MUSEUM-IN-THE-CLASSROOM: ENHANCING SOCIAL STUDIES
INSTRUCTION THROUGH A MUSEUM/SCHOOL PARTNERSHIP

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to the Faculty of
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in
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Curriculum and Instruction

by
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MUSEUM-IN-THE-CLASSROOM: ENHANCING SOCIAL STUDIES INSTRUCTION THROUGH A MUSEUM/SCHOOL PARTNERSHIP

A Thesis

by

Adrienne Scott

Spring 2015

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DEDICATION

I dedicate this thesis to my parents, Jim and Carolyn Scott, who provided a rich learning environment beyond the traditional school day for my brother, Jamie, and me. They took us to museums across the United States and Europe, engaging us in creative inquiry along the way.

This tradition has been passed to my daughter, Hannah Scott-Persson, who frequents museums as well.

In the ways that my parents valued and nurtured my early museum education, I have attempted to provide more teachers with a model to build synergy between museums and schools.
ACKNOWLEDGMENTS

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ABSTRACT

MUSEUM-IN-THE-CLASSROOM: ENHANCING SOCIAL STUDIES INSTRUCTION THROUGH A MUSEUM/SCHOOL PARTNERSHIP

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The museum-in-the-classroom project demonstrates how collaboration between museums and schools can reinforce and enhance the sixth grade social studies curriculum. A combination of constructivist learning theory, historical critical frameworks, and the new museum paradigm, which describes museums as being places to work out meanings, create the theoretical underpinning for the museum-in-the-classroom project. The process spanned the academic year to cultivate critical perspective-taking and curator-like thinking. These skills are important tools for social studies competency and to uncover the interpretive quality of narratives of the past. Through a series of curricular interventions, museum field trips, hands-on activities, and the final construction of a school-site exhibition on ancient Greece, students began to
understand the past in more fluid terms (i.e., more than a collection of facts and dates).
Furthermore, after the exhibition was installed, students became docents to lower grades.
As tour guides, students became competent in all the class research, not just their own.
By combining the pedagogies of informal learning and artifact-based epistemology present at museums with the traditional classroom academics this study creates and effective template for future museum/school collaborative partnerships beyond the traditional field trip. Instead of seeing museums and schools as offering completely separate educational fare, teachers and museum educators could begin to build Dewey’s original school blueprint, where traditional classroom and museum exhibit space could exist side-by-side.
CHAPTER I

INTRODUCTION

In a Midwestern public middle school when I was in the sixth grade, I was assigned a social studies research project on the country of Japan. Everyone in the class had a different nation to study. We were to investigate the religion, economics, transportation, geography and daily life and had to be ready to give a formal presentation in one month’s time. My research began naturally enough in the library. However, following a friendly tip, my efforts quickly expanded to the local art museum, where, I encountered knowledgeable curators, a box of kimonos, slides, and books of haiku poetry. When I think back to the day I presented my findings to the class, I can now see my future path for studying museum/school partnerships unfolding. The museum curator was delighted to have an eager someone from a school check out their resources and the teacher was somewhat bewildered how an 11 year old managed to bring slides and artifacts to school. While much has changed in forty years in terms of understanding the educational role of museums, much remains disconnected between museums and schools.

For the last fourteen years, I have been the curator of educational programming at the Valene L. Smith Museum of Anthropology on the California State University, Chico (CSUC) campus. In that capacity, I have sought to improve and strengthen the museum/school relationship for individual classroom teachers in the Chico Unified School District (CUSD). Currently, in the literature when one speaks of museum
partnerships with schools the understanding and emphasis revolves around the school field trip model (Hein, 1998; Falk & Dierking, 2000; Griffin, 2007; Ucko, 2010). The Valene L. Smith Museum of Anthropology offers programs, which include field trips with pre- and post-visit options, museum artifact lending kits, and outreaches to school classrooms.

Museum-in-the-Classroom Research Goals and Questions

The research contained in this study is the product of five years of collaboration with a public elementary school in Chico, California followed by one year of data collection to understand how a museum/school partnership can enhance 6th grade social studies curriculum. Specifically, I designed a project, I named, Museum-in-the-Classroom, which takes the basic principles of museum exhibition design to a classroom in order to transform their textbook lessons in social studies into a classroom exhibition. My goal was that the real-world implications would add to student motivation and assist with retention of specific knowledge. I was also looking to account for the development of critical thinking and historical empathy, both increasingly recognized as important competencies to be taught and measured (Davis, 2001; VanSledright, 2002; Wolk, 2003; Parker, 2009; Greene, Kisida, & Bowen, 2014). For this study, conducted during the 2013/2014 academic year, the class learned about what a museum’s purpose was and designed a classroom museum in the multipurpose room on Ancient Greece. Over the course of the year, I sought to understand if building a classroom museum exhibition could support and teach social studies standards and build critical thinking skills while developing the beginning of historical empathy in upper elementary grades. I shared in
the development of materials and curricula as well as presented guest lessons. I also observed the classroom instruction of two student teachers and the teacher of record, Diane Forest, during the course of the year.

The goals of this project were constructed to demonstrate how developing collaboration between schools and museums support the school’s needs, and encourage real-world experiences that might reinforce and enhance the 6th grade social studies curriculum. Moreover, I wanted to design methods and tools that could be understood and replicated in the field by others looking to build bridges between museums and schools. It was my aim to navigate new terrain and build lasting pedagogical relationships between museums and schools.

First and foremost this collaborative process emanates from the inspiration of John Dewey’s Laboratory School at the University of Chicago. His vision includes both library and museum as prominent fixtures and resources within the walls of the schoolhouse (Hein, 2012). Libraries have continued to be housed at public schools but the museum idea did not take hold. In fact, the educational purpose of museums, in general, has evolved from understanding objects as bearers of knowledge (Roberts, 1997; Hooper-Greenhill, 1999) to examining the process by which meaning is made (Falk & Dierking, 2000; Hooper-Greenhill, 2006; Conn, 2010).

### Common Core Provides Possibility for In-depth Study of Subject Matter

Over the course of last ten years in the wake of No Child Left Behind (NCLB) Legislation, the use of these varied programs and attendance at museums by schools nationwide has decreased (http:www.aam.com). Museums have responded by bolstering
their education departments and linking field trips and outreach to curricular standards (Garcia, 2010). Further, museum education has risen in prominence in the literature and on site at museums over the last two decades (Hein, 2006, 2012).

As much of the nation embarks on implementing the Common Core State Standards, many schools and museums are wondering will this set of standards be better for teachers and students. Under NCLB many schools felt over managed and slowly became scripted and focused on achievement testing. This left little room for anything other than practicing for tests in many districts. Museums saw field trip attendance drop, as any information perceived as extraneous to the testing environment was eliminated (http://www.speakingupformuseums.org).

Curriculum Narrowing and the Social Studies

Common Core creators and leaders are discussing and addressing the curriculum narrowing phenomenon that has been the legacy of NCLB. The narrowing of the curriculum has taken its heaviest toll on the social studies (Brophy & Alleman, 2008; Bisland, 2012). Lynn Munson, president and executive director of Common Core, speaks to this when she said, “We know students need a full education, particularly those who are perhaps unlikely to acquire knowledge of history or the arts or the wider world outside of the classroom” (Munson, n.d.).

Particularly troubling is the virtual disregard for social studies topics that has happened over the course of the last decade in American schools. Elliot Eisner recognizes this as part of the null curriculum (Eisner, 1994). While Common Core focuses on math and language arts, it acknowledges that the reading content should be in science and
social studies. Jeffery D. Nokes is part of the national Common Core team and an
assistant professor in the history department at Brigham Young University. He authored
*Building Students' Historical Literacies: Learning to Read and Reason with Historical
significant step in the right direction in terms of expecting students to engage in more
historian-like activities in history classrooms” (p. 10).

**Constructivism is Key to Learning in Museums and Classrooms**

Constructivist learning theory is the key to understanding how learning in
museums happens. Theorists and innovative educational practitioners in the early 20th
Century, such as, Dewey, Montessori, Piaget, and Vygotsky are connected to
constructivism. Museum educators of the late 20th Century, like Hein, Falk, Dierking, and
Hooper-Greenhill among others, link informal museum learning to constructivist tenets
and begin to understand the dialogic nature of artifact-based learning and how meaning-
making occurs in the learner. The Museum-in-the-Classroom project is rooted in
constructivist learning principles and looks at how students improve their understanding
beyond their own research topic when they become docents to other classrooms. As
docents they become conversant in the whole museum exhibition and their knowledge of
all the material increases. Further, this study grapples with how best to teach what a
museum is and whether incorporating this real-world technique enhances a student’s
understanding of the content on ancient Greek history.
Theoretical Framework Defined

This study blends three theoretical concepts to understand the goals, purpose and implications of student learning within the context of museum/school educational partnerships. First, and foremost, the research is situated in constructivist learning theory, as described above. A second strand incorporated in the study are the methods of historical critical inquiry and interpretation, which seek to unmask the cultural lens through which each learner sees the past. And thirdly, this study works with contemporary definitions of museums as communal spaces to work out meanings. The merging of these theoretical concepts creates a framework for understanding the museum’s pedagogical purpose as presented in this study.

Key Words

Constructivism

This learning theory refers to the way in which learners acquire and build new knowledge. Constructivist learning theory is a product of many twentieth century thinkers and educators. In this research, I will examine the contributions of Piaget, Dewey, Montessori, and Vygotsky to this definition. However, I will adhere closest to current museum educators and researchers George Hein, John Falk and Lynn Dierking who have repeatedly researched and demonstrated the relationship between constructivism and museum learning.

Critical Thinking

This has been identified in conjunction with Common Core State Standards and has been emergent in the socials studies standards for working with primary and
secondary sources. Recent research (Garcia, 2010; Greene et al., 2014) in museums suggests that critical thinking is integral in the field trip when teachers and museum professionals plan purposeful field trips and other museum experiences together.

**Concept Maps**

Concept maps assist in forming new connections between existing knowledge and new learning. This gives the researcher and the student an opportunity to see the thinking going on in the minds of the learner. Research conducted by the Stanford Education Assessment Lab (SEAL) points toward the benefits of this process of working with students (Vanides, Yin, Tomita, & Ruiz-Primo, 2005). A combination of Vanides et al.’s (2005) and Novak’s (1998) discussion and recommended use of concept maps are the basis of my understanding of the model.

**Historical Empathy**

Historical Empathy is increasingly a goal of social studies teaching, but a difficult one to encourage in students. Davis (2001) and Wolk (2003) in their respective research and writing emphasize and document the inquiry process as a way to engage the critical understanding history and perspective-taking in students. The development of historical empathy is essential in becoming a motivated learner, according to Wolk (2003). This fits well with the basic definition/purpose of anthropology to learn about other cultures to better understand one’s own.

**Interpretive Paradox**

Bruce VanSledright (2002) explains that textbook information is delivered in history class as though it were undisputed fact. He calls this the *interpretive paradox*. Providing students in elementary school with access to primary documents and
opportunities to explore history from different perspectives begins to unmask this process.

**Museum/School Partnerships**

In the literature, this frequently refers to the field trip model. In this study, I broaden this definition to include the new paradigm of museums as community partners and places to work out meanings. The Museum/School Partnership of the 21st Century follows a model of inquiry based on identifying and listening for mutually supportive goals within a community.

**Limitations of the Model and the Study**

The process of working in collaboration is fruitful and messy. There are many contributors of ideas and lots of logistics. This makes for a complex dialectic of ever-moving parts, even when things have been pre-arranged. This is part of the process. A recent article in the *Harvard Business Review* dedicated to collaboration, concludes, “the shared purpose is not an expression of a company’s enduring essence—it’s a description of what everyone in the organization is trying to do” (Adler, Hecksher, & Prusak, 2014, p. 48). This optimism reflects the process I encountered. I agree with Gupta, Adams, Kisiel, and Dewitt (2010) that working with multiple stakeholders creates complexities for museum/school partnerships and may be why so few beyond the field trip model exist.

Another limitation to this study is that when I first conceived of this process my original goal was to devise content and tools for a two or three week classroom experience that could be easily replicated and distributed to many classrooms in the area
or even nation-wide. Portions of the program can be adapted in the future to serve this goal. However, I could not anticipate how valuable and excited the School would be about this project and how much the principal, parents, and classroom teacher would devote to making it a huge yearlong endeavor that benefits all the grade levels year after year. In its current presentation, it would be a daunting project to replicate and undertake for schools across the country without financial support and professional development from a local school or district site. Still the deeper understanding of how to craft collaborative museum programs with local schools and how to enhance the social studies curriculum to reach critical thinking skills is an important one that transcends the initial cumbersome aspects of a protracted study.
CHAPTER II

LITERATURE REVIEW

Overview of Museum Origins and Educational Purpose

Humans across many cultures have collected objects and shared stories about their meanings. Non-western and western societies since ancient times have dedicated collections and structures to appointed custodians with a museum-like function (Kreps, 2006). From this perspective, museums would seem to have a place in every culture; however, the modern museum is widely seen as an outgrowth of Western traditions, having its origins with the Mouseion in Alexandria c280 BCE under Ptolemy Soter’s direction (Abt, 2006). The Mouseion was connected to the famous Alexandrian library that housed all the great texts from many cultures at the time. The Mouseion was a place for scholars from many lands and disciplines to share ideas much like a modern university (Fowler, 2003). Therefore, the Mouseion was not an exhibition of artifacts. It was a place of learning and scholarship. Mouseion, while obviously the linguistic origin of the modern museum, seems to also be the muse, if you will, for the museum’s educational purpose.

