy and exploration.

Although art in the school has this potential, it often falls short, especially at the elementary level. Can art making really be called creativity if the content of the curriculum revolves around Halloween, Christmas, and Valentines Day? Is it autonomy if students are mimicking a teacher-made example? Are students really exploring if the art production is just ready-made crafts? Art educator Arthur Efland (1976) as well as Gude (2013) believe that many art programs are factories for the “school art style” or art that is made under the guidance of a
teacher and has little resemblance to art made by professional artists. They argue that this type of art making does not allow students to pursue their own interests and engage in meaningful learning.

From my experience it seems that many elementary art classrooms are not rising from the influence standardization. Although there is some degree of autonomy and exploration in the landscape of education today, the art instruction is quite prescribed. The student involvement in art making may include choosing the color of construction paper or deciding the subject matter for preselected mediums and processes. What if a student wanted to explore the theme or material or process in a completely different way? What if the teacher-selected material is not the best way to communicate the idea or feeling the student wants to convey?

Alternatives to Standardization

There are many alternatives to the standardization and direct instruction found in both the regular classroom and the art classroom. Many of these alternatives fall within a constructivist approach to teaching and learning. Art educator Christine Marmé Thompson (2015) describes the approaches found within constructivism as being learner-centered and instruction is more inquiry focused and less predetermined. The teacher acts as a facilitator who guides students as they discover and construct knowledge. Inquiry-based learning falls under constructivism and focuses specifically on using inquiry as a means to discover and learn.

This research study argues that the knowledge students gain in an inquiry-based approach to learning is of more worth than the pre-determined information found in standardized and direct instruction models of teaching. The knowledge and understanding is deep and personal and assists in students’ ability to make connections to prior experiences. Learning within a direct
instruction model of teaching is often leading students to obtain a universal and specific set of knowledge and skills (Thompson, 2015).

It is my belief that learning in the elementary art class should be more individualized for students, inspired by a constructivist view on learning. Elementary art students should be able to pursue their own interests within certain constraints such as theme, process, or medium. I especially enjoy when students work within a theme and engage in a process of exploration and research that results in an artwork created using the medium most appropriate for his or her idea.

My hope as an elementary art educator is to extend beyond teaching students how to draw or paint or sculpt. The purpose of this inquiry is to investigate the role of the elementary art educator in facilitating individualized learning. By so doing, I want to explore ways to help students discover ideas that are important to them and communicate those ideas through an art object, performance or experience. Ultimately, I want my classroom to be a place where students can learn how to learn, discover how to discover and explore how to explore.

My Pedagogy and Teaching Circumstances

I have identified four guides of my elementary art classroom: a constructivist view on learning, complexity thinking, integration, and contemporary art practices. Using a constructivist view on learning, my pedagogy resists direct instruction, allowing the learning to be student centered and student led. A greater survey on constructivism and inquiry-based learning will be discussed within the literature review.

Brent Davis and Dennis Sumara (2006, 2008) explain complexity thinking as systems or unities that are non-linear, spontaneous, unpredictable, adaptive, and self-organizing. Complexity is thinking about phenomena of the world as organic instead of mechanical, inspired by Darwinian evolution rather than Newtonian physics. As explained by Peter Doolittle (2014),
“The theory of complexity is not a theory of learning, memory, and cognition, [but] a broad-based theory concerning the evolution and functioning of non-linear systems” (p. 490). The ideas of complexity thinking have been applied to teaching and learning as a means to allow students to be active participants in shaping their knowledge and understanding. I recognize my students collectively, as a complex system. I am interested in setting up the conditions in my classroom so that my students are better able to self-organize as learners and make most of the decisions for learning.

Integration is a requirement of the Beverly Taylor Sorensen Arts Learning Program, which funds arts educators in elementary schools across the state of Utah including my position at Edgemont Elementary School. The objectives of the program are to provide quality art instruction for students as well as professional development for teachers. Classroom teachers are required to attend art class with their students.

In order to fulfill the expectation of integration, I collaborate with the classroom teachers regularly to discuss and decide which of the standards could be integrated within the space of the art classroom. Thus, the curriculum of my classroom is an integration of art with the disciplines of science, math, language arts, and social science. This requirement has helped to define my pedagogy of elementary art education. Many in the program feel that integration takes away from art making. I feel like integration enhances the possibilities of art and art making. Instead of a curriculum based on art mediums and historical art periods or movements, it is an interdisciplinary approach to art education inspired by the ideas of science, math, language arts, social science and more.

Integration creates liminal spaces for my students and me to work within. Our making is both art and something else. When working within the field of science, for example, students
struggle to not just make a science project. They are forced to push away from the science side and into the space of the unknown towards and inspired by art and art making.

While my students and I work within many disciplines, art has been the primary inspiration for the curriculum, particularly, contemporary art. As defined by the J. Paul Getty Museum (“About Contemporary Art,” n.d.), contemporary art is work created by a living artist that is the product and reflection of current ideas and diverse cultures. Contemporary artists work within a variety of disciplines and methodologies. They utilize inquiry to create artwork that is meaningful for themselves and their audience. The practices of these artists are a large source of inspiration for the curriculum and learning environment.

**Methodology**

Because my research study investigated the role of the teacher, I chose a/r/tography as my research methodology. A/r/tography explores the interactions of the artist, researcher and teacher through art making and writing (Kalin, 2014). It is the contiguous relationship of these roles within overlapping and liminal spaces that interested me in using a/r/tography as a methodology. Through a/r/tography, I explored my role as a teacher as well as an artist and researcher while investigating alternatives to standardized models of teaching and learning through an inquiry-based curriculum. The combination of a/r/tography and inquiry-based learning supported students’ explorations of their contiguous roles as artists and learners/researchers while engaging with inquiry and art making. Through the study of curriculum, I investigated my role as a teacher. This inquiry about emergent learning through contemporary art practices explored my role as a researcher. I engaged in art making connected to this inquiry that did not simply illustrate concepts but also created new meanings. As I came
to a better understanding of my roles as a teacher, researcher and artist, I was able to facilitate meaningful and individualized learning for my students and myself.

**The Research**

To explore the role of the elementary art teacher and alternatives to the problem of standardization in teaching and learning, I developed an inquiry-based art curriculum for a fifth grade art class. The curriculum was integrated with the concept of compare and contrast, as found in the fifth grade language arts and science standards. The curriculum was created in collaboration with the classroom teacher. I collected and presented contemporary artists that related to compare and contrast as well as inquiry. My students and I observed and discussed the ideas, methods, styles and mediums used by the artists. Based on our class discussions, students developed concepts and questions that interested them within the theme of compare and contrast. Working with students, we investigated these questions through research, exploration and experimentation. Students created an artwork in response to or as a means to explore their inquiries.

To expand the understandings of my inquiry, I created a collaborative artwork entitled *Accommodating*. For the artwork, a group of sixth grade students and I used sewing to reconstruct and tailor t-shirts in the lobby of the school during parent teacher conferences. This tailoring and reconstruction of t-shirts played with ideas of individualizing learning and the social construction of knowledge in a one-size-fits-all culture of education.
Chapter 2: Literature Review

This review of literature will discuss the topics of learning and development with a focus on constructivism and inquiry-based learning. There will also be a section on how contemporary artists use inquiry within their practice.

Learning and Development

The theories of learning are important in understanding how a teacher might facilitate individualized student learning through inquiry. In the following sections I will discuss and explore ideas from constructivism, social mediation, not-knowing and curiosity.

Constructivism. Inquiry-based learning is highly influenced by a constructivist view on learning. Constructivism is a theory that views humans as actively constructing or discovering their own knowledge. Thompson (2015) states that “a constructivist perspective on learning positions children as innately equipped with the curiosity to explore the world and the capacity to find meaning in the objects, images, relationships, and events they encounter” (p. 119).

Jean Piaget (1954, 1969, 1973a, 1973b) was highly influential in the development of constructivism. He was an epistemologist who studied human development in order to investigate how humans acquire knowledge. In regards to knowledge acquisition, Piaget (1954) stated, “intelligence constructs the external world” (p. 3). During the early stages of development, a construction of knowledge in the form of schemes develop and shape throughout a human’s life starting with broad categories and later including substructures that will correspond to them. Piaget (1969) is well known for establishing theories of constructing knowledge that include adaptation through assimilation and accommodation in response to new experiences. Discussing the work of Piaget, Peter Doolittle (2014) explains, “Knowledge is constructed from both external experiences and earlier mental structures. Learning or knowledge acquisition is the
reconstruction and reorganization of old knowledge structures in light of new experiences” (p. 486).

Piaget (1973a) distinguishes between two aspects of a child’s cognitive development: the psychosocial and the psychological. The psychosocial aspect is everything that a child learns from school and family. The psychological is “what the child learns by himself, what none can teach him and…must discover alone” (p. 2). Doolittle adds, “Piaget emphasized the role of discovery and exploration as activities or experiences that fostered these changes in mental structure” (p. 487).

John Dewey (1938a) argues that although children construct their own knowledge, the teacher is not to be completely withdrawn rather learning should be “co-operative” (p.72) where student and teacher work together. A teacher may guide students in the construction of knowledge giving suggestions as a starting point and along the way, facilitating exploration and discovery.

**Social Mediation.** Psychologist Lev Vygotsky (1978) brought new insights concerning the roles of the teaching and learning within the ideas of constructivism. Vygotsky was a contemporary of Piaget, but his works were not well known until the 1960’s and 70’s. Vygostky focused on social constructivism where students have the most success constructing their own learning in social situations. Vygostky (1978) believed that the true measure of intellect and development is what a child can do with assistance and not independently. The Zone of Proximal Development, developed by Vygotsky, is this space between what a child can do independently and their potential with assistance from an adult or in collaboration with a peer. A child’s potential in this Zone of Proximal Development is knowledge and skills that are in a process of maturing. It is the skills that they will be developing and internalizing in the near future.
According to Efland (2002) the Zone of Proximal Development is a “social space” where learning and discovery is dependent on the interactions with the teacher and with fellow students (p. 35). Expanding the notion of the Zone of Proximal Development, Sheldon White (1989), a developmental psychologist, explained that, “the [Zone of Proximal Development] is the locus of social negotiations about meanings, and it is, in the context of schools, a place where teachers and pupils may appropriate one another’s understandings” (p.xii).

This idea frustrates the model of a teacher who has all knowledge and fills the receptacles of students’ minds (Freire, 1996). According to White (1989), understanding may be discovered, transferred, interpreted and even negotiated back and forth between the teacher and the student. Both participate in the process of discovery and learning when inside the social space of the Zone of Proximal Development.

While behaviorism believes that the role of a teacher is to fill holes, constructivism sees the teacher as a guide to help students not only discover their own holes, but also facilitate the exploration of those holes and thus construct their own knowledge. This guidance and facilitation often falls within the Zone of Proximal Development. Lost within their own gaps of knowing, a teacher can scaffold to help students be successful as they learn.

The Zone of Proximal Development is relevant to the ideas of inquiry-based learning. When a student is inquiring, they do not have all the knowledge they need to learn and discover independently. But being in the social space of the Zone of Proximal Development requires that a child interact with others and especially a knowledgeable adult to reach toward greater knowledge and understanding.

**Not Knowing and Curiosity.** Education scholar Paul Harris (2012) discusses the role of inquiry and questions in the development of young children through social mediation. An
important stage of development within a child is coming to “know that they don’t know” (p. 23). When they reach this state, children become aware of their own ignorance and begin asking questions from more knowledgeable sources to search for deeper meanings and knowledge.