Like the famed fire that destroyed the Library in Alexandria and its contents, memory of the Mouseion tradition was also lost until the European Renaissance of the 1500s began to once again reflect on Greco-Roman philosophy and practice. Exploration
and conquest led to an acquisition of novel objects by wealthy elite who began to add these items to their possessions. Private collections were often referred to as a *gabinetto* or *Wunderkammer* (Abt, 2006). The curiosity cabinet was famous for being a jumble of wonder at the exotic and unknown, with little educational content, per se. Yet, these private curiosity cabinets gave way to the first public museums, like the Louvre, established in 1793 (Abt, 2006), as royal rule gave way to democracy. This process brought about more classification and interpretation of the collections. Curation, though meant to be about proper care and preservation of artifacts, had at its core a tacit educational function. The interpretative and educational aspects of the exhibitions were predicated primarily on telling the story from the vantage point of winners and losers. Thus the objects of curiosity, no longer hidden, became a public display of conquest and knowledge. The creation of the public museum was a democratic and educational act (Hein, 2006) even as the interpretation of that time period might best be summed up by the terms, empire and colonial.

**Public Education Provided by the Museum**

Across the Atlantic, and from the origins described above, the newly formed Republic of the United States was also grappling with the lofty goals of democracy. Thomas Jefferson believed strongly in the ideals of an educated electorate and laid out plans for primary through university programs. He founded the University of Virginia, but fell short of providing universal public education (Mercer, 1993). It wouldn’t be until 1870 when every state in the United States had free public schools. Despite the assurance of free access, consistency of content and access remained elusive (Herbst, 1996).
Jefferson’s letters to John Adams reflect his concern that a continuation of aristocratic principles would occur in the US without public education (Hein, 2012). “Education would maintain democracy against the power of wealth” (Hein, 2012, p. 55).

Following this sentiment was Charles Willson Peale who founded the first public American museum and housed it in Philadelphia’s Independence Hall, a mere twenty-six years after the Declaration of Independence was signed there (Brigham, 1995). Peale, a friend and contemporary of the founding fathers, was particularly connected to Jefferson (Hein, 2012). Peale’s museum plan provided open hours on Tuesday and Saturday evenings when members of the working classes could attend (Brigham, 1995). Brigham (1995) expands on Peale’s relevance and contributions to public education when he describes his natural history exhibits as being beneficial to farmers who could learn that snakes eat mice which feed on corn or helpful to mechanics who need “accurate knowledge” (p. 5) of how things work. Additionally, Peale invented the diorama, a taxidermy display of animals and plant life to recreate the natural habitat of extant and extinct species (Hein, 2012). This particular educational depiction has fallen in and out of favor and proved problematic when attempting to document human cultures. It nevertheless has been the leading educational archetype associated with museums for generations, persisting today in pop culture movies like *Night at the Museum*. Finally, Peale’s famous self-portrait at his museum further documents the educational possibilities for the new world. In this painting, he stands in the front, lifting a crimson curtain to reveal a Quaker woman, a father and son in working class clothing, and a man of obvious wealth and breeding all mingling among the displays (Brigham, 1995). His bold painting
still hangs in the Philadelphia Academy of Fine Arts testimony to an early Republic’s ideals of diversity, equality, access, and education converging at the museum.

Museums Attempt to Salvage Culture

The public museum’s origins both in Europe and the United States reflect a move toward democratic ethics of public education, while also containing within its educational content the belief in the superiority of Western cultures over all others. This schizophrenia borne of privilege but tempered by an educational ethic is repeated in the establishment of museums across the United States. By the late 1800s American Museums were becoming the repositories of vast quantities of material culture collected by ethnographers of Native American societies, in what came to be known as salvage expeditions (Hinsley & Holm, 1976) to quickly save and record so-called disappearing tribal peoples and practices due to westward expansion and systematic governmental attempts to eradicate native groups. Franz Boas is considered the father of anthropology for joining the fields of archaeology, cultural ethnography, linguistics, and physical anthropology under one discipline (Stocking, 1974). Historian, Steven Conn (2004) expertly threads the needle of connection between the origins of the four subfields of anthropology and the expansion of the American Museum. He carefully demonstrates that the manner in which these subfields took hold in the United States is intricately entwined in the history and politics of the presence of Native American cultures. Moreover, he lays out how the collecting of these artifacts led to museum building across the nation in the post-civil war era. The westward expansion efforts and nation-building zeal meant either extinction or assimilation—both choices rendered the same result,
“Indianness was doomed” (Conn, 2004, p. 31). The argument he constructs in *History’s Shadow* essentially rests on an object-based epistemology that saw Indians as specimens to study like rocks or plants. Francis Parkman, an American historian active in the 1870s, articulates the doomed objectification best when he compares the Indian People to a rock which can only be changed by being destroyed (Conn, 2004, p. 207). The quest to find specimens that would typify a people rather than looking for individual stories of people was the order of the day. In the United States, the idea that objects can stand for cultural meaning and interpretation developed a stronghold as Native Americans were forced to cede territory, giving access to graves and material culture. In this problematic way, American archaeology came into its own as a scientific and legitimate academic discipline as university researchers excavated former lands of American Indian groups in an effort to salvage cultures that were being exterminated. From antebellum times to the turn of the nineteenth century, universities founded museums to showcase these collections (Conn, 2004).

Just as archaeology made artifacts of the past, a field of study, so too were the extant cultural objects collected by ethnographers and categorized for study. Additionally, human remains were exhumed, studied by physical anthropologists, and ultimately considered fair game for research and display just like Iguanodon or other fossils. After all, “Indians were not just animals in the view of most Americans of the nineteenth century,” they were bound for extinction too (Conn, 2004, p. 31). Even the linguistic classification methods developed by John Wesley Powell led to the creation of definitive maps (e.g., tangible artifacts) of settled people across the landscape. These maps have yielded great misconceptions as to the interrelatedness of many peoples
(Conn, 2004). Language families do not always reflect the fluidity of real peoples and their societal practices. Conn’s point, however, is that the four subfields of anthropology became the method by which objects were brought into the care of museums in America. Conn (2004) describes an explosion and expansion of university and other museums in the period between antebellum and early 20th Century America, whose focus was on the collection, interpretation, and display of Native American artifacts.

Proving both of Conn’s points about how anthropologists led the way toward amassing museum collections by extracting objects from tribal groups and how the display of these objects in natural history museums perpetuated the notion that Native Americans were extinct specimens of natural history, anthropologist Franz Boas, and his famous student Alfred Kroeber, both collected and curated objects for natural history museums in Chicago, New York, Washington DC, and San Francisco (Stocking, 1974). In this way, museums have remained intimately linked with the academic discipline of anthropology. Artifacts from societies and their interpretation, though just one facet of current anthropology, have become synonymous with anthropology and part of the public role of the museum. Complicating this role is the contemporary recognition, first espoused by Claude Levi-Strauss, that this rush to collect objects may have been initially to preserve cultures, but has now contributed to their demise, (Shelton, 2006). Moreover, Barbara Kirschenblatt-Gimblett (1991) argues that the display of any artifact, in context or not, continues to represent a detached, surgical cut from its ethnographic life, rendering it more a mirror of the culture that collected it than the one it represents.
Educational Innovations in Museums and Schools

From the Greek mouseion to the American museum, the western museum tradition is predicated on a commitment to educational goals and principles delivered through the visitor’s connection with the object. However, the expressed pedagogical practices, the articulated concept and “specialized function” of museum education and its role in the museum are largely “a 20th Century phenomenon” (Hein, 2006, p. 342). In fact, museum education as a term was first coined in 1966 at the first conference of museum education at the Smithsonian (Larabee, 1968). Even without a formal declaration of museum education, an early champion of these lofty educational goals within the museum was George Brown Goode, the curator and administrator of the Smithsonian Institution from 1873-1887 (Hein, 2006). His idea was that scholarly labels with a “well selected” specimen would embody the heart of instruction at a museum, (Hein, 2006, p. 342). This instructional ideal, borne out of collection practices, perpetuated the object-based epistemology of the Victorian age, which held that objects could stand in for the larger part of the whole of any discipline, particularly natural history and anthropology (Conn, 1998, 2004). Director for the Center for African Art Susan Vogel (1988) explains that this ideal was grounded in a pedagogical mission with didactic methods which situated specimens to “illustrate prevailing theories” (p. 12).

Today when we think of education, we think of young students. Hein (2006) shows that the early origins of the museum pedagogy followed the very Victorian notion of children should be seen and not heard, and, in fact; did not really include children. He quotes Smithsonian Curator Goode in 1888 as saying, “I should not organize the
museums primarily for the use of the people in their larval or school-going stage of existence” (p. 343). Goode, though innovative in his own right, missed the tidal wave of innovation which began to see young children as important participants in society. Ironically, Goode died in 1896 three years prior to the erection and opening of the first museum dedicated to the education of children, The Brooklyn Children’s Museum.

Anna Billings Gallup served as curator and then director for the Brooklyn Children’s Museum for its first 34 years. In 1908 she writes of the motivations for creating such a museum dedicated to young people as aiming to “refine their tastes and elevate their interests” (p. 155). This idea of appealing to children and raising their natural abilities to new standards of knowledge acquisition explodes at the dawn of the 20th Century with many philosophers and practitioners of education in the Western tradition. Maria Montessori opens the Casa de Bambini in 1907 as an experiment to keep poor children healthy and off the streets. In the process, she discovers the enormous potential in children to learn challenging and important concepts in language, sciences, geography and math (Montessori, 1984). She goes on to create a curriculum for Prek-16 (known as the prepared environment) based on her observations of her students and her belief in hands-on learning with objects as an important teaching method. When Montessori establishes that even the underclasses can acquire skills and knowledge, she documents that this sponge-like quality of young minds is a universal and biological imperative not a product of status or breeding. In Montessori’s method, the teacher prepares the environment with lessons and objects to manipulate and explore. In many ways this description could be applied to the museum, which is the ultimate prepared
environment. Montessori also describes the environment as the “third teacher” (Wardle, 2009, p. 77).

Dewey, Montessori, and Piaget Share Constructivist Principles

John Dewey’s methods of instruction and educational philosophy also “dramatically challenged the traditional teacher-directed orientation” (Wardle, 2009, p. 22). Dewey and Montessori’s educational philosophies and observations yielded similar insights and theories. Both saw children as natural-born learners, ready and able to acquire astonishing knowledge and skills if their instructors created a thoughtful and stimulating environment for their learners (Dewey, 1933; Montessori, 1984; Wardle, 2009). Montessori and Dewey agree in constructivist principles of learning and teaching, though may not have invoked these terms to describe it. Montessori created individual lessons with a hands-on approach she called “work.” Dewey recommended lessons with direct experience. School for both Dewey and Montessori involved materials, guidance from instructors, and allowed for student choice (Kirkpatrick, 2008). Both Dewey’s Lab School at the University of Chicago and Montessori’s Casa de Bambini, while designed to teach children, were also designed to observe the learning process and contribute to the mounting discussions on how people learn.

Jean Piaget like Dewey contributes to the philosophical and the practical understandings of the learning process throughout the Twentieth Century. While Dewey is primarily concerned with the philosophy of teaching and how to facilitate learning, Piaget wants to grasp the psychology and epistemology behind learning and how knowledge is acquired. Piaget’s scientific studies of children led to his famous
classification and taxonomy of developmental stages in humans from birth through early adulthood (Ginsburg & Opper, 1988). These stages, with modifications here and there, remain largely intact in contemporary understandings of child development. A constructivist learning theory emerges from his observations of how children assimilate and incorporate new information. He recognizes that even within the universals of human developmental stages, learners construct and revise schemata to house learned information (Bybee & Sund, 1982).

Constructivism and the Zone of Proximal Development

A constructivist theory of education has been described in a variety of ways, but simply it is the way learners organize and make sense of new information they acquire. It also refers to the meaning that is constructed within the learner. Another contributor to this theory is Lev Vygotsky, who conducted his research in Russia in the 1920s and 1930s. His major contribution is the concept of the zone of proximal development (ZPD). This idea explains knowledge acquisition as essentially collaborative. Guided mediation from adults assists learners to reach beyond the familiar and known information to form new meanings and knowledge (Daniels, 2001). The ZPD then becomes the place whereby, “an individual is able to achieve more with assistance than he or she can manage alone” (Wells, 1999, p. 4). ZPD describes both where the learner is currently vis-à-vis knowledge and what the learner can attain further with mediated assistance from teachers, parents, museum docents. Vygotsky emphasized contextualized learning and communication between learner and the learning experience to describe what he meant by proximal development (Moll, 2014). Instruction then
should be aimed toward understanding not just what the student can already do, but where they can go with assistance (Moll, 2014). Students learn by communicating back and forth within the area they already have mastered and the one they are reaching toward. Offering a metaphoric insight into the ZPD in action, Doris Ash (2004) describes observations of a field trip in an aquarium. The tank that is being observed can only be seen by inserting one’s head into “peepholes.” The peepholes represent the separate points of view (i.e., knowledge of each learner). Participants communicate through questions, observations, and directions about the sea life in the aquarium. As each learner contributes their point of view/knowledge from the peepholes, one can literally see how the distributed knowledge and expertise is shared between participants in the ZPD, (Ash, 2004). This example also illustrates what Moll (2014) describes as another important hallmark of Vygotsky’s ZPD, the relationship between spontaneous knowledge and more scientific knowledge. “the relationship between every day and scientific concepts is reciprocal: they mediate each other” (Moll, 2014, p. 35). Students learn by communicating with mediators about what they already know and build bridges of understanding into the new zones of knowledge they acquire. Further, this knowledge is meaning that is constructed inside of the learner based on the prior knowledge he or she has already.

“Constructivism requires action,” says Francis Wardle (2009, p. 23). This quote bridges the understanding between Montessori whose method requires objects to be manipulated, Dewey who believes in learning by doing, Piaget who observes the learner building cognitive scaffolding to assimilate new information, and Vygotsky who states that learners must move through cognitive zones to acquire new understandings. These
ideas are echoed in contemporary museum education theorists who link museum learning to the constructivist approach.

**Contemporary Museum Educational Theorists**

Chief among the museum education theorists are George Hein, John Falk and Lynn Dierking, all researchers who have been contributing to the scholarly discussion about informal learning in museum settings for the last twenty-five years. Hein’s seminal book (1998), *Learning in the Museum*, lays the groundwork in formulating and linking constructivist theories in the understanding of how learning happens in museums via field trips, family visits, and docent tours. Hein (1998) speaks of a continuum of theories about knowledge on one axis and about learning on the other that intersect in the teaching and learning process. The axis of knowledge ranges from knowledge existing outside the learner to knowledge being constructed inside the learner. The axis of learning ranges from incremental, bit by bit additions to actively changing and restructuring thoughts (Hein, 1998). Constructivism in this model is explained as an intersection of the active learner in an environment where didactic voices of curators and other authorities are “muted or modified” and participation by learners is encouraged (Hein, 2006). This correlates nicely with the work Falk and Dierking have conducted in numerous museum studies to describe and assess the learning and meaning-making in museums.

**Learning in Museums**

Understanding the way learning happens in a museum setting requires elaborating on the collaborative nature of the constructivist model. Vygotsky explicitly describes the bridging process across the ZPD as necessitating dialogue. Clearly,
communication is essential in learning. The dialogic necessity of learning has been established in numerous museum learning studies.

While most people would agree that learning takes place in museums, it is not a location where a standardized test can be applied. Therefore, administering tools and designing instruments to collect and assess data has been complex for researchers to undertake (Hein, 1998; Falk & Dierking 2000; Leinhardt & Knutsen, 2004). The question posed by researchers on assessing museum learning was how one should define museum learning and how might it be measured. A number of qualitative and quantitative studies have been trickling in over last two decades to try to accurately portray and ascertain the kinds of learning happening in museums. In the qualitative process, each study becomes its own ethnography of sorts, sifting through the emerging data and establishing theories and practices to make sense of the data being recorded. Most studies in the last 25 years have used dialogue and conversation as the means to determine the learning taking place in museums. They each have developed different methods and instruments for collecting and analyzing the results. Researchers seek to understand, categorize, deconstruct, and even quantify the way in which school children and visitors learn in museums. Objects and opportunities for hands-on interaction with phenomena of science, culture, history or art provide measurable experiences for student learning. Several theories of learning have contributed to the collective understanding of the processes by which new knowledge is constructed in informal learning environments. Conversation and discourse analysis are tools to assess outcomes in museum learning.
Discursive Analysis: Situated Meaning and a Contextual Model of Learning

Further understanding of the theoretical underpinnings of museum education is developed through the analysis of conversation and dialogue. Conversations are at the heart of decoding meaning-making that occurs in museums (Leinhardt & Knutson, 2004). Several studies examine with intriguing results the ways in which learning happens in museums through discursive analysis.

According to constructivist theory, knowledge is a process by which teacher and student collaboratively construct new understandings of the world (Rahm, 2004). Thus, situated meanings become important in understanding how learning opportunities may manifest and develop in museum settings (Rahm, 2004). More evidence and research is beginning to draw more complex conclusions about learning and nudging us closer to embrace the collaborative nature of learning. John Falk and Lynn Dierking, prominent researchers in the field of museum education have created a dynamic model of this contextualized learning (Falk & Dierking, 2000). This model states that all learning is socially constructed, and connected with personal, socio-cultural and physical contexts (Falk & Storksdieck, 2005). Knowledge is cumulative and occurs over a life-long process of meaning-making and connection building (Falk & Dierking, 2000). Finally, learning is both process and product. Therefore finding methods to measure it can be challenging (Falk & Dierking, 2000).

Conversation as Measurement Tool

A number of researchers have been perfecting the analysis of discourse and conversation between students, teachers, and visitors in museum learning situations.
Across a myriad of museum types and settings, conversations have been recorded, examined, and analyzed for evidence of the ways in which learning occurs on field trips and with visitors. Rahm (2004) describes the process as one of examining, “the extent to which science centers may support such dialogic inquiry or explorative talk, and address its implications for understanding the challenges of learning in museums” (p. 225).

In a study conducted at the National Center for Atmospheric Research in Boulder, CO, youth were observed manipulating an interactive exhibition that demonstrates why the sky is blue. Two students engage in discussion about what they have learned. One describes incorrectly that the ocean reflection makes it blue. The other says he’s not so sure and continues to work with the exhibit. The one not so sure does not dispute the findings of the other, but seems to draw his own conclusions and move on (Rahm, 2004). The one who believes it is the ocean’s reflection asks a museum guide to verify his conclusions. The guide recognizes the opportunity to facilitate the student’s learning. Without refuting his observations or correcting the learner directly, the guide discusses the way light from the sun travels through the atmosphere and how the concept of scattering is responsible for breaking apart the white light, which makes the sky blue. The facilitated dialogue acted as a bridge in the zone of proximal development, encouraging the social construction of new knowledge and meaning-making in this museum setting (Rahm, 2004). The second student returns to the final discussion with the facilitator and adds his own remarks of affirmation. Both students depart with new knowledge having made sense of the exhibit (Rahm, 2004).

Claudia McVicker (2004) identifies museums as places to motivate struggling readers. Using Louise Rosenblatt’s definition of reading, “as a transaction that involves
McVicker conducted a corrective reading study which examined the role and influence museums play in motivating and encouraging readers who are performing below grade level. How conversation and discourse act as tools and components of situated learning is illustrated in two case studies.

Case One describes two fourth graders reading on a first grade level. After attending a summer program at Minnetrista Cultural Center in Indiana the two students were willing to read books outside of school for learning and enjoyment (McVicker, 2004). The program helped the boys crack the code of reading by connecting reading and learning to real-world experiences. McVicker suggests that by putting the learners in charge of their learning they become motivated to find answers utilizing books. Using binoculars and adult field guides, the two boys discover how to identify wildlife in their region. The boys stay on task, ask each other questions, and find answers by conversing with each other and referring back to the field guide multiple times after having reported to the museum staff that morning that they “hate reading,” and never select it for fun (McVicker, 2004, p. 13).

The second case in McVicker’s observations on how dialogue in museums improves literacy performance, involves a fifth grade boy reading on first grade level. He is described by his school as a reluctant reader. At a museum exhibit on Sue the T-rex the student eagerly engages in label reading and writing answers to specially designed questions to match his literacy improvement needs (McVicker, 2004). Further, McVicker (2004) recounts, “In the dinosaur gallery he seems to enjoy reading and is willing to try
any word he comes across,” to gain new knowledge (p. 14). Moreover, she asserts that, “capitalizing on a museum’s resources can captivate a reluctant reader so that questions or curiosity will lead to reading” (p. 15).

Creating Categories: A Method for Decoding Discourse

At the Exploratorium in San Francisco both school groups and visitors were recorded and observed as they visited the Frog exhibition. Categories of learning talk were created to understand and decode the conversations. *Connecting talk* linked personal experience to the subject matter, *strategic talk* were ways to give directions between people, *affective talk* accounted for outbursts of emotion, *perceptual talk* offered identification of information via labels or observations and *conceptual talk* provided complex associations, inferences, hypotheses, or other metacognitive observations (Leinhardt, Tittle, & Knutson, 2002). Results of this analysis yielded that learning talk was happening 83% of the time and it was 20% more likely to occur at a live animal exhibit. They also noted that more conversational hypotheses happened at more challenging exhibits (Leinhardt et al., 2002). Similarly, 80% of students were found to be engaged in learning related conversations while on school tours in Sydney, Australia museums (Griffin, 2004).

Personal Meaning Mapping and Diaries as Measurement Instruments

In two separate studies of how conversation elaborates and contributes to the acquisition of knowledge; the researchers examined how individuals without collaborative partners learn in museums. For one study at the California Science Center
World of Life Exhibit, researchers designed Personal Meaning Maps (PMM) as a way to capture learning and to assess student/visitor change in learning over the course of their stay at the museum (Falk & Storksdieck, 2005). Visitors were asked to free associate words and informational meaning around a central term selected by the researcher that was present in the exhibit before they entered the display area. Upon exiting they were asked to revise and update their responses with any new knowledge they could recall (Falk & Storksdieck, 2005). Researchers from this study also devised categories for the responses to capture extent, breadth, depth and mastery of subjects. From these a range from novice to expert was created (Falk & Storksdieck, 2005). Looking at the results overall and including all the results of all the measures, 33%-91% of those who responded to the self-study survey, exited the museum with, “enhanced understanding of science” (Falk & Storksdieck, 2005, p. 767). Those with lower pre-visit scores did show more gains than those with the highest upon entering the museum. These results seem to match the observation that those visitors with low knowledge and high interest make up the majority of museum visitors at most museums (Falk & Dierking, 2000).

In another study, diaries were used to collect visitors learning, impressions, knowledge, observations, and meaning-making insights. Eighteen diarists visited fifty museums of their choosing and asked to write 3-5 page narrative summaries within a few hours of each visit (Leinhardt et al., 2002). The picture that emerged is the blurred line between the personal context and the exhibit itself. Linking knowledge less outside oneself as a cluster of facts to be memorized, but rather socially and culturally constructed with the learner as mediator (Falk & Dierking, 2000; Hein, 1998). More
broadly these activities reflect Dewey’s ideas that meaning expands from first-hand experience (Leinhardt et al., 2002).

**Long-term Retention of Information**

Another measure of the meaning and assessing the value of the learning that occurs in museums, revolves around what is learned and for how long? At the Royal Botanic Gardens in Sydney, Australia, researchers uncovered the relationship between teachers’ plans for what students would learn on their field trip and the long-term retention and recollections of their students of the outing. Some of the schools in the study had a tradition of annual visits, allowing a multi-year analysis to occur (Stewart, 2002). Over the course of the study, two-thirds of the teachers reported that learning information in the botanic gardens corresponded to lessons on aboriginal practices and biologic facts associated with grade level standards: 93% of students retained and recalled traditional information relating to rainforests and endangered plant species two weeks later, and 68% recalled the information seven months later (Stewart, 2002). The researchers attributed the retention rate overtime to strong sensory and conversational experiences created in the botanic learning environment (Stewart, 2002).

Crowley and Jacobs (2002) report that four-year olds retain names of fossils in a museum exhibit when they are told about them in a way that links to their prior experience, thus, establishing a situated context within the dialogue. Context and conversation go together promoting retention, and thereby making meaning, more permanent.
Falk and Dierking (2000) open their book *Learning in Museums* with an illustration of the powerful retention and meaning-making strands that happen with two visitors at the National Museum of Natural History in Washington, DC. The two women are observed and recorded during their visit to the museum. The time they spent at each display and the titles of each exhibit they saw, was recorded. Each visitor was given an extensive exit interview upon departure. Then five months later each was telephoned for a follow-up interview to see what they had retained. The researchers were astonished to realize that both visitors had not only remembered certain facts or information but had gone on to build deeper knowledge in a variety of personal connective ways with new insights and observations about the meaning of that visit. For example, one woman became interested in whether the squirrels in her backyard might have a genetic predisposition toward albinism like the diorama showed, prompting her to do further inquiry (Falk & Dierking, 2000). Lisa Roberts (1997) in her book, *From Knowledge to Narrative: Educators in the Changing Museum*, says that museums communicate content which, “ignites memories, activates emotions, and sparks interchange. What visitors do with these possible responses is part of the narrative they craft” (p. 137).

Objects and Artifacts Propel Discourse

Leinhardt and Knutson (2004) conclude with their studies on conversations in museums that, “learning in a museum has something to do with intense and active engagement, looking at and appreciating objects” (p. 2). Interpretive labels associated with these objects were often the launch point of deeper discussion (Leinhard et al., 2002). While many researchers mentioned the fact that labels were often the origin of
meaningful discourse, one of the first studies to test these conclusions that labels and learning conversations are linked was conducted by Jill Hohenstein. This study demonstrates that adding a temporary guiding question label to an already existing exhibit display added more collaborative discourse, which led to more explanations and open-ended questions, both types of talk shown to be beneficial to cognitive learning (Chi et al., 1994, as cited by Hohenstein, 2007).

Other researchers look more closely at the contextual aspect of discourse and conclude that objects are not intrinsically knowledge bearers. It is human culture that ascribes this meaning to the object (Taborsky, 1990). Further, Taborsky (1990) suggests, “there may not be any such thing as knowledge inherent in the object” (p. 62). Following this train of thought it becomes clear how central the socio-cultural aspect of meaning-making and knowledge acquisition is. Taborsky (1990) explains that a tribal robe, for example, has no significance until the agent of the corresponding tribe makes meaning with his actions. By implication, the object is meaningless to someone from another tribal group or someone to whom the significance of the artifact is not explained. How this relates to museum goers and the conversational model of learning is as follows. If the object had inherent meaning, then the object would transmit that meaning to all observers in the same way. But the discursive object model says that meaning is only transmitted through interaction between viewer and object. In the discourse or interplay from object to viewer in the discursive paradigm, the meaning-making is dependent on the socio-cultural context of the viewer and the object. “The meaning of both object and observer is being defined by the interaction” (Taborsky, 1990, p. 70).
In the classroom setting, Schmidt (2007) relays that material culture can communicate the impact of the past to learners in a way words do not. Often subjects like social studies and science are taught in abstract terms with textbooks. “Teachers forget the power of a concrete object” (p. 108). Moreover, artifacts help create pictures of the past. Done in an effective way, Schmidt (2007) says, “artifacts can challenge or refine our perceptions about ancient culture” (p. 127).