Warren Berger (2014) argues the importance of inquiry in our lives and how our current culture of education stifles our innate curiosity. Between the ages of two and five, children ask about forty thousand questions, but as they enter school, this number plummets. Some might assume that children do not need to ask as many questions because their knowledge has increased. Another argument of a more serious nature is that as children are drowned in facts and answers of schooling, they lose that sense of curiosity.

Education scholar Ken Robinson (2015) believes that “children are naturally curious” and that facilitating curiosity is a key component for education (p. 107). If their curiosity is engaged, then children take ownership of their own learning. The word curious comes from the Latin *curiosus* meaning careful, diligent, and inquiring eagerly.

Not knowing is also used in art and art education. Art scholars Elizabeth Fisher and Rebecca Fortnum (2013) describe art making as a “liminal space where not knowing is not only not overcome, but sought, explored and savored” (p. 7). Fisher (2015) states the paradox that “art pursues knowledge and yet resists the assimilative urge to know” (p. 8).

Olivia Gude (2007) lists not knowing as one of her ten Principles of Possibility in art education. She defines not knowing as learning to see the world differently, “the ability to recognize that previous schemata of knowledge may not be adequate to account for the complexities of reality as such. (p. 14)” Gude (2010) also critiques the current art standards saying that they “do not represent the deep experiences of immersion, wonder, and not knowing that are described by creative individuals” (p. 33).
There is great potential and possibility within the space of the unknown. Students can construct deep and personal knowledge for themselves that may not be found through standardized, direct instruction. This type of learning and understanding can have a lasting impact on the life a child. Inquiring and discovering within the unknown can often lead to heuristic types of meaning and knowledge.

**Inquiry and Inquiry-Based Learning**

Inquiry and inquiry-based learning is a means to facilitate a state of not knowing within students. John Dewey (1938b) explains inquiry as a natural inclination of mankind involving asking, questioning, seeking, wondering, and discovering. Inquiry is the questions asked as well as the methods used to discover answers to those questions. Questions often precede and motivate action: searching, researching, investigating, and experimenting. Inquiry is a fundamental means of discovering knowledge, meaning and truth.

Inquiry has many forms as it is used by the spectrum of disciplines. As defined by the National Research Council (1996) the cycle of inquiry includes: a question, experiment, analysis, and conclusion. Science Educators Deanna Kuhn and Maria Pease (2008) have emphasized that students are expected to engage repeatedly in the process of inquiry throughout their elementary and secondary education experiences.

Science educator James Rutherford (1964) argues that learning is focused too much on content. He believes there is a close connection between the content and the process of inquiry by which it was discovered. Thus the focus should be not solely on content, but on the relationship between the content and the processes of inquiry. Bella, Urhahneb, Schanzec and Ploetznerd (2009) agree with Rutherford that inquiry-based learning is needed in education.
because learning is much more than memorization. Extending beyond facts, learning should be the pursuit of understanding methods and theory.

Inquiry-based learning is an approach to teaching that allows students to discover, explore, create, and construct their own knowledge (Bella, et. al, 2009). As compared to guided or direct instruction, inquiry-based learning is unguided or minimally guided instruction. Inquiry-based learning uses a more open-ended structure of the classroom. Instead of students receiving knowledge from the teacher, the teacher acts as a facilitator, helping students to construct their own knowledge (Bella, et. al, 2009). The teacher begins with a topic, concept, idea or question as a starting point for students’ path to learning. The teacher then facilitates or even collaborates with the students as they explore and learn using available resources. The teacher is one of those resources, but especially in the digital age, he or she is not the only means for students to construct their knowledge (Mitra & Dangwal, 2010).

Science educators Heather Banchi and Randy Bell (2008) divide inquiry-based learning into four hierarchal levels: confirmation, structured, guided, and open. In confirmation inquiry, students engage in activities that confirm a principle and the results are predetermined. In structured inquiry, students investigate a question presented from the teacher through a predetermined procedure. In guided inquiry, students also investigate a question from the teacher, but through procedures designed by the students. In open inquiry, students investigate their own questions through procedures they design. It is within open inquiry spaces that students truly make meaning and create their own knowledge.

**Inquiry-based Learning in Art Education.** The question arises, what does inquiry and inquiry-based learning look like within the field of art education? Art educator Graeme Sullivan (2005) has said that artists and art educators should study the methods of inquiry used in science
and apply them to art education. Art educator Karen Carroll (2006) defines inquiry simply as creating and responding to art.

Art educator Nancy Lampert (2006) divides inquiry in the art classroom into three overlapping categories: aesthetic inquiry, critical inquiry and creative inquiry. Aesthetic inquiry focuses on questions about the definition and meaning of art. Critical inquiry analyzes specific artworks and asks questions about the meanings they convey. Creative inquiry is art making which is exploratory and experimental.

Similar to Lampert’s creative inquiry, art educator Margareta Walker (2014) believes that inquiry is an “intrinsic nature” (p. 289) of art and art making. It is a means for students to analyze their lives and make meaning from their personal experiences. Inquiry takes students beyond the notion of what is and into a realm of possibilities, facilitating an investigation of questions that do not have answers. Through this process, students not only learn but they shape who they are. The skills that are developed by using inquiry are necessary for students to “navigate the world” (p. 297).

Olivia Gude (2008) stated, “Art and aesthetic practices may be deemed useless, but it is precisely in their seeming uselessness, in their existence beyond the bounds of mere propaganda or mere entertainment, that the arts constitute a space for free inquiry” (p. 100). This free space of inquiry is a unique and valuable asset of art and art education. It provides opportunities for engaging inquiry that is not possible in other fields or disciplines. Mark Graham (2009) adds spontaneity and playfulness to inquiry as important characteristics for learning in the art classroom. It should also be a free space for emergent ideas, and for a variety of ways to think and inquire.
Criticism of Inquiry-Based Learning. Criticism of teaching within a constructivist view is often toward discovery-based learning. Inquiry-based learning is often considered a form of discovery-based learning. Education scholar Richard E. Mayer (2004) is not critical of constructivism as a theory of learning, but rather how it “translates into a constructivist view of teaching” (p. 14). He argues that guided instruction is usually more effective than “pure discovery learning” (p.14), which he defines as students having “maximal freedom to explore” (p.15). Mayer states that pure discovery learning does not guarantee that students will understand the tasks and content.

According to education scholars Paul A. Kirschner, John Sweller and Richard E. Clark (2006), inquiry-based learning and other forms of constructivist teaching lack empirical data and research to justify the effectiveness of gaining skills and knowledge. Kirschner, Sweller and Clark define learning as “a change in long-term memory” (p. 75). They argue that inquiry-based learning engages the thinking of the students in the moment, but does not contribute to long-term memory.

Inquiry-based learning and other forms of constructivist teaching are not strictly discovery learning that allows complete student autonomy with no guidance from the teacher. As an educator, I am not being critical of direct instruction as a method for learning but rather teaching that predominantly uses direct instruction and does not allow students to inquire, discover and explore with minimal guidance. Thompson (2015) believes that direct instruction is a necessary tool in education stating, “constructivist pedagogies are not necessarily unstructured or isolating, throwing each student back upon his or her own resources with little or no intervention on the part of adults” (p. 120). The effectiveness of learning through discovery or
inquiry is highly dependent on many factors including age, subject/discipline, prior knowledge, etc. There seems to be little research to support unguided instruction (Mayer 2004).

It is my belief that although there is valid criticism to pure discover learning, inquiry based learning is a highly effective means of helping students to learn in deep and meaningful ways. The lacking of personal applications in direct instruction that focuses on specific content leads students to merely memorize facts and perform well on assessments. As a result they do not fully develop the ability to be self guided learners. Students will better develop those abilities to learn only if they are allowed to explore in more open learning environment. Teachers are obligated to help young minds inquire and discover the world within and without.

**Inquiry-Based Learning and Contemporary Art.** Contemporary art has expanded the notions of art and art making into realms of inquiry that is deep and provoking. Artist now ask difficult questions and attempt to formulate hypothesis or even answers to these questions. Theses inquiries are a driving force for art making in the practice of these artists. The practices of contemporary artists are a model for students engaging in art making. Art students can look to contemporary artists to learn not only how to create meaningful artworks, but also how to inquire, and use that inquiry as a platform for their own artistic practice. Contemporary artists are highly varied in their approaches. A few examples of how these artists work are provided below. Each artist was used during the curriculum to help students as they engaged in inquiry within the topic of compare and contrast.

**Mark Dion.** Mark Dion has a formal education in art but has a passion for the science disciplines. He draws from science and archaeology experts to inspire the conceptions of his artwork. He uses experts in scientific fields to assist in the investigation of his inquiries. Dion
takes the basic principles and methods of a discipline and uses an art-based methodology to reveal different types of meaning and knowledge.

Dion has a series of artworks that take the form of archaeological digs. His inquiry to discover artifacts matches those of professional archaeologists but he is doing it from an artist’s perspective. By using the processes of an archaeologist he, in a sense, becomes an archaeologist. But to serve his artistic purposes and inquiry, he often needs to violate key archaeological principles.

This art perspective impacts the context and content of the questions he is asking leading to new areas of meaning and knowledge. The artistic focus supporting his inquiry informs and restructures the archaeological process.

For example, in his *Tate Thames Dig*, Dion excavates the Thames River in London in hopes of finding not ancient artifacts, but rather recent artifacts of the people of London. The alternative methodology of the artist informs the methods found in archaeology and creates new and interesting types of inquiries about contemporary society and culture.

It could be said that Dion, as an artist, is playing the role of archeologist but in reality by using the methods of archaeology with an arts-based methodology, his artwork contains the qualities from both disciplines and reveals much more about art and archaeology alone (Refrew, 1999). Likewise, archaeologists typically label their findings as artifacts. Dion, on the other hand classifies his art as Duchampian appropriation. A tension is made between the artifact and the art object (Refrew, 1999).

In 2006, Dion created one of his most well known artworks entitled *Neukom Vivarium*. In this piece, Dion removes a 60-foot Western hemlock tree from its original location just outside Seattle, Washington. With a team of biologist and engineers, a greenhouse, or vivarium as he
describes it, was designed and constructed specifically for the tree. The conditions of the original space in the forest were carefully observed and relocated in an attempt to recreate them within the greenhouse. Instruments were also placed at the original site to measure temperature, humidity, precipitation, and light, which are then artificially replicated within the greenhouse space. Windows are tinted green to mimic the forest canopy. These same windows open and close to regulate the temperature. A sophisticated sprinkler system attempts to recreate similar precipitation conditions as found in the original space.

**Ai Weiwei.** A native citizen of China, Ai Weiwei (2009) often uses politically active art to open dialogue about the Chinese government. In 2008, Ai Weiwei researched and utilized social media to investigate the earthquake in Sichuan, China. In this 8.0 tremor and many aftershocks, over 700 public schools collapse as a result of underfunded construction. The total death count released by the media, and especially that of the students, was far lower than the actual as a means for the Chinese government to cover up the high death toll. In a socially engaged piece called *Citizens Investigation*, Ai Weiwei invited the citizens of China to investigate and publish the names of those who died in the disaster. In response to these investigations, he created and exhibited a series of artworks. On one of his many visits to Sichuan, Ai Weiwei, collected mangled rebar from school sites. He used these in various ways to represent his ideas and opinions about the earthquake and the government. In his piece *Straight*, he straightened 48 tons of twisted and bent rebar. In the exhibition, the rebar was placed in a large pile reminiscent of a fault line. In a piece called *Remembering*, he created a large snake composed of 5,000 backpacks representing the 5,000 students killed in the earthquake. These investigations and artworks were contributing factors to Ai Weiwei’s imprisonment in 2011.
Olafur Eliasson. Olafur Eliasson “redefines the role of the artist as a tireless researcher, prolific thinker and experimental operator” (Beccaria, 2013, p.7). His inquiries revolve around natural phenomena and the subjective perspectives and relationships with those phenomena.

For example, in his work *Room for one colour*, a room is bathed in a penetrating and concentrated yellow light. Entering the space has its effect but the dynamism comes when exiting the room. Being exposed to such intensity of a color causes changed perception in vision. With so much yellow, the eyes typically compensate with the complementary blue. Although it is different for every person, when exiting one usually experiences a blue period, as it were, in the new space. Eliasson’s interest and inquiry is how to assist the audience in becoming aware of their own vision and the inherent illusion of seeing (Beccaria, 2013).

One of his most famous works, *The Weather Project*, was inspired by an inquiry about the weather. One of the main questions for that work was, what is the role of weather in our lives? It can be argued that our lives revolve around a connection to the weather. It can influence what to wear, what to do, when to do it and even how to feel. To an extreme, natural disasters have been a source of great devastation. More so then protecting themselves from each other, the human race is constantly protecting itself from the war against nature and the weather (Beccaria, 2013). More specifically for this piece exhibited in Turbine Hall of Tate Modern in London, he asked what is the role of the weather in an urban context? In a city space, the weather is one of the few traces of uncontrolled nature that exists.

Eliasson created an artificial sun that, like *Room for one colour*, filled the space with a permeating yellow light, enhanced by the reflection off the fog. Visitors exited the outside world of the natural forces of weather, into the museum space only to experience a contrasting mimicry of the gloomy weather, so typical of London.
While inquiring about issues of the impact of the weather, this project also served as a reflection of the identity and position of the museum as an institution in society. Eliasson observed and investigated the procedures of the Tate Modern. This included distributing surveys to the employees that asked general and personal questions regarding their role in the museum and how the weather impacts their lives (Beccaria, 2013).

Hiroshi Sugimoto. Hiroshi Sugimoto (2010) is a photographer and an anachronist, meaning he feels he belongs in an older time. This facet of his identity has inspired him to inquire about time and timelessness. He often uses photography as his medium. Photography is an appropriate medium for his investigations about time because it is a means to capture time.

Sugimoto initiates his inquiries with an “internal question-and-answer sessions” (p. 77). One such question was “Can someone today view a scene just as primitive man might have?” (p. 109). This question led him to investigate the landscape particularly of his home in Japan. He thought of the great mountainous peak of Mount Fuji and whether it looks much the same today as it did long ago. Then he remembered another great mountain, Mount Hakone, whose peak collapsed and how the topography has changed over time because of weathering and erosion. His investigation led him to his famous and sublime series entitled Seascape. These simple black and white photographs are taken of the seas and oceans all over the world. The composition is the same with the horizon line splitting the photo into two equal halves. Water and air is the immediate subject of the work, but under the surface comes the discoveries from the inquiries surrounding time and timelessness. The works become time machines of sort, transporting the viewer back before their existence.

Sugimoto had another internal inquiry that led to another question: “Suppose you shoot a whole movie in a single frame?” (p. 77). This work not only brought about inquiries about time,
but technical facets as well. Compressed into a single photograph is the length of an entire movie depicted as a bright white screen. Sugimoto sought out many classic, grandiose theaters as well as the fading drive-in movie theaters. The work brings about similarities and meanings of abstract painting and radiant windows, of Zen voids and minimalism, and ultimately the disappearance of the classic cinema. The works also investigate the meaning of media. Something that modern humans devote so much time to, media, is concentrated into a single photograph. The anachronist is simultaneously both nostalgic toward the media of the past as well as critical of the obsessive media consumption of today.

**William Lamson.** William Lamson (2014) thrives off of playful inquiry in his artistic creations. His early projects have an especially youthful and experimental feel. These amateur science/art experiments explore simple principles of physics and meteorology.

His most recent work *Hydrologies* puts play on the shelf for an inquiry about the dormancy and the powerful life force of water. His investigations and research took him to opposite hemispheres: The Atacama Desert in Chile and The Great Salt Lake in Utah, USA. His experiments contrasted the effects of addition and subtract of water from the sites. The Atacama Desert blooms with lush flowers every two to twelve years because of local storm patterns. The seedlings lay dormant, but alive, adapting to the extreme conditions. Lamson’s hope was to awaken these seeds resulting in lush vegetation. He and a team watered a 50 by 1 meter plot for eight hours over a period of four months to accomplish this goal. By the end of the project, vegetation did begin to grow, but not as hoped. Only upon close inspection could small sprouts be seen, coming up through the ground.

At the Great Salt Lake, Lamson filled various glass containers with lake water. This water is a living system of salt and microorganisms that produce a pink hue in the summer
months. These vessels were placed in the local museum where the water evaporated. Salt crystals begin to form and the microorganisms that produce the pink hue are trapped, dormant in the crystals.

Lamson (2014) said: With both of these projects my intention was to engage the material agency of an ecological system and its geologic and cultural history… While this long evolutionary and geologic history makes salt, seeds and microorganisms behave predictably in a closed system, within a larger framework this deterministic causality becomes less apparent (n.p.).

The contrast of similarities and differences in this art/science experiment brings a wealth of scientific knowledge, but through the use of metaphor within an artistic context and a museum space, layers of meaning about life, time, process and change bloom into introspective interpretation.

Conclusion

Given the literature review, there is much to support inquiry-based learning as a facilitator of individualized and meaningful learning for students. These beliefs, ideas and practices from scholars, educators and contemporary artists are important perspectives to help define the role of an elementary art teacher. The lack of specific research about inquiry-based learning within an elementary art curriculum prompted the pursuit of this research study.
Chapter 3: Methodology

Selecting A/r/t/ography

The purpose of this inquiry was to explore the role of the elementary art teacher in a classroom space that supports individualized learning. I chose a/r/tography to facilitate the exploration of my role as a teacher while I engaged in research, art making and teaching within the space of a curriculum. I also felt a/r/tography would be appropriate for an inquiry-based curriculum where students were utilizing and exploring their overlapping roles as artists and researchers/learners. My students and I could learn together how to utilize and understand our roles as artists and researchers as we engaged in artistic inquiry.

An overview of A/r/tography

A/r/tography is an arts-based methodology (Springgay, Irwin, Kind, 2005). Eisner and Barone (2012) explain that “arts-based research is an effort to utilize the forms of thinking and forms of representation that the arts provide as means through which the world can be better understood and through such understanding comes the enlargement of mind.” (pg xi). Through art and art making, knowledge and understanding can be communicated that is difficult through reason alone. Arts-based research focuses on and reveals the subtleties of living through the lens of art. In contrast to reasoning and logic, art draws from intuition, tapping into the nuances of life.

As a form of research that seeks to understand and create theory, Boulton-Funke (2014) describes a/r/tography as a “practice-based methodology” that “works alongside, as well as with theory, to both shape and be shaped by theoretical positions” (p. 211). Nadine Kalin (2014) expands on the position of research within a/r/tography, “Instead of answering preset research
questions, a/r/tographers are seeking further understanding through the evolution of questions from an active stance to enquiry and knowledge production” (p. 132).

Art and graph combine to form the word a/r/tography. The acts of artistic creation and writing are prime tools for exploring and communicating understanding (Springgay, Irwin, Kind, 2005). The art does not serve as mere illustrations for the text. Eisner and Barone (2012) believe the art making is an interdependent medium for communicating meaning that extends beyond the limits of text alone. The art can facilitate deeper modes of understanding and can contain meanings that are difficult to describe (Pente, 2004).

**Renderings.** Instead of defined by a list of criteria, a/r/tography draws from a series of renderings that guide instead of prescribe including contiguity, metaphor/metonym, openings and living inquiry. In the rendering of contiguity, the roles of artist, researcher and teacher inform each other not just by being side by side, but also through the minute and frequent occasions of overlap where those boundaries are very blurred; where it is uncertain which is in play. Springgay, Irwin and Kind (2005) described these relationships as “spaces touching at the edges, then shifting to be close, adjacent, but not touching—only to touch again” (p.901). Within these liminal spaces, a/r/tographers can discover the subtleties of knowing that is obscured from traditional research methodologies.

Through metaphor and metonym, the experiences and understandings gathered from the research can become accessible to our senses (Springgay, Irwin, Kind, 2005). The use of metaphor and metonym can facilitate understanding for both the researcher and the reader within the text and the art of the research.

A/r/tography draws from the ideas of openings to create meaning (Irwin & Springgay, 2008). These openings invite and persuade participation from the reader, facilitating
conversations that expand the ideas of the inquiry beyond that of the a/r/tographer. Openings are also a means of looking through and revealing the world from a new perspective.

Another rendering of a/r/tography is living inquiry. “Living inquiry refuses absolutes; rather, it engages with a continual process of not-knowing, of searching for meaning that is difficult and in tension” (Springgay, Irwin, Kind, 2005, p. 902). As it is a living inquiry, a/r/tography breathes and moves. Rita Irwin (2013a) calls it a “performative pedagogy” (p. 198). There is a shift in focus away from words of stagnation: theorizing instead of theory and practicing instead of practice. A/r/tography is an act of being or rather becoming (Irwin, 2013a). A/r/tographers are constantly inquiring and learning through the roles of artist, researcher, and teacher. “It is living inquiry because it is about being attentive to life in and through time, relating what may not appear to be related” (Irwin, 2013b, p. 105). Similar to action research, the living inquiries of a/r/tography are cyclical and ongoing.

A/r/tography seeks to communicate experience and not just the data gained from performing research. A/r/tographers transform their perceptions into experience and experience into perceptions, bringing new understanding to the complexity of artistic inquiry. While exploring the ideas of inquiry within the liminal spaces of the artist, researcher and teacher, the combination of art and text make accessible that which is difficult to define and describe.

A/r/tography and the Elementary Art Educator

A/r/tography not only facilitates the discovery of new knowledge and meanings, but also transformation (Irwin, 2013a). I not only wanted to investigate student learning through an inquiry-based curriculum, but also myself: my roles as an artist, teacher, and researcher and the space between these roles.
As an avid cyclist, I found parallels with the ideas of hybrid or liminal spaces defined by a/r/tography. While riding, I am technically a vehicle, like a car, but I am also somewhat a pedestrian. Legally, I can ride on the road as well as the sidewalk. I can use the crosswalk or the turn lane. In a recent video artwork entitled *Liminal Spaces*, I played with these ideas by riding directly on the line that divides the shoulder from the traffic lanes for cars:
https://www.youtube.com/watch?v=DOhfQy31Rts

![Figure 1. Still from Liminal Spaces video artwork.](image)

During my undergraduate studies, I welcomed the practices and pedagogy inspired by contemporary artists. My intentions were to work in secondary education where I felt my passion for these ideas could flourish. As I started my position of teaching art at an elementary school, I felt those intentions were compromised. I entered a world where my energies were exhausted into managing art supplies and student behavior. How could the artist within me flourish when my role as a teacher, or rather manager, constantly needed to take center stage?
As a teacher in the primary level of education, management is not just a convenient skill, it is survival; for if one cannot manage, one cannot teach. I was conflicted in my first few years as I was learning how to manage and establishing my expectations. Administrators at the school and district level expected students to be on task, remain in their seats, follow directions, and respect authority. In contrast, the artist within me wanted to permit and even encourage distraction, wandering, play, exploration, and discovery. My budding role as a researcher has helped me to stand back, become aware of this dichotomy, and take steps to balance the managerial and facilitating roles of a teacher.