Lasky (2009) elaborates this paradigm in more practical terms when she says, “The similar impermanent nature of both ideas and objects connect in the state of wonder that both incur in the learner. Just as a wonderful idea connects the learner to his specific time and place, a wonderful object does as well” (p. 72).

Part of the problem in assessing educational outcomes after museum visits is that each study is idiosyncratic and employs different theories of learning to assess and inform the conclusions (Hein, 1998). Museum conversations, in fact, may sound disjointed or meandering upon first listening, because such conversations are not didactic or linear (Leinhardt & Knutson, 2004). While many of these theories like ZPD, situated learning, contextual learning model, conversational elaboration, and the discursive object paradigm seem to be independent of each other, they overlap in meaningful ways and reveal how learning is constructed and developed in collaborative styles so that individual learners can gather and construct new knowledge and enhance learning. The learning in informal environments such as museums enhances and augments the formal styles of didactic instruction typically found in school classrooms.
Recognizing the Role of Museums in School Curricula

The field trip model is the typical way in which teachers involve their classrooms in museum learning experiences. Museums have been seen as institutions in the community with educational knowledge available and accessible primarily through a visit. In Dewey’s discussion of an ideal school he situates classrooms on the edges of a two-story building with a library in the center on one floor and a museum above it on the next (Hein, 2012). These plans are realized in the building of the New School of Education at the University of Chicago (Hein, 2012). Dewey describes the floorplan this way, “The space on the third floor immediately over the library has been assigned to the museum” (as cited in Hein, 2012, p. 45). Dewey goes on to describe how museums and libraries are integral to the education of students of all ages. In 1893, the Director of the Peabody Museum, Edward Morse, wrote an article in the Atlantic Monthly just after the passage of the Public Library Act, lamenting the lack of federal support for public museums. He emphasized the connection between libraries and museums by their common educational roles (Morse, 1893). Today American public and private schools continue to have central and even classroom libraries of books; however, Dewey’s vision of museums as part of the ongoing discovery and research tools set before K-12 students is not present. Clearly, there is a long and valid link between the learning in formal settings of school classrooms and informal places of learning, like museums.

Given this relationship, the museum/school partnership is broader than the confines of a one-hour school tour program and the variety of ways for collaboration between these two entities is hard to sum up in simple terms. Further, as Common Core
State Standards are adopted nation-wide, more schools are turning toward experts in many fields for real world settings and scenarios to provide context for student learning. Museums of Science, History, and Anthropology are ideal locations for providing primary and secondary documents and artifacts to complement curricular standards in social studies and engage students in discourse often unavailable in classroom settings.

The Museum/School Partnership Comprises a Wide Spectrum of Definitions

The literature on Museum/School Partnerships is loosely defined, not uniform, and somewhat scattered in terms of what is actually meant by this catchall term. As mentioned before the typical understanding is of the field trip model, but also mentioned are professional development programs for teachers (Danko-McGhee, 2004), wider community benefits (Sheppard, 2007), and extension services for teachers (Berry & Mayer, 1989). Some studies describe more in-depth, pre-planning in a collaborative fashion with select teachers prior to a series of visits to a museum (Hooper-Greenhill, 1994; Durbin, 1994; Rahm, 2004; Griffin, 2007; Garcia, 2010). These cooperative endeavors seek to discover what might benefit the classroom best and how to engage learners with the special collections or displays of the local museum. Increasingly these types of programs emphasize the curricular standards as a way of marketing the programs (Garcia, 2010).

More recently, museums are beginning to document their role in supporting critical thinking in schoolchildren (Greene et al., 2014). In a new study conducted at the new Crystal Bridges Museum of American Art, researchers established a strong correlation between museum visits to a student’s ability to make inferences about other
works of art never seen before (Greene et al., 2014). Further, these students were more likely to bring their families on a weekend visit after the program was over. The concept of critical thinking is not a quantitative measure that is measured on current standardized tests, but it is being emphasized in the new Common Core State Standards. Documentation of this nature will help school teachers and administrators see the tangible and intangible benefits of museum inclusion in their curricula.

But Ben Garcia (2010), former curator at the Phoebe Hearst Museum at UC Berkeley, pushes back against the now common practice of museums to align their school programs with state standards and narrow grade level goals. This is a way for museums to keep their numbers up but he argues this single-minded focus is diluting the deeper meanings and enrichment museums are capable of providing to schools (Garcia, 2010).

Expanding this idea of museum education’s broad scope and potential for partnerships is the idea that the museum educator’s role is an agent who brings together the needs of the community and the institution (Munley & Roberts, 2006). Silverman and Bradford (2013) expand this partnership model when they argue that museum staff no longer can be just “knowledge-makers” (p. 155) but must also become learners in the effort to build successful partnerships. In fact, they state that in such partnerships with museums and learning institutions, “knowledge flows two ways with learner and teacher roles blurred” (Silverman & Bradford, 2013, p. 156).

Further, this collaborative, creative process for which there are few roadmaps is messy. Most of these partnerships will encounter difficulties (Sheppard 2007). This is understandable as it connotes a shared leadership process that may not be explicit in the beginning (Roberts, 1997; Silverman & Bradford, 2013). Moreover, bridging between
multiple stakeholders and goals of informal and formal settings introduces complexities in the museum school partnership (Gupta et al., 2010).

However, one could summarize the goals of these myriad museum/school partnerships as being ones dedicated to the personal and institutional goals of both the teacher and the museum educator. One of the overlapping goals is teaching with material culture and providing opportunities in a real-world context for students and teachers to engage with artifacts and primary documents pertaining to lessons in their textbooks.

Primary documents and artifacts are essential teaching tools according to Walter Parker (2009). Textbooks, he explains, are only one resource that should not dictate the teacher’s process or trajectory in deciding what to teach. He describes a “rich stew of primary documents” (p. 345) as essential to the teaching methodology of upper elementary classrooms. Parker elaborates the limitations of 6th grade programs in particular when he states that too many topics are covered superficially. He concludes that, “not only is this not powerful learning, it’s boring!” (p. 13).

Social Studies: Becoming Part of the Null Curriculum?

Elliot Eisner (1994) expertly deconstructs the curriculum of contemporary American public schools by speaking about the explicit, implicit, and null curricula. The explicit curriculum comprises those topics and subjects the teachers and textbooks identify as being taught each year and that are often dictated by tradition, or what has always been done. The implicit refers to the practices and values that are embedded in the school culture and not stated overtly. And the null curricula are those subjects and ideas that are left out. Eisner (1994) identifies the areas of law, anthropology, the arts,
communication, economics as, “just a few of the fields that constitute the null curriculum” (Eisner, 1994, p. 106). He further states that when considering all the topics one could teach from only a “slender range of those processes is emphasized” (p. 99). These observations pre-date the No Child Left Behind legislation, which further reduced instructional hours dedicated to subjects beyond Math and Language Arts. The singularity of focus on testing outcomes has created a narrowing of curriculum to exclusively teach mathematics and language arts protocol in most public school (Brophy & Alleman, 2008). Further, there is no doubt that there is reduced social studies presence on the national scene in America’s elementary curriculum.

Beverly Bisland (2012), further explains that the social studies even in at its peak in the 1950s when more schools embraced the discipline failed to implement the depth of understanding of human cultures and systems and mostly taught what she calls the “development of amiable relationships” (p. 182). In describing the ideal of social studies as seeing human endeavors as part of a “unified whole,” Bisland (2012) cites an example of how “disarticulated” social studies has become. A class read a fictional book about penguins; subsequently, they were shown a map of Antarctica identified as the penguins’ habitat and given a coloring page of a penguin to round off the social studies lesson. Clearly, this lesson was devoid of depth and rigor and exemplifies the continued marginalization of the social studies from elementary schools. “Findings show that social studies instruction has all but disappeared in the primary grades and is textbook driven in grades 4-6” (p. 174). In fact, in some schools the social studies curriculum has become what Eisner would call the null curriculum, because it is not given time in the school day or what time it is given is superficial.
Social Studies and Common Core

An ongoing concern in K-12 education pivots around the best ways to impart information to students that give them foundational knowledge in a few areas of study as well as assist them in becoming life-long learners. This debate takes many shapes from specifics in national curricula and teacher instruction to testing and philosophies. Currently the discussion revolves around what topics should be taught and how these should be imparted to promote 21st century learning and critical thinking skills (Ripley, 2013). Can a thematic unit offer the depth, rigor and insight needed to model for a student how all subjects can be learned? Or should many varied topics be introduced so students can retain facts for certain grade levels? Are language arts and math basics to be mastered or tools for science and social studies?

The most recent chapter of American Education policies produced No Child Left Behind Legislation (NCLB) in 2001. These laws, designed to equalize the learning of all students in the United States, brought flat results. The Huffington Post reported on the 10th anniversary that this law at best shone a light on underperforming minority groups and failed to raise test scores (Resmovits, 2012). The law emphasized outcomes, which led to more testing. More weeks were dedicated to teaching overall and evidence indicated that classroom time became reallocated to “teach to the test” (Parker, 2009). Now NCLB has been discarded and replaced by an equally controversial national agenda, Common Core State Standards (CCSS).

While some states are rebelling against a national curriculum set of standards like CCSS, many districts are seeing fresh hope and opportunity in the Common Core ideal. Linda Darling-Hammond (2013) of Stanford University wrote a guest blog on
Diane Ratavich’s page regarding her thoughts about the promise of new standards. She said she would have preferred a more thoughtfully constructed process to produce the current plan, but now that we have it in place, she hopes the standards of Common Core will be used more as “guideposts than straightjackets.” She elaborated that the CCSS do provide guidelines for higher order thinking. Additionally, the New York Times reports the American Federation of Teachers has come out in support of CCSS for its “promise and potential” (Rich, 2014).

Brophy and Alleman (2008) optimistically posit that as more policymakers become aware of the practical omission of social studies learning, more attention to this will be given. In spite of the narrowed curriculum, the National Council of Social Studies recommends, “integrating social studies throughout the day (to) ease competition for time in an increasingly crowded curriculum” (Berson, Bennett, & Dobson, 2009, “Position: B. Integrative,” para. 2). This does not mean dropping piecemeal additives of “a grab bag” nature (Berson et al., 2009, “Position: B. Integrative,” para. 3). Rather the social studies should be an opportunity to explore subjects in depth with access to “debates, discussions, projects, and simulations that require application of critical thinking skills” (Berson et al., 2009, “Position: D. Challenging,” para. 1). The Common Core State Standards at first glance seem to address only Language Arts and Mathematics as No Child Left Behind did. In fact, the idea behind CCSS—English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects is to plumb all sorts of primary and secondary sources for the rich variety of textual materials required to be conversant on many subjects (Harada & Coatney, 2013). Further, The Common Core standards rubric for 6-8 grade literacy in History and Social Studies has a rubric with
several categories, four distinct sections, and ten standards as displayed on Table 1, (Appendix A). Common Core Standard ELA-Literacy.RH6-8.9 asks students to learn how to analyze the relationship between a primary and secondary sources on the same topic. Using documents, artifacts, letters, journals, photographs and other primary sources, elementary and middle school students will begin to have a clear grasp on how history is created and interpreted. Further, by distinguishing between primary and secondary sources, students begin to understand the interpretive qualities contained within the telling of historical facts. This critical understanding of the past helps them find their own voice and form more grounded opinions needed for approaching research and broadening ideas in the social sciences and other academic disciplines.

Primary Sources are the Laboratories of Social Scientists

Burenheide (2012) likens using primary sources in the history classroom to using isotopes, neurons and microscopes in biology or physics labs. The tools required for exploring these artifacts and documents help to unmask what VanSledright (2002) calls the interpretive paradox. History is mostly presented to students in K-12 classrooms, and this is especially true in K-6 elementary schools, through textbooks, which contain pre-digested information, which leave the impression that the facts are indisputable. Davis (2001) concurs when he states that the textbook is an, “unquestioned source of pedagogic authority,” in schools, particularly elementary (p. 7). When students receive information from textbooks, the historical accounts are as if they were devoid of any interpretive qualities. The idea that multiple stakeholders might tell the account in different ways is rarely exposed to elementary school pupils. Over time, the dominant
cultural perspectives might shift and these shifts add weight and influence to the re-telling of historical narratives, which begin to revise the “facts” of history (VanSledright, 2002).

Part of the problem in revealing this concept is that teachers themselves may not have been given the tools to uncover the interpretive paradox. Diving into primary documents requires students to discard the reader’s “casual and distant” perspective and become searchers for possibilities, admit alternative views” and even become “companions to the writers” of these documents (Davis, 2001, p. 7). VanSledright (2002) develops his definition of the interpretive paradox by pointing toward, “the relationship between the putative facts at historians’ disposal from evidentiary documents, records and artifacts, and the interpretations of the past that result from the analysis of those facts” (p. 1090). In classrooms where the average social studies instruction time is 5-15 minutes per week, the presentation of history is as though there were news crews giving unbiased reports to be read uncritically and tested upon at the end of that reading. VanSledright (2002) points out that by virtue of this teaching style, the reality of how knowledge of the past is constructed and the necessary interpretive component remains, “invisible” (p. 1091). VanSledright says that as a push for national standards in public education continues the resounding need for students in K-12 to be exposed to processes that reveal the epistemology of the historical narrative are very important.

Davis (2001) describes the past is always in motion as new knowledge and perspectives are acquired. Moreover, there is no pristine source of information, only the interpretive process as it relates to primary and secondary sources. He writes, “history is not a once and forever matter” (p. 3). He notes much like VanSledright (2002) that
students tend to hold on to, “unsubstantiated or inadequate generalizations” (Davis, 2003, p. 6).

Activating Critical Thinking Through Simulations and Concept Maps

According to Burenheide (2012), merging primary document study with pedagogical theories of a constructivist nature can activate critical thinking, and engagement with the subject matter. He also refers to “contextualized simulations” in which “learning experiences can be framed” (Burenheide, 2012, p. 403). These organized games help to situate the students in the classroom into experiencing the past and developing a historical empathy, which is articulated throughout the literature as a necessary step for students to understand and build new knowledge about the past (Greene et al., 2014; Burenheide, 2012; Bisland, 2012; Parker, 2009; Brophy & Alleman, 2008; Wolk, 2003).

While discussing the pairing of historical fiction with textbooks to evoke historical empathy, Deanne Camp (2000) suggests the use of concept maps and Venn diagrams as a way to tease out comparisons between sources. Concept maps also help to organize ideas as they are being formulated (Vanides et al., 2005). Joseph Novak (1998) was part of a team that developed the concept map to help students and educators assess the learning process. Novak (1998) calls the concept map a “knowledge representation tool” (p. 3). These tools could be the stepping stones toward the “questioning habits of mind,” that Wolk (2003, p. 102), deems the hallmark of critical literacy in social studies.
Conclusion

“Dewey set out to rethink the relationship between school and society,” (Hickman & Neubert, 2009, p. 31). One hundred years later this quote still resonates as a powerful reminder of the ongoing nature of teaching and learning. The contributions of the early educational theorists at the turn of the 20th Century transformed our perceptions of learners from empty vessels to be filled to individual learners with the ability to construct meaning based on their prior experiences, understandings, and knowledge. Part of Dewey’s plan for schools incorporated libraries and museums as representatives of society with experts and facilitators, who can bring tools such as artifacts, documents, photographs, artworks, etc. as resources to examine, interpret, and incorporate into larger learning frameworks. The No Child Left Behind legislation and the reliance on high stakes testing, in general, at elementary schools and all of K-12 education has pushed this ideal to the backburner.

The Common Core State Standards, though some believe represent another pendulum swinging rather than permanent change, do offer some hope that teachers can once again take hold of their own classrooms to explore a few topics in-depth over the course of a year, which will provide the insights and rigor leading to the all-important critical thinking. Museums can provide a leadership role from field trips and outreach programs to artifact lending kits and teacher workshops. Museum educators are trained in constructivist learning and teaching strategies and are often eager to build relationships with local schools and teachers to provide support for classroom learning. Even though there are diffuse models when it comes to museum/school partnerships, the ideals and scaffolding exist to create any number of connections between institutions. Real world
experiences and connections to textbook learning provided by museums offer a variety of ways to engage learners at their individual levels. These opportunities build new knowledge beyond the classroom and set in motion the goal of all educators, formal and informal, to inspire in their students a desire to be a life-long learner.

As this research moves forward, museum educators might be able to develop exhibition tours and programming to intentionally stimulate and deepen conversation in the museum. These efforts will foster learning opportunities for visitors and school children. Further studies on the collaborative nature of learning might include models of school sites and museums collaboratively supporting each other in the investigation of how the traditional classroom and the museum setting could best partner to contribute to knowledge acquisition and retention of new information. Instead of seeing the two institutions as offering completely separate educational fare, teachers and museum educators could begin to build Dewey’s original dream school, where traditional classroom and museum exhibit space could exist side by side.
CHAPTER III

INSTRUCTIONAL METHODS AND DATA COLLECTION WITHIN A THEORETICAL FRAMEWORK

The Research Questions

In multiple ways, the aim of the yearlong museum-in-the-classroom project was to explore and support historical critical thinking in the social studies. The process spanned the academic year in order to cultivate the habits of mind that promote critical perspective-taking and creative problem solving: these skills are necessary to see the topics in the textbook as part of a larger story of the past and perhaps to learn overall from this new vantage point. The final outcome of a museum exhibition in the school’s multi-purpose room could stand as evidence of historical critical thinking in action. In fact, it should confirm Davis’s (2001) conclusion that historical empathy is, “imagination restrained by evidence” (p. 5). In addition, however, this process provided important lessons and yielded opportunities to expose students to an awareness of how knowledge is constructed. They were invited to wonder about who tells the stories of the past. The final exhibition which they created as a class directly and indirectly pointed to them as the interpreters of the information being generated, but the yearlong process was instrumental in shaping the students’ budding and (sometimes) incomplete understanding of the interpretive process.
The ultimate goal of the museum-in-the-classroom process is to test whether students benefit from this yearlong preparation and exhibition creation in their classroom. The overarching research question of this case study asks: How does the museum/school partnership benefit and enhance the upper elementary social studies learning of students?

The sub questions related to this study were as follows:

1. How do the instructional methods used by the museum education curator and the school site instructors assist/support students in making sense of social studies facts and information?

2. Can concept maps be useful tools for educators to assess learning?

3. Does the museum component (process and product) contribute to the students’ greater understanding of how history is told? (i.e., do students understand these questions: how does knowledge about the past come to be known—who tells history?)

   3a. What role does interpretation play in understanding the past?

   3b. What ways do historians and anthropologists “know” about the past?

   3c. In general does building a class museum help to uncover what VanSledright (2002) calls the “interpretive paradox?”

4. Do students become better informed of the entire class museum content after becoming a docent for younger grades and visiting parents?

5. Finally, can this instruction and experience foster critical thinking and historical empathy?
Setting

I partnered with a public school in Chico, California. The principal, Sandra Haney and the teacher of record, Diane Forest, were looking for some unique programs to attract parent attention to the school. For the last five years, I have worked with Diane Forest, building upon the museum-in-the-classroom scope and objectives each year. Each year we have tried different exhibition themes from Archaeology to Scientific Inventions, following grade level standards in history, science, and language arts. Ancient Greece was selected for this year’s theme. Ms. Forest teaches 6th grade. As museum curator, I work directly with her class over the course of one academic year. Essentially, the construction of the exhibit happens in the last month of the school year; however, it represents the culmination of the whole years’ worth of thinking and teaching with the museum exhibition in mind.

Demographics

The town of Chico is situated in Northern California three hours northeast of The Bay Area and three hours south of the Oregon border. With the CSU, Chico campus in the heart of the town, Chico is the intellectual and cultural outpost for a 75-mile diameter. There are five museums, three historic homes, multiple art galleries and nine theater and music venues, bringing varied cultural experiences to town. Other smaller rural towns regard Chico as the big urban center. The demographics of the elementary school closely mirror the ethnic breakdown of the city of Chico as Table 1 illustrates. Approximately a third of the school qualifies for the federal free or reduced lunch
Table 1

*Comparative Chart between Chico Demographics and School Site in this Study*

<table>
<thead>
<tr>
<th>Breakdown by Ethnicity</th>
<th>Chico actual</th>
<th>Percent</th>
<th>Site actual</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian or Alaska Native</td>
<td>1,321</td>
<td>1.52%</td>
<td>4</td>
<td>1.0%</td>
</tr>
<tr>
<td>Asian</td>
<td>4,328</td>
<td>4.98%</td>
<td>8</td>
<td>2.0%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>2,007</td>
<td>2.31%</td>
<td>13</td>
<td>3.2%</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>13,591</td>
<td>15.64%</td>
<td>37</td>
<td>9.2%</td>
</tr>
<tr>
<td>Multi-race / Other</td>
<td>10,802</td>
<td>12.43%</td>
<td>33</td>
<td>8.2%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>209</td>
<td>0.24%</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>White</td>
<td>68,234</td>
<td>78.52%</td>
<td>306</td>
<td>76.1%</td>
</tr>
</tbody>
</table>

*Note.* Data obtained from Chico Chamber of Commerce and Chico Unified School District.

program. The average median household income in Chico is $52,460 per year (City of Chico Economic Development, 2010; Chico Chamber of Commerce, 2010).

Methods

To understand the yearlong process and the results of the research, one needs to examine both the instructional intervention that was employed in conjunction with the data collection methods that were selected to measure the outcomes. Further, an interwoven theoretical framework drawing on strands from constructivism, historical empathy and the new museum paradigm which ascribes museums as places to work out meanings forms the intellectual foundation of the study. This framework shaped and guided the design of the project from instruction to data collection, helping to make sense of the overall impact of the study.
Instructional Methods

The yearlong museum/school curriculum was divided into four main instructional components; each with multi-layered processes to convey content and introduce sixth graders to critical thinking methods and inquiry. These components were as follows:

- **Semester One: Deconstructing the Museum**
  1. Classroom visits by museum education curator with lectures and hands-on activities.
  2. Class field trips to museums.

- **Semester Two: Content and Interpretation**
  3. Instructional games and simulations on social studies topics.
  4. Building the museum-in-the-classroom

**Thinking Like a Curator: How to Deconstruct a Museum**

The first two components from the first semester consisted of the following: one classroom presentation, two museum field trips and two follow-up classroom discussions on their field trip experiences. The class visits and field trips were intertwined to lay the groundwork for and reinforce the students’ ability to think critically about the past and to engage in and understand the interpretive process. These four instructional methods took place in the first semester. These methods were designed to introduce new concepts and new ways of thinking about museums and their purpose. This learning would contribute to their interpretive skills before undertaking the steps toward constructing a classroom museum. To illustrate in very real terms the activity of
interpretation, students were exposed to a step-by-step process of thinking about what museums are and what curators do.

The introductory lesson began with an historical overview of museums, from private collecting to public displays followed with an opportunity for students to reflect on the things they collect and why. The objective in this lesson was to convey the long history of Western European and American museums and the evolution from just showing off curious objects from far-away places to telling stories from many perspectives about a certain moment in time. Students were also asked as a group to list the museums they had visited with family or school. Additionally, students were asked which exhibitions were their favorites and offer some ideas about why.

A few weeks after this presentation the class went to the Turtle Bay Museum in Redding, CA. This was an opportunity to move beyond the traditional field trip. Students were asked to adopt new habits of mind and attempt to tease out the thinking that might be behind the exhibitions they were viewing. The exhibition areas included traveling and permanent exhibits. A customized set of tour questions were created (Appendix B) to help them think about what information students learned and how the exhibit space encouraged or discouraged that process. Following the field trip, I returned to the classroom to discuss observations and conclusions as a group, building their critical thinking and interpretive skills.

Students went on their next museum field trip to the Valene L. Smith Museum of Anthropology at CSU Chico. The tour was designed as a whole day of mini workshops to think further about how museum exhibitions are made and what works for the visitors who come to see them.
The workshop model had three parts:

1. Tour and evaluate museum exhibition. Typically, museums offer either guided tours or scavenger hunts on field trips. Both are designed to follow didactic models of instruction that convey indirectly that knowledge exists outside the learner, reinforcing the belief that history or other subjects are devoid of interpretation. To counter this standard methodology, students were handed a list of display titles on a grid matrix, (Appendix C). They were asked to speculate on the content in the exhibition and then see what reinforced or contradicted their expectations.

2. Critique interattives. Rotating through three 20-minute experiences, students were exposed to a movie about shipwrecks with follow-up questions, a mock restoration of broken pottery exercise, and a navigational mapmaking assignment. Students were asked to vote on their favorite one. By far the restoration of the broken plate was preferred, followed by the mapmaking. Least preferred and the most resembling a passive, didactic model of instruction was the movie with follow-up questions.

3. Design an exhibition panel. Students were given a packet (Appendix D) of prepared label text without titles, construction paper, and a 3ft piece of craft paper. Students were asked to discern the overall topic based on the text, design a layout for the assigned exhibit topic, and choose a color theme of their choice. Then they could select artifact images on a table that represented their topic. They had to write an overall title for their exhibit, pair images with label content, and write label titles. During the sharing process, students discovered that each topic had been distributed twice, resulting in two interpretations of each topic. Often titles were similar, but sometimes strikingly different.
Color stories were mostly quite different and revealed how much this can influence the subject matter or one’s perception.

Retooling the museum exhibition field trip to be less about fact-finding and more about making connections to big ideas is essential to help students think critically and adopt historical empathy skills. The overall experience of this museum field trip lesson aided in the understanding of how historical facts can be told from different perspectives and contributed to their budding awareness of perspective-taking and the interpretive process.