My understandings of complexity thinking and learning theories like constructivism have been crucial to the development of my personal pedagogy and philosophy of management. These understandings have given me support and courage to allow and even embrace unconventional ways of student learning. My tolerance for chaos in the classroom has grown, while still having high expectations for student learning and engagement. The classroom is often full of what I call constructive chaos. The noise level is high with students moving about gathering/restocking supplies and layers of conversations discussing the art making as well as topics of personal life. Generally, my current management consists of giving simpler and broader management instruction or prompts that remind students about using time wisely instead of explaining and enforcing do’s and don’ts.

As I have inquired through the methodology of a/r/toigraphy, I have learned to moderate between the managerial teacher and the exploratory artist. A/r/toigraphy has allowed the opportunity to explore possibilities of how these roles inform and blend.
Artmaking

Having experiences with contemporary art practices in my personal art making, I incorporate those ideas and practices within my pedagogy and classroom culture. The curriculum of my classroom expands because of my role as a practicing artist. Thus I wanted to engage in art making as a process of my inquiry.

As the curriculum of my research study concluded, I began to reflect on and draw from my experiences. I thought about how I could use those experiences and understandings towards the creation of an artwork. This process enabled me to view my research and teaching from another perspective. Pursuing and creating an artwork facilitated metaphorical thinking, allowing meanings to become accessible from my experiences (Irwin & Springgay, 2008).

Through journaling, I started to develop a metaphor around ideas of tailoring in relation to student learning. Fitting within the metaphor is the critique of a one-size-fits-all model of education. A tailor or sartorialist is one who creates customized clothing or patches/mends clothing. Patching involves strengthening a weakness or hole, the act of making whole. Working within this metaphor encouraged a reconsideration of my role as a teacher asking the questions, do I really mend the learning or education of students? What role do I play in the tailoring or individualization of student learning? One of my initial thoughts of an art making experience was to literally tailor or mend my student’s clothing to represent my assumed role as the tailor of student learning.

As I played with the metaphor I came to the realization that my role is quite limited in the tailoring or customization of student learning. Agreeing with a constructivist model, students are the dominant agent in constructing the fabric of their realities (Piaget, 1973a). I simply act as a facilitator, an experienced tailor that guides others as they learn to tailor their own learning.
The act of tailoring is most commonly associated with clothing. This, of course, led me to create an artwork that utilized clothing as a medium. Clothing can be a symbol of identity and experience. Especially for children, clothing is most often provided to them, similar to the experiences and understandings provided by their upbringing. Clothing can also act as objects of oppression, stereotype, and advertisement. Thus, clothing can be a representation of someone’s identity and being.

Tailoring primarily involves sewing or the process of connecting materials together to make something whole. By learning and investigating, humans take the pieces of reality and connect them, ever reaching for a sense of being whole. Similarly, art making within a/r/tography is a means of questioning, searching and probing the inquiry within the roles of artist, teacher and researcher. It is a means to better understand these roles and the culminating possibilities of creating meaning.

A/r/tography and Inquiry-Based Learning

A/r/tography parallels an art curriculum inspired by inquiry-based learning. Like a/r/tography, inquiry-based learning seeks to explore the space of unanswered or even unanswerable questions. Both have a focus on experience in addition to content. They share the same idea that learning and inquiring is a process, which is as valid and important as the results or conclusions. I wanted to help students understand that their questions and explorations are alive and that they can and will change and adapt.

Not long into the curriculum of my research study, it became apparent that I was asking my students to engage along side me in arts-based research. My students and I were both in a state of not knowing exactly how to perform this type of research. We worked collaboratively to discover a type of arts-based research that was specific for the conditions of an elementary art
classroom. The result was a hybrid of inquiry-based learning and arts-based research. It helped me to see how the role of a researcher within a/r/tography parallels the role of a student or one who is learning and seeking knowledge. Sitting with students, I became their classmate. Collaboratively, we worked. We supported each other to learn and create within arts-based research. While my fellow students commenced and concluded their inquiries, I was still exploring mine. It would be their workings with arts-based research that would help bring about my own.

Working within a/r/tography I was utilizing the same theories, methods and procedures of inquiry and learning that my students were using. It provided an environment where we learned from each other’s methods of inquiry. Both methodologies refute the traditional representation of data as fact and research as conclusions, Instead we focused more on building and creating understanding as well as organizing a space that fostered and prompted experiences; experiences that can be shared through writing and art. By using inquiry-based learning, I invited my students to assume contiguous roles as artists and researchers and explore their personal identities through and in-between these spaces of art making and inquiry (Springgay, Irwin, Kind, 2005).

**Data Collection**

For my research study I used a variety of methods of data collection commonly found in a/r/tography. These included: journaling, field notes, interviews, photographs and artworks.

A large source of data came from the personal journaling that I engaged in throughout the curriculum. In this journal I would retell the events that occurred within the classroom space. In addition, I would take advantage of the opportunity to reflect and analyze the workings of the classroom and my interactions with students. I also reflected on my roles as an artist, teacher and researcher in response to the research study.
I invited the classroom teacher, Mademoiselle Giraud-Carrier, to take observations and field notes during the curriculum. I asked her to focus on how inquiry-based learning was individualizing student learning. By having a different perspective, I hoped that I could have a better vision of what was happening.

At the conclusion of the curriculum, I collected and photographed the artwork from the students. These serve as an artifact from students’ engagement with the curriculum and inquiry. Those students who submitted assent and consent forms were chosen for interviews. These students participated in a ten to fifteen minute interview. Questions were developed to persuade understanding from students about their experience with the curriculum and with inquiry (see Appendix 4). During my own personal engagement with art making for this study, I documented the experience with photographs and further journaling.
Chapter 4: The Curriculum

Context

One, fifth grade class was chosen to engage in the inquiry-based curriculum created for this research study. This is a French Dual Immersion class consisting of twenty-three students taught by Mademoiselle Giraud-Carrier. The art curriculum at the school for all grades is integrated with the Utah core standards taught in the regular classroom, as recommended by the Beverley Taylor Sorenson Arts Learning Program which funds the art program at Edgemont Elementary School. Students spend approximately one hour a week with me in the art classroom. I collaborate with the classroom teachers regularly to create the art curriculum. The curriculum for this study was co-designed with Mademoiselle Giraud-Carrier.

In the context of a normal classroom setting, students engaged in art making practices which included viewing and discussing the work of professional artists, development of a personally chosen area of inquiry, exploration and experimentation within the area of the inquiry, and the creation of a final artwork.

The curriculum was taught over a period of 5 weeks. Usually this would be five, one hour class periods. With the timing of the study occurring at the end of the school year, the specialty classes, including art, formally ended. This provided time for the class to come to art for an hour to an hour and a half every day for a full school week. In addition, students came in during lunch and other free time to work on their projects.

The planning of this curriculum was in collaboration with Mademoiselle Giraud-Carrier. We met several times prior to make decisions about the curriculum. In one of the first meetings, she presented the standards and objectives that she would be teaching over the next several weeks. One of those standards was compare and contrast found in the 5th grade Utah core
language arts and science standards. We decided that integrating these standards with art would be an effective way for students to explore the ideas of compare and contrast. The language arts and science standards on compare and contrast include:

**Reading: Literature Standard 3**

Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text.

**Reading: Informational Text Standard 5**

Compare and contrast the overall structure of events, ideas, concepts, or information in two or more texts.

**Science Standard 5**

*Objective 1c.* Compare various examples of offspring that do not initially resemble the parent organism but mature to become similar to the parent organism.

*Objective 1d.* Contrast inherited traits with traits and behaviors that are not inherited but may be learned or induced by environmental factors.

The ideas and format of this curriculum was similar to how I have previously taught. I almost always integrate the art curriculum with the standards of the regular classroom. The level of autonomy has continued to grow and evolve throughout my teaching career allowing the learning and art making to be increasingly student led. As a result of this evolution, I have developed curriculum that allowed students to explore a self-selected interest within the integrated standard where students created an artwork in the medium they feel was best suited
for that idea. This student-centered curriculum is not present in every project and every grade, but I have been utilizing it more within my pedagogy. In preparation for the curriculum of this research study, I specifically utilized inquiry-based learning within my curriculum earlier in the school year.

Most of the projects in my classroom begin with surveying, analyzing, and discussing contemporary and historical artists as well as professional designers and illustrators that are working within the specific theme or idea we are exploring. I feel that this helps students to be informed by how others have created artwork within that theme or idea. After viewing and discussing these artists, the students can glean from this work of professionals as they pursue their own art making. Often students mimic the styles, methods, mediums and techniques of these artists. These act as starting point for the students. Their work usually takes on its own forms and meanings as the students incorporate their thinking and identity.

**Complexity Thinking**

I have tried to incorporate the ideas of complexity thinking in my teaching viewing the space and collectivity of classes and students as complex systems. I anticipate and encourage spontaneity and unpredictability establishing a learning environment that facilitates emergence of diverse outcomes and self-organization.

Utilizing complexity thinking in education, Davis and Sumara (2008) have suggested an application called “enabling constraints.” They explain, “complex unities are simultaneously rule-bound (constraining) and capable of flexible, unanticipated possibilities (enabling)” (p. 193). The curriculum was designed with enabling constraints that facilitated an environment of emergence. The constraints that I incorporate are often a theme, idea, concept methodology or question that the students are asked to work in. Sometimes I also choose a specific art medium in
connection with that theme, concept of question. The constraints give students parameters to work within that enable them to think creatively. The challenge is constructing the constraints so that they enable learning that is individualized and meaningful for students. If too narrow, they will prescribe the students’ actions; too broad, students can become lost and confused.

Integration of the academic standards is a prominent enabling constraint of the art curriculum. Working within this constraint has enabled me to create an elementary art program that leads to greater possibilities for learning and art making. Integration enables students to have alternative learning experiences with core standards as well as participate in contemporary art practices.

Without strong teacher-student collaboration, giving that much autonomy in an elementary art classroom can result in art-making that lacks meaning, direction, and craftsmanship. This process involves being aware of the Zone of Proximal Development developed by Vygotsky (1968). Students are often stretched as they reach for higher levels of thinking and learning. Within my role as facilitator, I help students approach and even attain those higher orders of thinking that would not be possible without the mediation of the teacher. I act as a resource for students as they work through their ideas. Through questioning and discussion, I facilitate an expansion and deepening of ideas or basic concepts developed by the students. The direction for the artwork usually comes from the students. As they discuss the direction for their artwork, I try to facilitate the students thinking in hopes that personal meanings and connections will emerge from within them. This emergence can occur immediately during discussion or later while students pursue a trajectory established through our collaborations.
The Curriculum

On the first day of the curriculum, my students and I observed and discussed historical and contemporary artists working with compare and contrast and inquiry. We defined the formal element of art known as contrast and looked at artist using contrast formally. In addition, we also viewed and discussed artworks that utilize juxtaposition, which plays with the idea of contrast thematically or conceptually. One of the strongest examples of compare and contrast that we viewed and discussed was Neukom Vivarium by Mark Dion. Even with all the financial and technological support, the greenhouse still falls short of the capacity to sustain life that is found within the forest. It is a stark contrast and comparison between the natural and the artificial.

After our survey of these artists, I projected a list of opposites for the students to consider as they were identifying their topics to compare and contrast. Each student has a personal sketchbook and these were passed out. Students spent the last portion of the hour-long class exploring and writing down ideas about compare and contrast that they wanted to pursue for their artwork.

The next class we had another discussion and survey of artists that specifically used inquiry in their art making. We defined inquiry and discussed how it can be used to not only learn, but also engage in artistic practices.