The first semester’s instructional methods ended with a two-part follow-up classroom activity (Appendix E). Part One asked students to rank book titles without seeing the cover images. Then the actual books were circulated, resulting in students changing their original rankings. Part Two of the activity gave students titles to real exhibits and asked them to discern what the exhibit was about. Some titles were easier to decipher, such as *Written in Bone*, a Smithsonian Institution exhibition on forensic anthropology. But, for example, *Farmers and Builders*, an exhibition on ant colonies at the Chicago Field Museum was not at all transparent to this group of students. At the same time as unmasking the processes for interpretation and exposing students to multiple perspectives in the telling of the past, it is valuable to have a concrete way to depict the museum design process. Relating museum title and label writing to a book is a simple parallel to a very familiar written structure in their lives. Expanding on the book model, later in the year when constructing the museum-in-the-classroom, the teacher equated their sections with chapters in a book. This was a convenient concept to adopt.
Thinking Like a Curator: Content and Interpretation

The second semester’s instructional methods also had two components: instructional games and simulations and finally building the museum-in-the-classroom. The first instructional game was a 60-minute interactive lesson, called The Treasure Trove Challenge (Appendix F), designed to deepen and hone the students’ interpretive decisions and narrative writing abilities. In teams, students create a mini desktop museum on ancient Egypt, using given artifact images and brief descriptions. There are time limits and multiple interpretive decisions that students must make during the challenge. What becomes apparent in this process is that most artifacts can fit into multiple categories. In this way, they begin to experience the interpretive process as context specific. The Treasure Trove Museum activity is an instructional tool I developed to help students confront the concept of perspective-taking and the importance of context. The experience of realizing that one object might stand in for multiple aspects of Egyptian society, such as politics, beliefs, or daily life, aids the process of grasping that an object is subject to an interpreter’s voice. Artifacts do not represent only a solitary viewpoint, but are dependent on the context in which they are presented. The mini museum gave students an opportunity to apply the textbook learning on Egypt in a simulated real-world context. The Treasure Trove Museum Challenge is part creative endeavor and part assessment of their learning and ability to transfer these strands of understanding into one cohesive product. It also served as a dry run or rough draft for the culminating product of the museum-in-the-classroom exhibition on ancient Greece that would open in a few short months.
Greek Simulation

The second instructional game enhanced the student understanding of ancient Greek life and society. The teacher and her student teacher taught the team-building lessons to the class with the Interact (2007) *Greeks: A Simulation of The History and Culture of Ancient Greeks*. The focus was on the political structure of the city-states or *Polis*, but many aspects of Greek ancient life were revealed. Though the program did not explicitly mention perspective-taking, the practice of being a part of a simulated reality, emphasizes the qualities required to begin to adopt the understanding of another culture. By living an hour each day as a Greek citizen in one of the city-states, the students could begin to appreciate what life in ancient Greece might have been like. This appreciation forms the rudiments for historical empathy. I observed the students and the student teacher during one day of the simulation to get a feel for the praxis of this teaching method.

Building the Museum

The final instructional method was the actual building of the classroom museum. The students selected the themes and exhibit topics based on a list of suggested topics by the teacher. Students were asked to research and write a three-page paper on their topic. Students then transformed each paragraph into topic labels and paired them with homemade replica artifacts or images. Museum studies students from CSU Chico assisted the class with the assembly and painting of the panels as well as the mounting of labels and artifact shelves. The research, design, and installation represent the culmination of an entire academic year of learning about museums and the interpretative
process. The social studies topic of ancient Greece became the subject with which their newfound skills in historical perspective-taking and interpretation could take shape.

The Theoretical Framework for the Project

A combination of constructivist learning theory, historical critical frameworks, and the museum pedagogical construct, which describes museums as being places to work out meanings, create the theoretical underpinning for the museum-in-the-classroom project. The museum-in-the-classroom concept draws on the principles of constructivism as conceived by early 20th Century educators/philosophers, including Jean Piaget, John Dewey, Lev Vygotsky and Maria Montessori coupled with the more contemporary museum educators, like George Hein, Eilean Hooper-Greenville, Lynn Dierking and John Falk, who also align with constructivist theories.

Simply put, constructivists believe that knowledge is a co-created act that happens inside the learner with external guides in the form of teachers, primary sources (e.g., artifacts or documents), and the learning environment; in this case, classroom and museum spaces. Artifacts and teachers can act as bridges to new learning, following Vygotsky’s theory of the zone of proximal development. A carefully constructed classroom environment with hands-on materials, such as Dewey and Montessori proposed, further facilitates constructivist learning. Museum galleries have also been identified as providing a constructivist learning space. The museum-in-the-classroom project unites these constructivist principles from gallery to classroom by building a classroom museum for 6th grade students and the whole school to gain knowledge from.
Understanding the museum-in-the-classroom project requires additional framing beyond purely constructivist theory. As students are asked to adopt what Barton (2012) calls “doing history” (p. 130), he identifies three components for this process: perspective-taking, agency, and interpretation of evidence. These fit into larger educational goals for the social studies and history education, which include the development of historical empathy (Davis, 2001) and the unmasking of the interpretive paradox (VanSledright, 2002). Historical empathy is really a form of perspective-taking that compels learners to understand “an historical character’s frame of reference” (Yeager & Foster, 2001, p. 15) and should not be confused with having sympathy for or identifying with the individual’s feelings. Moreover, “historical perspectives are not wanting to be found,” like an object in a museum, but they are carefully constructed based on compilation of data. Diving into historical documents requires students to discard the reader’s “casual and distant” perspective and “become searchers for possibilities, admit alternative views” and even to become “companions to the writers of these documents” (Davis, 2001, p. 7). Prior knowledge can be a sticking point, however. It poses a kind of Catch 22. You need deep historical knowledge to really have the perspective needed to be critical; however if students are just given dates and facts or pre-digested materials, students will think the information they are being told is without bias or an interpretive quality. VanSledright (2002) refers to this phenomenon as the interpretive paradox. In his work with fifth graders on what happened to British settlers in Jamestown, he found students struggled to accept that the information in the textbook could be questioned. He likened it to them thinking film crews had been there reporting on the evening news. Davis (2001) concur that students tend to hold on to,
“unsubstantiated or inadequate generalizations” (p. 6) even when presented with other evidence.

Alan Marcus (2008) says in his article *Rethinking Museums’ Adult Education for K-12 Teachers* that the main goal for museum education is to help schools and teachers teach beyond the content of a particular subject and into modes of inquiry specific to the subject matter at hand. Be it science, history, art or any other subject matter, delving into the content alone does not equip students with the tools necessary to make meaning nor give them an understanding of how knowledge is constructed. Steven Conn (2010) in his book, *Do Museums Still Need Objects*, speaks to the museum’s changing role from “just another narrative” to a place “to work out meanings” (p. 7). He develops this thought by stating that the museum is an “intersection of objects, ideas and public space” (p. 5). It is in this intersection one comes to know the way in which knowledge is produced. While it is a common academic, post-modern understanding that knowledge is not intrinsic to an object or another primary source itself, rather it is contextually-based and built upon with scholarly interpretive skill, this idea is not readily taught in K-12 classrooms, nor do most teachers attempt to impart this information to their students. Time constraints, reliance on textbooks, and lack of confidence in this open-ended approach of teaching social studies or any subject are just a few factors that influence teacher choice in this matter. Further, finding ways to “move instruction beyond fact recall” and toward “advanced habits of mind, such as critical thinking and analysis” (Sturtz & Hessberg, 2012) are key areas that contemporary social studies education strives to achieve. Barton (2012) and Smagorinsky (2001) both speak to the fact that retention of subject matter happens more completely when students must ingest
and transform it. Barton (2012) elaborates that having “creative outlets” (p. 121) facilitates construction of original ideas and engagement with curriculum. Having a creative space to construct, interpret, and transform school subjects/knowledge is precisely the ultimate goal of building a museum-in-the-classroom and demonstrates this interwoven theoretical framework in action.

Having a multifaceted theoretical framework, which includes the tenants of constructivism, the tools for critical perspective taking, and the use of museum space to work out meanings, guides the instructional methods developed for the museum-in-the-classroom. The framework influenced and informed the construction of the data collection methods as well, pointing the way toward an analysis of the impact and importance of the research.

Data Collection Methods

To analyze the learning that takes place in the students and to some extent assess the effectiveness of the instructional methods listed above, three data collection methods were employed as well. These methods included concept maps, a Likert scale, and interviews with students and teachers. Each one of these methods offered insights into the individual and collective prior knowledge and learning which contributed to the understanding of the effectiveness of the museum-in-the-classroom model for enhancing social studies instruction in upper elementary education.
Concept Maps Reflect Metacognitive Processes

The concept map was the first data collection instrument used in the study based on three instructional interventions: a classroom presentation on the history of museums; a field trip to the Turtle Bay Museum in Redding, California; and a field trip to the Valene L. Smith Museum of Anthropology in Chico, California. Each student created his/her individual concept map beginning with a visit from the museum curator. Students were asked to answer the question, "what is a museum?" This was the center bubble of the concept map, upon which students added their new ideas, following each of the first three instructional interventions. The concept map provided insight into the students’ connections and understanding of how the past is told and how exhibitions are constructed and was designed to ascertain the connections students were making about their exposure to new understandings of how the past is told and how exhibitions are constructed.

The concept map tool helps student and educator alike assess the building of knowledge and the learning process taking place. Vanides et al. (2005) suggest identifying key terms from the lessons to measure whether the desired instructional material was successfully conveyed. For each of the three times the students filled in the concept maps, I pre-identified key terms (Appendix G), as desirable kernels of learning I hoped to transmit, although I did not explicitly state these terms to the student. Of course, other aspects of their learning was revealed that reflected, “their own idiosyncratic concept meanings from regularities observed in events or objects” (Novak, 1998, p. 41). Blending Vanides et al.’s (2005) and Novak’s (1998) styles seemed essential to gathering
both what information from the presentations and field trips were entering in the students’ minds as well as seeing their own connections forming from the experiences. The hope was that the data gathered would illustrate the students’ growing understanding of what a museum is and serve as a reflection of the students’ own metacognitive processes for understanding their learning.

The second data collection instrument (Appendix H) was based on the research recently conducted in the Crystal Bridges Museum of American Art to understand student critical thinking skills and historical empathy (Green et al., 2014) in relationship to this project. The Likert scale was administered to the class once right after the exhibition was installed. Students were taught how to use this perception instrument by being shown two examples that were unrelated to the questions, so they could get a feel for how to express themselves this way. Rating scales, such as the Likert scale, can be used as a retrospective tool serving as a summative evaluation to assess an experience or knowledge on particular subject matter (Thorndike & Thorndike-Christ, 2010).

Four questions were included in the scale and directly aimed at uncovering their perception of their own perspective-taking skills. In this way their degree of historical empathy overall could be assessed. The questions were as follows:

Questions to get at historical empathy:

1. I have an understanding of how ancient Greek people thought, lived, and felt.
2. I can imagine daily life in ancient Greece
3. When looking at the Greek pottery with people on it from the museum collection, I try to imagine what the ancient Greek people were doing and thinking about?
4. When I see the museum exhibits that me and my classmates constructed on Ancient Greece, I can imagine and understand how people lived and felt 3,000 yrs. ago.

Each of the questions had a five-point scale with number five indicating the best understanding and number one indicating the least understanding of the concept.

The third data collection method was interviews of students, the teacher of record and her two student teachers. Interviews were conducted to find out what students and teachers were thinking about the learning process.

Students were interviewed twice, asking the same questions (Appendix I). The first interview was conducted over two days on April 22 and 23, 2014. This time period was selected as it was after the students had written their research paper on their chosen topic in ancient Greece, but before the actual construction of the classroom museum. This was significant because one can suppose students are familiar with their own process and information, but not so with the topics of their fellow classmates. Students were interviewed to determine their knowledge of their own topic and whether they had any idea about other students’ topic areas. Students were also asked questions about their understandings around the interpretation of the past. The second round of interviews were also conducted over two days on May 19 and 20, 2014. At this time, the exhibition had been up a full week and students had gone through “docent training.” These interviews with the students explore their understanding of the past, their perspective-taking skills, and the expanded learning that happens once they become docents for visitors to their museum on ancient Greece.

This class had two student teachers this year and each one contributed new learning and ideas to this project. Todd Larson oversaw a class simulation on the Greek
polis system which contributed to student understanding of daily life and political realities of the city-state and early democratic ideals that emerged from Greece.

Clara Irving was the second student teacher. She is an art history student and became very excited by the Greek pottery artifacts that were brought into the classroom. Students learned about the significance of the stories that the pots told. She taught them some basic pottery making techniques and they made their own replicas to display.

Both student teachers were interviewed for their impressions of the whole year-long process of building a museum-the-classroom as well as their observations of their own contributions to student learning vis-à-vis each of their units of instruction.

At the end of the school year, I interviewed Diane Forest to uncover her reasons for returning to this museum-in-the-classroom process year after year. The interview inquires about her assessment of program’s value in her classroom as well as the overall museum/school partnership.

Purpose of the Multiple Methods

The multiple methods of instruction and data collection were created to enhance the learning process and discover how effective the results were. With careful design to assist students in the historical critical process and to encourage them to think like curators the yearlong methods of instruction and ultimate collection of data shed light on the influences and outcomes the teaching and learning process has on social studies instruction. The process of making a museum-in-the-classroom not only offers a window into the perspective–taking narratives that historians and anthropologists create, it also provides a real-world product for the learning to be made visible.
CHAPTER IV

DATA ANALYSIS

I began my study with the aim of understanding how does the museum/school partnership benefit and enhance the upper elementary social studies learning of students? To that end, I wanted to capture the students learning and thinking, and indeed, their own metacognitive behavior vis-à-vis the instructional methods that were used to impart the content both in social studies and in how to research, design, and install a museum exhibition. Could students make sense of the facts, stories and information in ways that contributed to their better understanding of the historical process as well as gain greater appreciation for the past having multiple perspectives. By becoming interpreters themselves, would they gain new awareness of the interpretative aspect to the retelling of the past?

The museum-in-the-classroom project examines whether students benefit from this yearlong instructional intervention and exhibition production. The primary research question of this study asks: How does the museum/school partnership benefit and enhance the upper elementary social studies learning of students?

The sub questions related to this study were as follows:

1. How do the instructional methods used by the museum education curator and the school site instructors assist/support students in making sense of social studies facts and information?
2. Can concept maps be useful tools for educators to assess learning?

3. Does the museum component (process and product) contribute to the students’ greater understanding of how history is told? (i.e., do students understand these questions: how does knowledge about the past come to be known—who tells history?)

    3a. What role does interpretation play in understanding the past?

    3b. What ways do historians and anthropologists “know” about the past?

    3c. In general does building a class museum help to uncover what VanSledright (2002) calls the “interpretive paradox?”

4. Do students become better informed of the entire class museum content after becoming a docent for younger grades and visiting parents?

5. Finally, can this instruction and experience foster critical thinking and historical empathy?

I employed three data collection methods at different junctures in the yearlong process to answer these questions. The first method was a concept map and was conducted in the first semester. It was designed to collect visible evidence of student meaning-making after my presentations, museum field trips and exhibit design workshop. The second method was a Likert Scale questionnaire designed to determine the students’ degree of historical empathy or perspective-taking ability. It was administered in the third quarter of the second semester. The third method for data collection was interviews. Students were interviewed twice in the second semester; once after their research paper on their exhibition topic had been written, but before the museum-in-the-classroom was installed; and once after students had become docents when the museum-in-the-
classroom had been completed. The teacher and her two student teachers were interviewed at the end of the year.

**Concept Maps Show Meaning-Making Process**

The concept map was the first tool I employed to collect data on what components of my instructional intent were transferring into thoughts and meaning by the students. In particular, I asked them to answer the question: *What is a Museum?* Over the course of the first semester, following my presentations and two museum field trips, students added their knowledge and new meanings of this question onto their concept maps. All three times the students added to the original concept map, revealing a building of understanding and nuanced meaning-making on the part of each individual learner, as Figure 1 illustrates. Seventeen students from a class of 25 received parental permission to participate fully in the study. Throughout the school year, only an occasional absence lowered the participation rate.

**Tally of Key Terms Identifies Conferred Concepts**

For each presentation or museum experience, I created a set of key terms (Appendix G) that reflected the ideas and concepts I wanted to convey. The learning in the first semester was to form the building blocks of the students’ interpretive skills. I wanted to record and analyze their recognition of these central ideas. The first classroom presentation emphasized the origin of museums and their overall purpose in society. The field trips to the Turtle Bay Museum in Redding, California and the Valene L. Smith Museum of Anthropology at CSU, Chico emphasized the techniques and styles of
Figure 1. Sample student concept map.

curators to effectively communicate stories about the past. The key terms expand and become more nuanced with each successive exposure to the information that answers the question *What is a Museum?*

In evaluating the students’ assimilation and understanding of these key terms, I created a tally marking system of the key terms. The tally marks are based solely on whether a student created a bubble on their concept map with the key term or close approximation to that term. In general, I did not allow substitute words to be counted in the tally for the key terms. In particular, the key terms *artifact, primary document,* and
anthropology I deemed too important to the museum-in-the-classroom learning experiences that I did not mark other words that might approximate the meaning of these words. I wanted to document the use of these three terms as is, though in truth, it may not truly preclude their understanding of the past and its interpretive quality. For example, students did list on their concept maps terms like old things, monumental stuff, object, ancient item, culture or study. These I tallied as Other. In other cases, I did allow substitutions. Hands-on and interactive I allowed to stand -in for each other, whereas the more broad term discovery was placed in the Other category, though it might have a connection to a hands-on experience. If a student made a bubble that said a place to learn about the past, for instance, they would receive two tally marks; one for place of learning, and one for the past.

The Role of the Key Term “Other”

The most plentiful category in the first round of tally marks for the concept map turned out to be Other. Other was not a key term that counted toward one’s mobility from one status to another. Students had many ideas about what a museum was and their knowledge reached more expansively in directions beyond the intent of the instructional design. Many terms indicated an understanding of museum types as well as possibly other first-hand experience with museum going. Some examples include: art, Stone Age, diorama, sculpture, tours, monumental stuff, family, fossils, fun, confusing, mummies, and truth. These all were tallied as Other. One student noted zoos are museums too in a concept map bubble. This idea came directly from my presentation on museum collection
and preservation practices, but because I had not pre-selected the word zoo as a key term, it received a tally mark in the category of Other.

In the next two rounds of concept mapmaking, different terms overtook the Other category in highest number of tally marks. However, it was always a valuable category to assess the additional thoughts of the students. During round #2, which occurred after the field trip to Turtle Bay Museum, some students created bubbles on their concept maps for unique aspects to this museum’s exhibits, such as: Indians, Pioneers, Fish and 3-D exhibits. These particular comments were tallied under the Other category. Likewise, during round #3, which occurred after the trip to the Valene L. Smith Museum of Anthropology, students created bubbles that were display specific, emphasizing details from the Shipwreck Archaeology exhibition. Again, these were assigned to the catch-all term of the Other.

Key Term Usage Reflect Intended and Unintended Outcomes

In general, the tallies of the key terms correspond to my intended outcomes and instructional emphases. I was surprised by the persistent lack of student naming of the terms, anthropology, primary documents and perspective taking. These are important aspects to my thinking about their thinking, so it was a surprise to see this result. I was also surprised to see how quickly they reflected the terms interactives, eye-level, and hook in their maps. I used all of these terms equally when I came to the classroom to present. The concepts of anthropology, primary documents, and perspective taking, in addition to representing new ideas, are more abstract terms and as such harder to grasp. Further, the terms interactives, eye-level, and hook are all terms much more practical to
use in decoding what a museum is. Further, these practical terms were emphasized by the teacher and student teachers as they recapped and digested my class presentations.

**Applying a Rubric to Understand Range of Performance**

Accompanying the tally mark system was an ordinal-gradation rubric to quantify the number of key terms incorporated in each student concept map. In this way, I was able to chart the movement from novice to expert by each individual student. This system of tallying and only allowing for minimal substitution of terms did not prohibit any student from progressing from novice to expert status. In other words, no students were ultimately kept in a lower group because of my decision not to substitute key terms. Table 2 illustrates the rubric I designed.

**Table 2**

*Concept Map Rubric*

<table>
<thead>
<tr>
<th>No New Learning</th>
<th>Novice</th>
<th>Intermediate</th>
<th>Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetition of same one or two ideas. No building of concepts visible.</td>
<td>Partial understanding of museum role and function.</td>
<td>Expresses multiple ideas about what a museum is, but thin in depth.</td>
<td>Nuanced articulation of museum’s purpose and meaning.</td>
</tr>
<tr>
<td>0-2 Key Terms</td>
<td>3 Key Terms</td>
<td>4-6 Key Terms</td>
<td>7-9 Key Terms</td>
</tr>
</tbody>
</table>

After applying the ordinal gradation rubric to the student concept map results, I recorded the following results, shown in Figure 2. Three students were ranked below three key terms, illustrating no new learning regarding what a museum is. Of these three, one exhibited two key words, while the other two used zero key terms in their concept
Figure 2. Concept Maps Document Students Learning of Key Ideas

maps over a semester’s worth of exposure and discussion. One student remained at Novice status, which she attained after round two, meaning she acquired three new key terms from the class presentations and first field trip, but did not progress to more in-depth or nuanced understandings about the museum’s role. Six students achieved the Intermediate status. Intermediate could be attained within the range of four to six key terms being recorded. Four of the six students achieved the high Intermediate mark with full 6 points, while one remained at four and the other at five. Each student who achieved Intermediate status, progressed each round by adding one to three new key terms per session. Seven students achieved Expert status by the end of the three concept map recording sessions. All three of them achieved this level in the final round. No one was an Expert before the last round of recording. Four students of the seven scored seven points
in the minimum range of Expert status. Two scored eight points in the mid-range of Expert status; one scored nine points as the highest score for Expert.

**Students Acquire Knowledge in a New “Domain”**

As students acquire knowledge in a new “domain,” Novak (1998) contends, “learning the definitions and meanings for concepts becomes easier and easier” (p. 56). This would seem to be borne out in the results that show that nine of 17 students really had no context for learning the new museum terms and ideas in the first session I presented. By the end, however, the results show steady progress over the semester. The majority of students become Expert or high Intermediate performers when it came to understanding a nuanced meaning and purpose of museums.

**Personal Meaning Maps vs. Concept Maps**

When looking at all of the concept maps for each individual and the whole class, I am reminded of the work that Falk and Storksdieck (2005) did in regards to personal meaning maps (PPM) with museum visitors. They explain that the PPM is not a tool seeking right answers, but a device to record an individual’s starting point with ideas and perceptions about a concept, “and measures the quantity, breadth, depth, and quality of responses” (p. 167). While Falk and Storksdieck could quantify the specific growth in factual knowledge from the time a visitor entered and filled out a questionnaire to the time the visitor exited and refilled out the questions, they also found that other areas of growth in experiences or personal, idiosyncratic knowledge might be impossible to account for in the informal learning process.
My rubric assessed and documented the key terms I designated as essential indicators of student learning and literacy in the museum field. The rubric did not take into account the possible personal experiences or obstacles for assimilation of this new learning. The three students who never progressed beyond the zero learning zone, did have plenty of concept map bubbles filled in, though they did not create a clustered hierarchy in their thinking; all circles emanated from the center and not off of each other. The one student who did have two of the key terms represented (the past and a place to learn), repeated these ideas in various ways without forming deeper connections. The other two who never utilized any specified terms, did illustrate awareness of museum content and their own preferences for exhibitions they visited. These might have been valued by Falk and Storksdieck’s research and use of the PPM.

Class Concept Map – A Good Idea

Novak (1998) also likens the concept map to the proverbial story of the blind man describing the elephant. One might not realize all the sum of the parts if described separately. In addition to a concept map being able to document the learning of the individual learner, Novak suggests using it as a tool for measuring the sum total of class learning. In fact, he recommends the construction of a team map so all learners receive the benefit of everyone’s thinking. In retrospect, I think creating a class concept map might have assisted everyone in the class by reinforcing the new key terms. Adding a group process might have helped some to incorporate the key terms and the ideas they represent, thereby deepening the answer to the question, what is a museum?
Using a Likert Scale for Student Self-reporting

To assess and understand the students’ sense of their ability to apply the qualities of historical empathy as defined by Yeager and Foster (2001), I devised a Likert Scale (Appendix H) with four questions. The first question was, “I have an understanding of how ancient Greek people thought, lived, and felt.” On a scale of one to five, students were asked to respond with 1 being no understanding; 3 being some understanding with questions still; 5 being a good understanding and things they could tell you. Two and four were numbers in between along the continuum of choices. Out of 16 respondents seven responded with a four and eight with a five. Only one student responded with a two.

Question #2 stated, “I can imagine daily life in ancient Greece.” Again on a scale of one to five students were asked to assess their historical empathy regarding life in ancient Greece. The results were that six students gave themselves a five for good understanding of daily life. Four students recorded themselves as slightly below that mark with a four on the scale rubric. Three students said they had some understanding of life back then when they selected number three on the scale. Finally, two students selected number two on the scale.

Question #3 asked, “When looking at the Greek pottery with people on it from the museum collection, I try to imagine what the ancient Greek people were doing and thinking about.”

Eight students responded with the five on the scale, indicating they had a good understanding of how the ancient Greeks felt and thought. One student put herself at a four on the scale. Four students reported some idea of what ancient Greeks thought by
selecting three on the scale. Two recorded two and one student recorded himself as not being able to imagine what ancient Greeks felt by selecting one on the scale. A total of eight or half of the respondents saw themselves less confident with this question. In fact, seven put themselves between some idea and no idea of what ancient Greeks thought or felt. Of the questions, attempting to measure the students’ confidence with and understanding of perspective taking this question received the lowest confidence.

With the final question students were asked to evaluate their understanding of how people lived and felt 3,000 years ago after they constructed their museum in the classroom. Seven students gave themselves a five, indicating they had good understanding. Six students gave themselves a four on the scale rubric. Three rated themselves as having some idea of how the Greek lived and felt. The student confidence was very high in regards to their reporting of their ability to imagine and understand how people in ancient Greece lived. The overall results of these questions are represented in Figure 3.

Question #3 referred directly to an artifact and its interpretation. This is the question where students’ confidence plummeted. When referring to direct experiences from the Greek simulation or the construction of the museum in the classroom portion of the instruction, students had more sense of their expertise, but when asked to evaluate their understanding of a Greek pottery piece, they expressed a lack of capacity. In truth, though students were exposed to the interpretive process in various contexts, this is still a learning curve and does not seem like a fully realized portion of their skill set.
Overall, the response to the first and last questions gave a strong indication that students felt confident in their historical empathy and understanding of Ancient Greek life. However, the middle two questions, which were designed to tease out more specific understandings of their historical perspective taking skills, showed a little less confidence in their understanding. Clearly, when working with artifacts or primary documents of any nature, the students revealed their lack of certainty since with question three the confidence reflected a sharp drop on the scaled response. I also read these results as an acknowledgement on behalf of the class at just how hard the work of historical empathy is. Students took their job seriously and recognized this is not a skill one can just memorize. It takes practice.
Student Interviews

I interviewed the students twice. The first interviews took place on April 22 and 23, 2014, after students had completed their research for their individual displays, but prior to installing the classroom museum. The second set of interviews occurred on May 19 and 20, 2014. At this time, the museum-in-the-classroom had been built and students had been giving docent tours for more than a week. I followed a set of interview questions (Appendix I), but occasionally asked for a clarification or pursued a thought from their response.

My objective in the interview phase of data collection was to examine their familiarity with the subject area of ancient Greece based on their research and whether their knowledge expanded to include the other topics in the class museum after having been a docent. I also wanted to understand how the students approach the past. What success had I had in conveying the interpretive aspect of history? Were they incorporating the idea of perspective-taking in their overall meaning-making of social studies or past lifeways?