To help students utilize inquiry, we considered the steps as defined by the National Research Council (1996):

1. Identify a question or problem
2. Gather resources, research, experiment
3. Analyze and processing data,
4. Conclusion and reflection.
Additionally, we viewed and discussed artists who use inquiry in their art making including Mark Dion, Ai Weiwei, Hiroshi Sugimoto, Olafur Eliasson, and William Lamson. The students really connected with Ai Weiwei's project entitled *Rememberings* as a form of inquiry. His project went beyond simply making and into areas of meaningful investigation that questioned the decisions of authority and focused on individuals.

I informed the students that their artwork would be created in reaction to an inquiry or question about the topics they were comparing and contrasting. Their first task was to identify topics to compare and contrast. Then they would develop an inquiry connected to those topics.

Students were given their sketchbooks to review their thinking from the previous class. They were also provided with access to the Internet to help them identify and research their topics and inquiries. While students were working, Mlle. Giraud-Carrier and I engaged in conversations with students about their thinking.

I feel that these conversations were so important to help students pursue meaningful art making. Many students had thoughtful ideas but needed guidance to form that thinking into an artwork. Other students needed help to both identify a meaningful idea and to figure out how to create an artwork based on that idea. I view these conversations as a Zone of Proximal Development where students can reach towards higher and deeper levels of thinking and inquiry with the assistance of a teacher.

I believe this structure of an elementary art class is rare in that students can pursue their own interests and choose their own medium for their art making. Many elementary art teachers make most of the decisions and students simply follow. This open structure is so important to allowing learning that is individualized and meaningful.
Chapter 5: Results

In this section I will describe both my students and my experiences and responses to working within the learning framework of inquiry. Pseudonyms have been used in place of students’ real names. The following students were chosen for discussion because their experiences, and my experiences with them, helped me to better understand my role in facilitating individualized student learning. In the first section, I will give an in-depth look at the curriculum through the experience of my student, Abigail Davis. Her experiences occurred early in the curriculum and facilitated my learning in helping students to engage with inquiry and art making. Following the account of Abigail. I will share the stories of five more students who I felt had meaningful and individualized learning experiences.

Facilitating Inquiry-Based Learning

Abigail Davis was one of the first students I met with on the second day after our discussions about inquiry. Abigail was drawn to ideas about greed. She and I discussed her ideas and determined that a good comparison could be comparing greed to its opposite of service or selflessness. Thus the compare and contrast became selfishness with selflessness. The question or problem quickly followed. From her interview she stated her question as: “[Does] the way that somebody grows up… effect [or] decide whether they are selfless or selfish?” With her two subjects of comparison and a question, Abigail began to investigate ways of exploring her inquiry.

I moved around the room trying to discern which students needed attention. I eventually began working with Mark Lawrence. He had already discovered the two topics of comparison: perfect and flawed. This was influenced by personal questions he had about the meaning of perfection as well as the expectation to achieve or even become perfect. As I was discussing
these ideas with him I was reminded of the art medium known as glitch art. Glitches are faults of a system, typically in an electronic or digital system. Glitch art is the deliberate disruption of these systems to create an aesthetic effect. It is an acceptance, interest or even admiration of flaws; finding the beauty within the broken. It seemed to be a “perfect” medium to explore his ideas. Mark was very intrigued and I showed him a few examples of glitch art. I invited him to consider glitch art as a means to investigate his inquiry, but also suggested that he explore other options.

As I worked with students, my methods for collaboration developed as I discovered good questions to ask those who had budding ideas. One question that emerged was to ask the origin of students’ ideas. This became useful information in revealing the personal connection of a student to his or her idea. Ember Barsh had one of the most intriguing backstories. Ember wanted to compare the impact of harsh versus soft voices. When I asked her why she was interested in harsh and soft voices she told me about an experience she had at home with her mother. Ember’s mother rarely uses a harsh voice or firm tone with her. Recently she used such a voice on some neighborhood boys who repeatedly came over to ask if the youngest son could play. She used a gentle voice the first few times, but eventually employed a harsh voice when the boys persisted, after which they did not return. It surprised Ember to hear her mother use that tone and she was curious to the effects it had not only on the boys but also on herself and her relationship with her mother. This story helped me to understand and connect with the reasoning behind Ember’s interest in harsh and soft voices. I continued to ask students why they wanted to explore their topics and it consistently revealed motivations and connections.

By the next time we met, Abigail had developed an experiment to respond to her question. The experiment would involve giving candy to kindergarten students to observe
selfishness and selflessness. She and I discussed the experiment and worked to eliminate
variables and bias. She determined to use kindergarten age students because of their young age.
When the discussion ended, Abigail somewhat apologized by saying she had no idea what her
artwork would be. I informed her that was a very good thing and sometimes the best art making
experiences result from not knowing.

Developing Sustained Inquiry

The experience of Abigail working through the process of inquiry before making the art
was an anomaly. It was very common for students to skip the investigating, exploring, and
experimenting aspects of inquiry and jump to what they wanted to make for their artwork.
Generally, I have found that it is difficult for elementary age students to understand the process
of sustained inquiry and investigation prior to making an artwork. In this situation, I would often
reference Ai Weiwei and discuss his process. After seeing the news of the earthquake and the
death of so many children, Ai Weiei did not just decide to make an artwork using backpacks. He
investigated, researched and analyzed which determined and defined the possibilities of his
artwork. The students caught on quickly and the inquiry process began to become more
substantial.

Experiments

This interest in further investigation led to mini research projects for the students. Each
one had a research question or problem. Many read a body of literature gathered from their
searching on the Internet to better understand their question or problem. Then most students
developed some sort of experiment to test the assumptions from their own knowledge and
learning.
During the next class, Abigail performed her experiment. Arranging previously with the kindergarten teacher, Abigail requested to use five students for her experiment. She had each student sit around a table and gave each a package. Inside four of the packages was a piece of candy, but the fifth was empty. She instructed the students to open their packages. The four students who had candy began to open the candy wrapper. Abigail asked a girl if she wanted to share with the boy who received the package without candy. Abigail described in her interview that the girl, “was very reluctant to share with the boy because she wanted it for herself.”

The experiment was repeated a second time with a new group of five kindergarten students. Instead of asking just one specific person to share, all four of students were invited to share with the student who received the empty package. Again from Abigail’s interview:

None of them wanted to do that, but a boy knew he should do it, but he really did not want to, so he threw the candy at the girl and he gave her a long piece of candy and he had a short piece so then we asked him if he wanted the other piece of candy and he immediately took the longer one and gave her the short one.

Discussion, Reflection and Sharing

The next class I showed a video about a contemporary artist named Pedro Reyes’. The video depicted his piece Palas por Pistolas from 2008 in which he melted down donated guns into shovels. We analyzed and discussed the work in the context of inquiry. We identified that the question or problem he was working with was the high rate of deaths by gunshot in Culiacán, a city in western Mexico. I asked the students how he explored that question or problem. As a class we realized that Reyes could have stopped at the idea of exchanging weapons for life essentials. To further the impact, Reyes took the 1527 weapons, melted them down and created
1527 shovels, which were used to plant 1527 trees. It was such a powerful moment of learning for my students and me on the power of inquiry.

After the video and discussion, I decided to ask Abigail Davis to talk about her project in front of the class so we could unpack what she was trying to do. She explained her question and her experiment. While she was explaining, I had the idea to ask what she learned from her experience. She responded that she felt like people often only do good deeds because they are under the watch of someone else so they can look good in front of them. I asked the class how to take that new meaning and create an artwork. Not too many ideas were suggested, but I think it was good for the students to see that process.

A combination of the discussion from Palas Por Pistolas and Abigail’s progress facilitated an emergence of a simple process which I stated to the students:

1. Identify a question or problem.

2. Explore your question or problem through reading, thinking, writing, and/or experimenting.

3. Reflect on your explorations and determine what you learned.

4. Create an artwork based on that learning.

The students looked like they understood the steps and my explanation. Those steps particularly helped better help students engaged in their inquiry and art-based research. I was amazed at how immediately these ideas came to me in the moment. I usually try to sit and think and dedicate time to problem solve outside of those moments. It is within the midst of the problem, discussing, talking and doing that solutions often emerge. I have noticed this happening to me regularly in my teaching. It is a combination of student input and personal intuition.
I continued to better understand how to help students engage in their inquiry and arts-based research. From my personal journal:

I talked to [Abigail] later (not in front of the class) to see what she really thought. We had a good conversation about intentions in service. I admitted that I have been thinking and struggling with this topic. I told about Mother's Day and how I tried to be so nice to [my wife] in my acts and gifts, but felt a little disappointed that she wasn't as excited or didn't show as much gratitude as I felt I deserved for my efforts. Abigail brought up the fact that we often only express gratitude or love during those special occasions like Mother's Day, birthdays, anniversaries or Valentine's Day. I thought this was a great point. It made me think of an idea to write cards of love, gratitude or admiration for no good reason but simply to do it. Similar to the artist, On Kawara, that paints the date on that date. It's site specific and can only be done on that day. “Happy May 18th, 2015.” I feel that was a huge step in my progression for using inquiry in that the artwork doesn't have to be related at all to the experiment. Most students would use statistics or candy from the experiment [Abigail performed] to create the artwork (which is an option) but what if it wasn't about that. What if that experiment is just a catalyst to help reflect and analyze the subject that is being explored?

This was a huge breakthrough for me. I was under the initial assumption that the artwork would be specifically related to the inquiry or part of the inquiry process. In this situation of Abigail, the artwork was loosely related to the initial inquiry of selfishness and selflessness. From her experiment, the ideas and concepts changed to intentions and motivations asking the
simple but profound question, why do we do the things we do? The ideas that students would work within to create their artwork might arise from the learning and meaning they experienced through the process of inquiry.

The next day Abigail was still trying to determine the best means of expressing her ideas about motivations and intentions. We discussed the symbolism of a mask. A mask can signify the way one represents himself or herself on the outside, but does not always show the true feelings on the inside. Abigail spent most of the class thinking about and discussing her ideas with other students and Mlle. Giraud-Carrier. She was also helping other students with their projects. In another context, I might have thought this was not productive, because she was not making anything, but within an inquiry-based learning environment, the discussion of ideas is an important aspect of both learning and artistry.

Eventually Abigail decided that the mask was an appropriate way to communicate her learning about intentions. She cut a mask out of paper and wrote words on them: insecure, impolite, scared, afraid, not confident. These words were much more introspective than I anticipated. I assumed she would put words that generally described true intentions while serving. From her interview she described her mask: “I painted it a deep blue and you can very, very faintly see the words or just certain letters so the mask in itself is masking the words that I wrote on it.”
After the project, Abigail described how she decided on the mask as an art object to represent her learning about selfishness, selflessness, and intentions:

What I learned is sometimes we don’t do things from pure love for people. . . . We do it because we should or we do it because we want to look good in front of somebody and so I connected that to a mask because you can be masking or disguising yourself in a way, you’re not really being yourself you’re doing things because you would not have done that if there hadn’t been people there or if you weren’t asked to and so I ended up doing a mask in the end because you aren’t showing your true self and it is almost like you are wearing a mask.

Figure 2: Abigail Davis’ inquiry-based artwork of a mask about selflessness and selfishness
Student Stories

In the following section, I will provide a short description of student experiences and their engagements with inquiry and art making.

Mark Lawrence. Mark decided that he wanted to use glitch art to explore his inquiry on perfection. I gave him a quick tutorial on the computer and advised him to practice and explore the medium. He quickly learned the process of taking an image file, opening it in the Text Edit Mac application and altering the text. When opening the file as an image again, the altering of the text creates a glitch. The next challenge was figuring out how to utilize this medium to communicate ideas about perfection. From my journal I wrote:

Mark Lawrence and I had a good discussion and explored possibilities for his artwork about perfection. First we looked at the etymology of the word perfect which means complete or finished. Then we tried to think of a way for him to explore his question/problem. We thought of having him ask people to describe perfection verbally and then to choose an object that person considered perfect. Then take an image of that object and glitch it.

Mark worked with six students and asked each about their ideas of perfection or what perfection means. The student responses included being nice, ideal, no problems, nothing out of place, being able to do anything including flying. This question was followed by a request to identify something that was or represented perfection. These included fun with friends, food, books, the splits and James Bond. Mark worked with each student to choose an image from Google Images for the representation of perfection. Mark took each image and created a glitch
artwork with each. After glitching the image, Mark showed it to the student and recorded their responses. Each student except one expressed how the image no longer represented perfection as it once did. That one student had chosen a book as a representation of perfection. After seeing the glitched image of the book, the student said that as long as the contents of the book were the same, then it did not really make a difference. The book was still just as perfect as it was before. This, of course, relates to the common idiom, “don’t judge a book by its cover.”

Mark recorded his subject’s definition of perfect, a representation of perfection, and the reactions of the subject to a glitched image of that representation:

<table>
<thead>
<tr>
<th>Opposite of imperfect</th>
<th>Fun (With Friends)</th>
<th>Messed up</th>
</tr>
</thead>
<tbody>
<tr>
<td>No mistakes (perfect being)</td>
<td>Finished perfectly</td>
<td>not perfect anymore, just good</td>
</tr>
<tr>
<td></td>
<td>Someone nice (perfect friend)</td>
<td>Food (Cafe Rio Salad)</td>
</tr>
<tr>
<td>Absolutely perfect- heavenly</td>
<td>Book (Five Kingdoms)</td>
<td>Still perfect as long as story is the same</td>
</tr>
<tr>
<td>- Obey's you</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Perfectly clean house- nothing out of place</td>
<td></td>
<td></td>
</tr>
<tr>
<td>You can do everything</td>
<td>The Splits</td>
<td>It isn’t perfect because it’s glitched</td>
</tr>
<tr>
<td>- Pretty and can fly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ideal (without mistakes)</td>
<td>Cube</td>
<td>It isn’t perfect because cubes need to have all equal sides</td>
</tr>
<tr>
<td>- Perfect circle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No problems</td>
<td>James Bond</td>
<td>Not really perfect because he’s messed up</td>
</tr>
<tr>
<td>Can’t be imperfect</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Made by Mark Lawrence for his inquiry-based artwork
Figure 3. Mark Lawrence Glitch Art 1 of the splits.

Figure 4. Mark Lawrence Glitch Art 2 of a book (Five Kingdoms).
Figure 5. Mark Lawrence Glitch Art 3 of food (Café Rio Salad).

Figure 6. Mark Lawrence Glitch Art 4 fun (with friends).
I thought the use of glitch art was very effective in communicating Mark’s ideas about perfection. As a teacher, it is a challenge not to feel like the ideas I suggest are limiting students’ potential. How would Mark have explored his inquiry of perfection if I had not suggested glitch art, which he was previously unaware of? What brings comfort is the idea that I was reacting to Mark’s inquiry. The suggestion for glitch art emerged from his ideas of perfection. I was open with him and suggested that Mark explore other possibilities for how to explore his question or problem.

I admired how Mark synthesized his inquiry and art making. Unlike Abigail who chose her artwork after exploring/experimenting with her question and considering what she learned, Mark explored his question through the medium of glitch art. I feel like this is a good model of arts-based research and a/r/tography. The art making was not a concluding piece developed at the end of the inquiry. The art making was the inquiry. My understandings of this idea was lacking as I engaged in my own inquiry. Creating art after a formal inquiry is not incorrect, but I now better understand the possibilities of engaging with inquiry directly through art. The student’s reaction to the giltched book cover was so meaningful both to Mark as well as me in regards to perfection. It brought new life to that old adage of not judging a book by its cover.

At the end of an interview with Mark, I asked if there was anything he would do differently if did his artwork again. His response showed just how much he had learned, “It’s not perfect, but I still think it is good.”

**Autumn Beeman.** Autumn Beeman initially wanted to investigate the impact of the Civil Rights Movement. She explored this inquiry by interviewing classmates. In her interviews she asked what the world would be like if the Civil Rights Movement had not occurred. After several
classes of exploring this idea, Autumn and I sat to discuss her progress. She was not getting the results she had hoped.

Learning from previous experience, I asked Autumn why she was so interested in comparing the presence or absence of the Civil Rights Movement. The questions got right to the heart of the matter. She expressed how recently she had felt bullied and ostracized by students at the school. I suggested her topic shift to some of these ideas directly. Her initial thought was to create an anti-bullying campaign. I encouraged her to steer more in the direction of judgment instead of bullying feeling like that was a bit overdone in the school. Autumn agreed. I asked how she could address this new direction of passing judgment. She decided that her focus could be trying to persuade others to refrain from judging. We brainstormed how she could explore that idea. I reminded her about Pedro Reyes’ efforts to alleviate gun violence by having people exchange guns for coupons. We decided that she could do something similar by asking others to exchange a judgment for a compliment. Autumn really connected with this idea and took off cutting slips of paper for others to write down a judgment they had made. My vision was for her to exchange a paper slip of judgment from someone for a paper slip of compliment from her. She interpreted that as a verbal compliment.

After collecting/exchanging judgments, Autumn began determining how to present the slips as an art object. I was hoping she would use the original slips of paper somehow, but many who participated put their names on the paper so Autumn was reluctant to use them. She decided it would be best to type them up. After typing and printing the judgments from the slips of paper, she pasted them on construction paper and posted her artwork in the lobby of the school.
Some of the judgments that Autumn collected include:

“I judged my friend because of the outfit she was wearing.”
“I am better than you because you were bragging and I was trying to be nice.”
“It’s hard to choose just one moment because I feel like I do it so often. I have judged so many girls by the clothes that they wear but later I discover that they’re nice.”
“I thought that this girl bragged but now we are really good friends.”
“I judged someone who looked overweight.”
“I judged someone by who they liked.”

I will admit that the final result did not adequately represent the deep, personal and engaging project that Autumn and I had collaborated on. To me, the project was about confessions of the human soul captured and collected onto these slips of paper. The poor typography and cut and paste style of the final artwork did not effectively communicate these ideas. These elementary students can develop such meaningful ideas for their artworks, but I feel their craftsmanship is so lacking that it limits their ability to fully communicate their ideas.

Figure 7. Autumn Beeman’s inquiry-based artwork about judgment.
Figure 8. Detail 1 of Autumn Beeman’s artwork.

Figure 9. Detail 2 of Autumn Beeman’s artwork.
**Mike Patterson.** For the first few classes, Mike Patterson was indecisive about what he wanted to compare and contrast. The idea he settled on was the presence or absence of an organism in an ecosystem. On a recent trip to Yellowstone National Park, Mike had learned about the effects of the elimination of the grey wolf within the park. As a result, plant eating animals like elk and moose began to flourish. With a larger population of these animals, the vegetation in the park began to decrease. There were few predators to regulate the population. Thus wolves began to be reintroduced into the park.

This was a fascinating topic, but it appeared that the inquiry had already taken place in the specifics of the gray wolf population in Yellowstone. Upon discussion, Mike was still quite interested in the question of what are the effects of something being removed from its ecosystem. I suggested that he apply that to his own life and situation. Maybe his question could be what would life be like without Mike? I encouraged him to explore this question by interviewing family and friends and ask what the effect would be if he was absent from their lives.

The next class, Mike had interviewed his mother. His mother told him that his ability to watch the younger siblings, since his two older brothers are busy, allowed her and his father to participate in personal activities. Mike always knew he was helping out and that it was his duty, but he did not realize how he enabled his parents to enjoy some personal freedom. Hearing this from his parents, Mike felt valued and important within his family. He realized his ability to help his family function.

Mike’s process to inquiry and art was similar to Abigail in that he also created an artwork at the conclusion of his inquiry. For his artwork, Mike created a simple drawing that depicted what his parents look and act like with him present in their lives and what his parents might look and act like without having him in their lives.
In an interview with Mike, he discussed the lack of stimulation he gets from school because he feels that he has already learned everything that is being taught. For his inquiry, Mike had a good understanding of the consequences when removing an organism from its system. This level of understanding came from his interest in science. While exploring these ideas within the space of the art classroom, his inquiry shifted from his default interest of science and biology to the social sciences and more specifically to his identity and relationship with his family. I would like to assume that a study of this topic of ecosystems personally or in the regular classroom would have stayed within the discipline of science. Through art, Mike was able to have an interdisciplinary learning experience and study a familiar topic from science in a new way drawing from the ideas and methods found in other disciplines and in himself.

Figure 10. The inquiry-based artwork by Mike Patterson about the absence or presence of an organism in an ecosystem.
Sonora Hudson. Sonora compared the relationships of time and personal disposition. The question or problem she developed was whether our thoughts or disposition have an effect on our perception of time. She decided to conduct interviews to explore this question. In a first iteration of her explorations, she asked subjects if they were having a good or bad day. Then, without disclosing the duration, she asked them to sit and think about their feelings for two minutes. At the end of the two minutes, subjects were asked how long the duration was. The data she collected was the good or bad day and the estimated duration from subjects.

She hit a problem in not finding subjects who were having, or would admit to having, a bad day. While discussing this issue, I encouraged her to use a scale of one to ten: one being a very bad day and ten being a very good day. We both agreed that this might acquire a more accurate reading of how people were feeling.

Sonora’s second iteration produced much better results. She took my advice to ask how subjects were feeling on a scale of one to ten. In addition she randomized the time. Instead of having subjects sit and think for two minutes, she had them sit from anywhere between two and two and a half minutes. From the field notes of Mlle. Giraud Carrier about the results:

Sonora discovered that many people who were having a good day guessed a time that was in an appropriate time frame of the time allotted. She also found that those who were having a bad day generally felt like a lot more time had passed by. This all led into a great conversation about how people who are sad or depressed may feel like time goes by more slowly. Sonora and I discussed the fact that when you have a great day and are involved in an exciting activity, time seems to fly by!
For an artwork, Sonora placed two objects on a clock. On the minute hand, she placed a soccer ball representing the joy and happiness of life. On the hour hand she placed a piece of a paper test. The minute hand moves at a more rapid pace than the hour hand representing the view of time when one’s disposition is positive and happy. In contrast, the paper test is on the hour hand, which still moves consistently, but at a much slower pace.

Sonora took the approach similar to Abigail and Mike in determining an artwork after a very traditional process of inquiry and experimentation. Reflecting on my interactions with Sonora, I realize that I did not investigate why she explored her topic. This was a technique I used to help students discover possibilities for exploring their inquiry. Sonora had already determined her means of exploring and experimenting so I did not ask why. Analyzing her project afterwards, I enjoyed her initial question and her experiment, but the artwork was lacking in the personal connection that I was hoping for. With the other students, asking why the student chose their inquiry facilitated the personal elements to show or even emerge in their artwork.
To explore her question about the effects of harsh and soft voices, Ember and I determined that subjects would listen to a recording of a harsh and a soft voice. A video of the subject would be taken during the experiment to capture the expressions. A challenge came in determining many of the variables. What should be said in the recording? Should it be the same for the harsh as it is for the soft? Should the words be positive, negative or neutral? After many failed attempts, Ember realized that her own voice was not suitable for the recording. She invited another member of the class to do the recordings. The first round of tests ended poorly. Ember chose other students that she knew well. As a result, each student laughed at the harsh voice, which was not the reaction she was hoping for. She and I problem solved the situation and
decided to see if we could find a recording online. Ironically, all we could find were videos of persons yelling intended for humor. This brought about a new phenomenon of whether a recorded harsh voice would almost always be taken as comical. I asked Ember if she wanted this tangent to be the subject she wanted to explore? Going back to the story of her mother, we realized that the experiment had to be in person. We realized the reality of the energy that can be felt from a harsh voice in person.

We worked on a modified experiment in which a faculty member, who was well known for being stern, would use a harsh voice toward Ember while the subject was in the room. We discussed the ethics of innocently subjecting someone directly to such a negative energy. The solution was to have them simply witness the harsh voice, but not be a direct victim of it. Later that day, Ember arranged, performed and filmed the experiment with the faculty member and a student. The in-person element was very effective. Unfortunately, the faculty member did not fully understand the experiment and directed the harsh voice to the young student and not to Ember.

I worked with Ember to help her understand what she learned from her experience. She was having a hard time determining exactly what she learned. We also discussed what her artwork could be. We brainstormed ideas of doing sound art of her mother speaking or even recreating that poignant event involving her mother. Alas, time ran out, and Ember was unable to create an artwork.

Ember’s project, although incomplete, was very much a living inquiry. She was so willing to let it adapt and become what it needed to be. She had a very strong personal connection to the subject, which acted as a guide for her explorations. When she would get stuck, going back to the original story would help determine solutions to problems.
Inquiry and Not Knowing

After I taught the curriculum, I was able to interview six of the fifth grade students. I asked students a variety of questions (see Appendix 4) as a means to further understand the learning that the students were experiencing. The questions asked about the purposes of education, teaching and learning in their regular classroom in contrast to the art class, and their personal experience with inquiry and art making.

As I was reviewing and analyzing the transcripts, I began highlighting interesting words and phrases. I realized that the word “already” was used quite frequently. Students were using it in response to questions about school being boring, or the difference between the art class/inquiry project and the regular classroom, five of the six students mentioned the idea of already knowing:

“Sometimes you are just doing things you already know.”

“I am kind of bored when I listen to something that I already know.”

“I already know how to do it and it’s boring and I would rather be doing something else.”

“I get bored when I get taught stuff that I feel like I already know.”

“I am not really paying attention because I already know it.”

The emergence of this phenomenon helped me to better understand the effects of an inquiry-based approach to learning. I realized that inquiry-based learning is a means to facilitate within students a sense of not knowing by helping them to become self-aware of holes in their knowing or understanding. As a result, a sense of curiosity will arise within them, stimulating the learning process or the process of constructing knowledge and understanding.
When students are given the autonomy to discover and explore their own state of not knowing, the learning “brings forth new worlds because it necessarily adds something (which was not present anywhere before it appeared) to what came before” (Osberg, Biesta & Cilliers, 2008, p. 225). My student, Abigail Davis, even suggested this when she said: “If you are actually learning you are learning something new, something that hasn’t been done before.”

**Accommodating**

Like many of my students, I created an artwork after performing a formal research study. There are affordances and limitations to performing arts-based research in this way. By creating an artwork at the conclusion, it limited the tight weaving and interconnected possibilities of art making throughout the entire inquiry. The artwork acts more as an extension of the inquiry instead of an internal piece. I realized that I was focused more on the roles of teacher and researcher within my inquiry and the artist was somewhat lacking. I wonder what would have been the impact if I had developed artistic metaphors prior to the curriculum being taught? How would the curriculum and research study been redefined if I had approached my inquiry more as an artist in addition to a teacher and researcher?

By having nearly completed the process of inquiry, I was afforded a pool of thinking and understanding to draw from as I worked toward the development and creation of an artwork. This understanding enabled me to better think of my inquiry metaphorically. The metaphors of tailoring and clothing emerged after and in reaction to the curriculum and especially my journaling as I reflected artistically and a/r/t/ographically on my roles as a teacher, artist, and researcher.
Setup. Accommodate comes from the Latin *commodare* meaning, “to make fit or suitable” tying into the metaphors of tailoring and clothing. Accommodation is also part of the adaptation process proposed by Piaget (1969), which involves altering one’s existing schemas in reaction to new knowledge and experiences. It is within these two spaces of tailoring/individualizing with constructing and adapting knowledge that I wished to work for my art making. I used the present progressive tense of the word to emphasize the continual performative process of learning and relearning.

Having the realization that my role was not tailoring learning, but rather facilitating students as they tailored their own learning, I decided to create an artwork that involved students and teacher tailoring and reconstructing their own clothing. I was also trying to discover a means for this art making to open up conversations with the school community inspired by the a/r/tographic rendering of openings (Irwin, & Springgay, 2008). The solution emerged while I was working out a plan to have students come after school to participate in the art making. I realized that parent teacher conferences were the following week. For the three days of the conferences, students would be released early allowing a couple hours they could come and work without conflicting with after school activities. Performing the artwork at this time also provided the opportunity to open dialogue with the parents and school community. Thus, I decided to have my students and I work and sew in the lobby of the school, inviting parents and others to engage in conversations about the standardized culture of education and the possibilities of art education.
During my regular art class, I extended an invitation to all four of the sixth grade classes to participate in the project. Those who were interested received the following flyer as a reminder as well as a means to inform parents.

![Accommodating invitation handout.](image)

**The Art Making.** Nine students came for the project over the three days. Each student brought in two of his or her own t-shirts as requested in the flyer. I asked students to bring two t-shirts to provide an adequate supply of fabric for our reconstructing.
On the first day I explained the metaphor of tailoring and socially constructing knowledge to the students. We discussed ideas of standardized learning. I also explained that learning is often viewed as a social construction formed through the interactions of students with family, teachers and classmates. We also brainstormed how to tailor, alter and reconstruct our t-shirts. Each student was invited to share the story of his or her t-shirt. Some t-shirts were too small, others unwanted, most were hand-me-downs from family members. After sharing stories, I photographed students and myself in our t-shirts.

In the lobby we set up our work area of three sewing machines borrowed from a fourth grade teacher. I placed a sign that read “Tailoring Student Learning” as a means to invite and encourage interactions and conversations with the project.

Figure 13. Set-up in the lobby of the school during parent-teacher conference.
Several of the students had never used a sewing machine before so I gave a quick sewing demonstration. I showed them how to use the sewing machine as well as giving suggestions for attaching new pieces onto their shirt. After my instructions, the students did not hesitate to start cutting. Soon, their t-shirts had large holes and scraps began to pile on the table. Slowly, these holes were filled with pieces from other students’ t-shirts. The students were fearless as they altered and reconstructed their t-shirts.

Figure 14. A student cutting a piece of fabric from another student’s t-shirt.
I was quite reluctant to make the first snip. I had chosen a shirt that was memorable and which I wore quite often. It felt like a sacrifice to give up this small piece of my identity. Finally, an area of fabric from my t-shirt was cut and removed. I took a piece from another student’s shirt and began mending the wound. Inspired by my students, I made another bold move: I removed one of the sleeves. I used the detached sleeve as a pattern to construct a new sleeve cut from another student’s t-shirt. With success (having never sewn a sleeve before) I attached and hemmed the new sleeve. Even with this upgrade in confidence, I was still timid in removing pieces from my shirt. Instead of altering my own shirt, I decided to collect more pieces from students’ shirts and try connecting them together. These small pieces began to grow and take a new shape. My own sewing skills were growing and I learned as I worked. Mistakes were still
made resulting in unpicking and re-sewing. As I grew in experience, I delved into more challenging layering. All the while, my t-shirt lay stagnant as I worked and practiced on separate pieces.

Seeing students and teacher sewing was quite an attraction as parents entered the lobby. Many approached us curious to find out what was going on. The project instilled parents with a sense of inquiry wanting to know why students were sewing in the lobby. This provided a good environment for me to explain the ideas of my thesis and our collaborative art making. Most of the conversations with parents were brief. They listened without asking any further questions, but usually left with a sense of intrigue. There were a few parents that I had rather lengthy conversations. We talked about the ideas of standardization and the parents expressed the noticed efforts being made to individualize learning in the art classroom.
Figure 16. A student working on the sewing machine.

Figure 17. A student hand sewing his shirt.
Each student took a different approach in reconstructing and tailoring their t-shirts. One student brought in a shirt that he felt was too short (see Figure. 18). Reacting to this, he cut off the bottom portion of another t-shirt and added it to the bottom of his shirt attempting to extend the length for a better fit. Similarly, he cut off the sleeves from the same shirt he removed the bottom and attached them to the sleeves of his shirt. After tailoring his shirt for a better fit, the student then added squares of fabric from other student’s t-shirts.

Figure 18. Before (left) and After (right). This was an old t-shirt that the student had out grown and felt was too short. He attempted to extended the length as well as reconstruct with pieces from other student’s t-shirts.

Another student felt her shirt was too long so she hemmed it to be shorter. Others did not feel the need to adjust the size of the shirt. Their reconstruction consisted of removing sections from their shirts and adding new pieces from other shirts. One student had never touched a sewing machine before. She quickly learned the workings of the sewing machine. After most of
the students had left, she stayed late to work. Soon her skills exceeded those of her classmates and even approached my own limited skills.

On the first day when problems arose with the sewing machines, I was called upon to get the machines working again. At one point, we even asked another teacher to help us with something I did not know how to do. By the second day, I was helping less to repair and rethread. By the third day, the students were almost self-sufficient.

Figure 19. Before (left) and After (middle – front/right - back). This student had never used a sewing machine prior to this experience.
Figure 20. Before (left) and After (right). This student inserted bands or stripes at the bottom of her shirt, replaced a sleeve and hemmed the other sleeve.

Figure 21. Before (left) and After (right). This shirt used to be her mother’s. The student attached the collar from another shirt. She replaced her sleeve and added pieces from other students t-shirts.
After I had a large section sewn from the smaller pieces of students’ t-shirts, I squared off the sides creating a large rectangle. I decided to cut away most of the front of my shirt and insert the section. I left the threads as a remnant of the construction process. The loose threads also helped to convey the meaning that learning does not end. A few of the students did not come to a stage where they felt their t-shirt was complete. I had a tendency to encourage the students to finish so that there was a final product, but it reminded me that learning is never finished. These t-shirts, as a metaphor for learning and experience, are not complete nor will they become complete. Our knowledge is constantly being adapted to the new experiences we are having. The fabric of reality is constantly and continually going through the process of reconstruction and alteration as it adapts to the new experiences that lay before us.

Figure 22. Before (left) and After (right). I purchased this t-shirt after a meaningful relationship ended. I replaced the sleeve and created the front panel from pieces of my student’s t-shirts.
Figure 23. Detail of the outside of my t-shirt from *Accommodating*

Figure 24. Detail of the inside of my t-shirt from *Accommodating*
Chapter 6: Discussion

Student Learning in an Inquiry Based Classroom

I feel that utilizing inquiry-based learning facilitated a space where learning was individualized for the students. Inspired by a constructivist perspective on learning, students were given the autonomy to explore and discover with minimal guidance. In most cases, I feel that the students had meaningful learning experiences through their inquiry and art making.

I came to better understand that inquiry allows students to take more ownership of their learning. When students have learning experiences primarily in direct models of teaching, the knowledge they receive feels like a hand-me-down. Direct instruction models can cause students to lose a sense of ownership because what they are learning has a feeling of being already discovered and constructed by someone else.

In contrast, the learning that occurs with minimal guidance, such as with inquiry-based learning, feels customized because through their inquiry, the students tailor and construct the learning specifically for themselves. The knowledge and meanings that they explore and discover are woven into and extend their prior experiences. Within my research study I found that the combination of inquiry and art making allowed my students to not only construct a fabric of knowledge, but also to wear and apply that learning. The knowledge was not just acquired, it was part of them.

The Role of the Teacher in an Inquiry-Based Classroom

The role of the teacher in a discovery, inquiry-based, constructivist classroom is an important issue for educators who seek to balance a standardized, transmission of knowledge model with methods that allow for student autonomy, guiding them as they make decisions about their learning.
This reflected in my interactions with Autumn Beeman. Initially she identified and explored her inquiry with unsatisfactory results. As she and I worked together to investigate the problem, our conversations and collaborations became a turning point for Autumn. I’m not sure why she didn’t choose to work with the topic of judgment previous to our discussion. It could have been she was not fully aware of the true reasons for her first ideas about the Civil Rights Movement. Or maybe she was aware, but not fully comfortable creating an artwork about such a personal matter. Regardless, through our conversations, she was able to identify an area that was much more meaningful to her. My role was not to give Autumn ideas, but to facilitate her own thinking and help her identify a topic that was meaningful to her. This new area of inquiry facilitated the emergence of an artwork that was not only meaningful to Autumn but also impactful to those who participated.

Along with other students in the class, Autumn invited me to participate in her artwork. As I stopped to think about recent judgments I had made, it caused deep reflection. This had a powerful impact upon me as I took the time to analyze my own weakness in judging others. I was sitting by Ember Barsh, who at the time was also participating in the work. Because of the artwork, a conversation emerged between us about the human tendency to pass judgments. We both admitted our struggles to consistently think positive about others. We discussed the difficulty of needing to pass judgments for personal safety from those who seek to hurt or persecute others. Through this conversation, I was able to observe the meaningful thinking that was being facilitated through Autumn’s artwork.

One of my main interests as an art educator is student learning. I have realized that art is an enabling medium that facilitates alternative modes of learning. Art and art education is often too much about the end product and not the process (Gude, 2013). Contemporary art practices
deemphasize the object and focus on the process of making; both of meanings as well as objects. Working towards the creation of an art object can guide the pursuit of learning, but there should be just as much focus on the journey as on the destination. I feel this pursuit of meaning making through process and product is important within the space of an elementary art classroom.

The strength of these children is not craftsmanship. Most have not developed the capacities to render realistic representations of the world through drawing, painting, or sculpture. Their strength is divergent and creative thinking. These elementary students can develop such meaningful ideas for their artworks, but without strong support and guidance, their craftsmanship limits their ability to fully communicate their ideas.

I have determined that my role as an elementary art educator extends beyond helping students to create well-crafted works of art. In order for elementary school students to produce well-crafted works of art, projects are often prescribed. If all the students are working on the same project with the same medium, the task of teaching does become more manageable but at the cost of meaningful student inquiry. While not avoiding craft, I feel that my efforts should primarily be used to facilitate personal and meaningful learning for students. Creating well-crafted art should still be an important aspect of the elementary art classroom, but not at the expense of learning.

**Art Making for Understanding**

As I planned and executed the collaborative artwork, *Accommodating*, I was able to come to deeper meanings of how children and adults learn. The ideas of constructivism became new and tangible as I observed my students sewing and tailoring. Metaphorically, I saw the complete willingness of students to alter and accommodate their knowledge and experience. They were less concerned with the end product and seemed to simply enjoy the experience. They were not
afraid of making mistakes or trying something new, confidently taking steps in their state of not knowing. Their methodology seemed to be act and adapt, not always being aware of the consequences.

As an adult, I was very aware of the consequences of my choices. I was hesitant to alter my shirt because I knew it could never go back to the way it was. Once I made that first cut on my t-shirt, it would be changed forever and that thought was intimidating. This instilled the hesitancy to reconstruct my own shirt. I became so much more comfortable cutting and sewing pieces from other’s shirts. Similarly, teachers invite students to reconstruct their knowledge, but are very reluctant to change their own. Knowing that I was creating a work of art for this research study, I wanted the final product to have good craftsmanship causing me to be cautious about my artwork. My methodology was thinking and planning instead of acting and adapting. In my adult mind full of prior experience, I was trying too hard to predict the consequences of my actions and was unwilling to take risks. I want to be more like my students who adapted to their actions. And yet as an experienced artist, it is my role to help students to also think and plan about the craft and concept of their art making.

Within the frame of a/r/tography, I have a better knowledge of the possibilities of how my own engagement with art making can inform my roles as a teacher and researcher. Engaging in this artwork has motivated me to become more active in my practices as an artist so as to reach towards deeper levels of connection between the artist, researcher and teacher and thus improving my understandings within each area.

Concluding Remarks

In Mr. Stewart’s biology class, I was fascinated by the human body because it related to me. I wanted to better understand how my own body worked because it was my identity. This
connection fueled my curiosity. There was so much I did not know about my body, my self. Mr. Stewart was more concerned with getting through the material he had planned and rehearsed over the years than he was about helping me to learn. He missed a wonderful opportunity to go beyond just giving students information, and teaching them how to learn.

My intent for this research was to explore the role of the elementary art teacher and investigate a curriculum that was individualized and fueled by the students’ interests. Through the self-reflection of a/r/tography and the use of inquiry in my research, pedagogy, and art making, I developed “an empathic participation in the lives of [my students]” (Eisner and Barone, 2012 p. 9). I now feel that I can empower and enable my students to learn in personal and meaningful ways.
References


Appendices

Appendix 1: Recruiting Script

As part of this next art project, I will be doing a research study to see how you learn when you use inquiry or asking questions to make an artwork. You are being invited to be in this research because you are in Mademoiselle Giraud-Carrier’s class.

For the art project you will use questions to think about and explore the topic of Compare and Contrast. You will come up with these questions by thinking, drawing, and researching and learning on the Internet. You will use all this thinking and researching to help you create an artwork about compare and contrast.

Everything will seem normal except for an interview after you finish your artwork. This interview will be 20 minutes. In this interview you will be asked simple questions about how you used questions and what you learned during the art project. The interview will be recorded and then written out to make sure I know exactly what you said. I will be the one doing the interview. The interview will happen here in the art room during school, but not during art class.

Participation in this research study is voluntary meaning you don’t have to do it if you don’t want to. You can stop participating at any time and it won’t effect your grade or standing in school.

There will be nothing really good that happens if you do it. It is hoped, though, that you will see that having questions is a really good way to learn.
Appendix 2: Assent Form

Child Assent (7-14 years old)

What is this research about?
My name is Jeffrey Cornwall. I want to tell you about a research study I am doing. A research study is a special way to find the answers to questions. We are trying to learn more about how questions help you to learn. You are being asked to join the study because you are in Mme. Giraud Carrier's class.
If you decide you want to be in this study, this is what will happen.

you will learn how to use questions when making an artwork
you will make an artwork about your questions
you will be interviewed for 20 minutes about your artwork and what you learned
the interview will happen in the art room during school
I may contact you later to ask a few more questions
The total time will be the time will be about 6 hours, which includes all the time you spend in class, doing any work at home, and the interview.

Can anything bad happen to me?
You may feel a little weird or uncomfortable when you are being asked or are answering the questions
Can anything good happen to me?
Nothing good will happen to you specifically, but the hope is that you will realize that having questions is a really good way to learn.

Do I have other choices?
You can choose not to be in this study.
Will anyone know I am in the study?
We won't tell anyone you took part in this study. When we are done with the study, we will write a report about what we learned. We won't use your name in the report.
What happens if I get hurt?
You gave a paper to your parents that tell them what to do if you feel too weird or uncomfortable.
You don’t have to answer some of the questions or stop answering questions at any time. Don’t worry, not answering questions won’t change your grade or the way you’re treated in art class.
What if I do not want to do this?
You don't have to be in this study. It's up to you. If you say yes now, but change your mind later, that's okay too. All you have to do is tell us.
You will not be receiving anything for being in this research study. All the information on you will be kept for one year if you ever want to see it. Before you say yes to be in this study; be sure to ask Jeffrey Cornwall to tell you more about anything that you don't understand.
If you want to be in this study, please sign and print your name.

Name (Printed):                                         Signature                                         Date:
Appendix 3: Consent Form

Parental Permission for a Minor

Introduction
My name is Jeffrey Cornwall. I am a graduate student from Brigham Young University. I am conducting a research study about inquiry-based learning in the elementary art classroom. I am inviting your child to take part in the research because he/she is a student in Mademoiselle Giraud-Carrier’s class.

Procedures
If you agree to let your child participate in this research study, the following will occur:
The research will take place in the art classroom as part of my scheduled curriculum.
The following will occur as part of the research:
- Students will be creating an artwork based on the theme of comparing and contrasting as found in the 5th grade Utah State Standards.
- Students will participate in class discussions, view, critique and discuss artwork, research on the internet, and create a work of art using materials of the students choice.
- A 30 – 45 minute Interview with students will be audio recorded and transcribed for data analysis.
- Mademoiselle Giraud-Carrier, the classroom teacher, will be taking field notes and observations.
- The researcher will keep a journal of detailed reflections about the experiences which will add to the descriptive, qualitative data.
- Student artwork will be collected as part of the research.

Risks
There is a risk of loss of privacy, which the researcher will reduce by not using any real names or other identifiers in the written report. The researcher will also keep all data in a locked file cabinet in a secure location. Only the researcher will have access to the data. At the end of the study, data will be either destroyed or given to you and your child.

Confidentiality
The research data will be kept in a secure location (or password protected and encrypted) and only the researcher will have access to the data. At the conclusion of the study, all identifying information will be removed and the data will be kept in a locked cabinet or office. The data will be kept for one year.

Benefits
There are no direct benefits for your child's participation in this project.

This research will contribute to the conversations that are occurring about inquiry within the art classroom. Little research has been performed about the use of inquiry in the elementary art classroom. Most of the research has taken place in the context of the secondary art classroom. With this study, I hope to explore how inquiry can be a valuable tool and an alternative to the
standardized methods so common in classrooms. I hope to investigate the impact that inquiry and inquiry based learning can have in an elementary visual arts classroom.

**Compensation**
There will be no compensation for participation

**Questions about the Research**
Please direct any further questions about the study to Jeffrey Cornwall at 801-372-9422 and jeffreycornwall@gmail.com. You may also contact Mark Graham at 801.422.5866 and mark_graham@byu.edu

Questions about your child's rights as a study participant or to submit comment or complaints about the study should be directed to the IRB Administrator, Brigham Young University, A-285 ASB, Provo, UT 84602. Call (801) 422-1461 or send emails to irb@byu.edu.

You have been given a copy of this consent form to keep.

**Participation**
Participation in this research study is voluntary. You are free to decline to have your child participate in this research study. You may withdraw your child's participation at any point without affecting your child’s grade or standing in school.

Child's Name: ____________________________

Parent Name:_____________ Signature: __________________________ Date: ____________
Appendix 4: Interview Questions

- What is the purpose of school?
- What is a teacher supposed to do?
- Describe a time when you really felt you learned something important for you personally?
- Are you ever bored in school? Why?
- What things are you not learning about at school that you want learning about?
- What is your definition of art?
- How has using inquiry or questioning influenced the way you think about art?
- How has using inquiry or questioning influenced the way you make art?
- Tell me about your artwork?
- What was the question you based your artwork on?
- What things did you research to prepare for making your artwork?
- What did you learn during your research?
- Describe your artwork?
- What is your artist statement for this artwork?
- How did your question and research influence your artwork?
- How did your question and research influence the medium of your artwork?
- How did your question and research influence the concept or idea of your artwork?
- If you were to do your artwork differently next time what would you do?
- How has art changed your view on the way things are taught at school?
- How does the way you learn in art class differ from the way you learn in your regular class?