To analyze the interview transcripts I devised a coding system (Dewalt & Dewalt, 2011; Leinhardt et al., 2002) that could reveal emergent data. These emergent patterns, in turn, allowed me to label and identify abstract concepts and link the ideas of multiple informants so I could see a pattern of understanding across the class. I created a short code key to categorize and organize the important quotes under the big ideas and questions of my research. The emphasis of the coding was to capture quotations from the students about their experience and knowledge regarding their understanding of the past.
The categories emerged from their answers to my questions and reflected two of my research questions:

4. Do students become better informed of the entire class museum content after becoming a docent for younger grades and visiting parents?

5. Finally, can this instruction and experience foster critical thinking and historical empathy?

The coded categories and their corresponding abbreviations are listed in Table 3.

<table>
<thead>
<tr>
<th>Category</th>
<th>Abr. Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspects of Interpretation</td>
<td>AOI</td>
</tr>
<tr>
<td>Being the Docent</td>
<td>BTD</td>
</tr>
<tr>
<td>History is: Facts and Dates</td>
<td>FAD</td>
</tr>
<tr>
<td>History is: People and Stories</td>
<td>PAS</td>
</tr>
<tr>
<td>Knowing the Past</td>
<td>KTP</td>
</tr>
<tr>
<td>Knowledge of All Topics</td>
<td>KAP</td>
</tr>
<tr>
<td>Knowledge of Own Topic</td>
<td>KOT</td>
</tr>
<tr>
<td>Making Sense of Past</td>
<td>MSP</td>
</tr>
<tr>
<td>Other</td>
<td>OTH</td>
</tr>
</tbody>
</table>

Several categories were directly related to how the students’ experience as a docent influenced their knowledge of the overall museum theme of ancient Greece. These were Being the Docent, Knowledge of All Topics and Knowledge of Own Topic. When I assigned these categories to transcript quotes, I was indicating how students experience
with a being a docent influenced their knowledge or understanding of the exhibition topics. It could also signal another kind of positive or negative experience that docenting provided them.

The categories of Aspects of Interpretation, History is Facts and Dates, History is People and Stories, Knowing the Past and Making Sense of the Past emerged as different facets of the question concerning a student’s ability to understand the past from multiple stakeholders perspectives. These four categories capture student comfort and familiarity with the concepts of historical empathy and critical thinking. Aspects of Interpretation (AOI) might be assigned to a statement like, “I learned a lot from the artifacts.” Whereas, a statement like, “Now I understand how Greek culture influenced my everyday life,” would be categorized as Making Sense of the Past (MSP). History is Facts and Dates (FAD) and History is People and Stories (PAS) are categories that more directly address the conflict between seeing history as a series of undisputed facts and dates versus a series of perspectives that can change over the ages as we understand more fully another historical character’s perspective on a moment in time. Knowledge of the Past (KTP) became a code I used only twice. It signaled when a student expressed a deep inward connection with the past. For example, Hannah remarked on her chosen topic of Artemis in this way, “My mom kind of blessed me with Artemis when I was born. So I’ve always known about her. It was the only choice. I had to study her.” And the other time I assigned this code was when Zane said, “I feel like I know a lot about ancient Greece. It will stick with me for seventh grade.”
Codes FAD and PAS Reveal Students’ Struggle with Interpretive Process

The coding of Facts and Dates (FAD) versus People and Stories (PAS) revealed much about the confusion around the interpretive process and persistence of a belief that history consists of putative facts to be memorized and restated.

In the first interview cycle, 16 students took part over two days. Six students gave FAD as their understanding of how the past can best be understood. Five students gave PAS as their response to their understanding of history; four students reported that the past is a combination of facts and dates along with people’s stories. Figure 4 indicates the results for interview cycle one.

![Interview Cycle 1 Pie Chart](image)

**Figure 4.** Majority of students include FAD as essential to understand the past.

In the second interview cycle, 13 students took part over two days. Two respondents gave FAD as their answer to how they see the past. Seven indicated PAS as
their mode for understanding the past; four students responded with the combination of FAD and PAS.

Figure 5 indicates results for second cycle of interviews.

![Interview Cycle 2](image)

*Figure 5. Students in class shift perspective for understanding the past.*

At first glance, the evidence indicates a strong shift in the class’s understanding of historical past as being a collection of dates and names to a more nuanced understanding of people and their stories. Indeed, when looking at the individual respondents, no students who initially selected people and stories as their understanding of history changed their opinion to facts and dates. Furthermore, three students who initially indicated facts and dates as their understanding of history changed their minds and explained history as stories about people by the second interview. Additionally, two students who had stated in the first interview that the combination for people, stories,
facts and dates were the way that history is told, had changed to a more firm camp on either side. One shifted to FAD while the other to PAS. Finally, two students who were aligned with FAD in the first cycle of interviews switched to a combination of PAS/FAD by the second cycle. Table 4 shows responses from students with their pseudonyms.

Table 4

Comparison of Student Responses on How They View History

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Interview 1</th>
<th>Interview 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collin</td>
<td>FAD/PAS</td>
<td>FAD/PAS</td>
</tr>
<tr>
<td>Cynthia</td>
<td>FAD/PAS</td>
<td>PAS</td>
</tr>
<tr>
<td>Derek</td>
<td>FAD</td>
<td>FAD/PAS</td>
</tr>
<tr>
<td>Drew</td>
<td>PAS</td>
<td>N/A</td>
</tr>
<tr>
<td>Hannah</td>
<td>FAD</td>
<td>PAS</td>
</tr>
<tr>
<td>John</td>
<td>PAS</td>
<td>PAS</td>
</tr>
<tr>
<td>Jose</td>
<td>FAD</td>
<td>FAD/PAS</td>
</tr>
<tr>
<td>Lydia</td>
<td>FAD</td>
<td>PAS</td>
</tr>
<tr>
<td>Madison</td>
<td>PAS</td>
<td>N/A</td>
</tr>
<tr>
<td>Olivia</td>
<td>FAD/PAS</td>
<td>FAD</td>
</tr>
<tr>
<td>Oscar</td>
<td>FAD/PAS</td>
<td>FAD/PAS</td>
</tr>
<tr>
<td>Ryan</td>
<td>FAD</td>
<td>PAS</td>
</tr>
<tr>
<td>Samantha</td>
<td>PAS</td>
<td>PAS</td>
</tr>
<tr>
<td>Sophia</td>
<td>FAD/PAS</td>
<td>N/A</td>
</tr>
<tr>
<td>Zack</td>
<td>PAS</td>
<td>PAS</td>
</tr>
<tr>
<td>Zane</td>
<td>FAD</td>
<td>PAS</td>
</tr>
</tbody>
</table>

Even though the results strongly indicate a shift in the student’s thinking of history as strictly dates and facts to a more interpretive and perspective-taking style, the interviews show that many students felt conflicted about accepting the past as an interpretive act. Some excerpts from the interviews with specific students illustrate this point.
Jose in his first interview stated that facts and dates were the best way to understand history. When I asked him if he could recall any, he said, “I can’t remember them actually.” In his second interview he was resigned to it being, “both really.”

Lydia responded initially that facts and dates were the best way to tell history. However, she qualified her answer with the following remark, “Not necessarily dates, but facts. A story might be like a name of a person who lived with a biography of their life. But you know a fact is true. Facts are 100% true; a correct answer.”

Hannah began in interview cycle 1 saying history was facts and dates. When I asked her to recount any facts and dates, she said, “the Trojan War—wait, do I have to say an actual date?” Me: “Only if you happen to know it.” Hannah: “Oh, I don’t really remember. But the war is a fact and it does have a date.”

Collin in the first interview cycle says he thinks history includes facts, dates, stories and people. He says, “Myths, ideas, and even dates go together, to learn more about the past.” However, he shows a little confusion about the meaning of the word stories when he says, “It could even be stories of living people, I think.”

Zane in interview cycle 1 talked authoritatively about the importance of facts and dates in the telling of history. “Somewhere in and around 135 BC Alexander the Great died. Facts give you an exact spot of what it was. Like in math, you can do an estimate or the full problem. Both tell you something but the estimate is not exact. When you do the real problem, you figure out the real answer.” By implication, stories are not real or factual but approximations of the past. During the second cycle of interviews, Zane has expressed a shift to the idea that People and Stories are the way to make sense of the past. He explains his shift with a tone of resignation when he says, “I think it’s about people
and stories, now. It’s hard to remember dates.” One wonders if he blames himself for not remembering dates and if he could, would his answer have remained facts and dates? I think he expressed what others were hinting at; facts and dates are ideal, stories are too flexible.

Ryan during his second interview stated, “Facts and dates are really official. People just can’t tell their stories in a museum—it’s got to be accurate.” Then I asked him if he knew some facts and dates. With a downhearted almost defeated tone Ryan says, “No, I don’t really.”

Me: “So even though it’s more official to have facts and dates, it’s hard to remember them?”

Ryan, in soft, almost whispered voice: “Yes.”

Olivia also selected facts and dates for her final interview. She said, “Facts and dates are a little more logical to believe. Me: “Do you know some facts and dates?” Olivia: “I’m a little rusty.”

And even Samantha who never wavered from her thinking that people and their stories was the best way to make sense of the past, showed some lack of certainty in the second cycle of interviews when she said, “People and stories, that’s my best guess.”

Upon further reflection, I think it is a big switch for students to move from accepting the past as a settled set of facts to an interpretive act that can be refined and updated as new perspectives are added and analyzed. It is even uncomfortable to think that what one might know to be true, might have more flexibility over time. Some students did seem to feel that they should know the facts and dates but would settle for the stories, almost as though this measured a shortcoming on their part. The word fact is
equated with mathematics by one student, which has an authoritative, indisputable sound to it. The word story has the connotation of made-up or untrue. I am reminded of the popular misconception of the word theory, being something of conjecture instead of following scientific principles to reach conclusions. This idea is further supported when several students talked about myths being the way the ancient Greeks explained facts we know about today. By extension one might think if history is a story from different points of view, how is that any different from a myth? These meanings and nuances around the interpretive quality of history might shift with more practice and work with primary sources. When it is made clear that other researchers have made decisions about what motivations and details to include in a textbook reading of the past, it will further reveal to students that the past is more than a collection of dates and facts.

Overall, the interview results reflect that students perhaps reluctantly, are open to and even accept that history is an interpretive act. I do not think they think this is something they can do on their own, nor would I expect this of them, but I do think the seeds for future understanding have been planted.

**Being a Docent Expands Confidence and Learning**

The interviews with students show a mix of students enjoying the docent experience and those opting out after the mandatory one. The interviews also reveal that the time as docent required everyone in the class to become conversant with the whole class material. In the first cycle of interviews no docenting had taken place yet, however a few eager students expressed a clear desire to try this, while others were uncertain about becoming a docent. The teacher required all students to create a tour guide plan and
outline of a script. All students would have to give one tour to an adult/parent group at an open house lunch. Giving tours to the lower grades K-5 would be optional.

Some students expressed having a connection with their topic before the research began. For example, Zane said, “I started learning about boating during our Egypt unit then I continued it for Greece. I really liked going to your museum at Chico State to see that shipwreck exhibit.” Me: “Wow, you really do like boats. Do you do any boating with your family?” Zane: “Yes, me and my grandpa, we sail sometimes in San Francisco Bay.” Another student, Cynthia, offered this about her motive for choosing her topic as well: “I chose Greek dance and theater, ‘cause I’m a dancer and it would show me new territory in the dance world.”

All students expressed confidence about their own information that was going to be installed soon on the panel. Most knew one or two students topics beyond their own, because those students were friends or had panels near theirs. However, wide spread knowledge of all the themes was not at all the case.

By the second cycle of interviews, all students had given at least one docent tour for adults. Seven of the thirteen students who were interviewed became docents beyond the mandatory first one. Students who gave multiple tours expressed their confidence and knowledge growing through the docenting process.

John explained his new knowledge this way: “I take kids on tour of all the panels in the order I choose. First, the arts and theater, then the gods, like Dionysus and Athena. Also, I take them on tour of all the wars, like Sparta. Plus the pulley exhibit, that one is popular ‘cause you can use it. There is also a panel about the landforms of Greece—it was a bunch of islands.”
Jose said, “I actually feel like I know a lot more about Sparta, because I did all this research and everything. Some kids ask questions I don’t know and that makes me want to learn more. Now I know about other things I didn’t study ‘cause I read the panels.”

Zack enthusiastically added this: “Docenting is my new favorite part. It’s fun to meet all the kids at my school. I learned more deeper knowledge on the panels, except the Dark Ages. I didn’t get that.” Then he added this: “I would rather do all my school like this. Design and control my topic. No one telling me what to do next. I could decide.”

Lydia shared that she liked teaching other students what she knew. “I feel like confident when I can answer their questions and not blanking out like can happen when an adult asks me.” She added, “I think I learned a lot from this museum.”

Derek said he liked both the set-up of the museum and the docenting aspects. “I’ve been a docent and learned stuff I didn’t research or study.”

Hannah said her favorite part was giving tours. She said, “It’s stressful but fun. My confidence has grown with giving tours to first and second grades.”

Samantha also felt the tours contributed to her knowledge of all the class learning about ancient Greece. She said, “I know more stuff on every panel. I got more able to talk about the hard topics. Like, at first I didn’t know anything about the rule of law in Greece. Now, I’m good with it.” She concluded by saying, “The Egyptian museum (she’s referring to the mini desktop museum activity- the Treasure Trove Challenge) was more about our own knowledge, but this Greek one was all about together as a group.”
Even the six students who did not give more than the adult tour expressed knowledge of the whole.

Cynthia said, “When I gave the tour to the adults, I knew what to tell them…, ‘cause you spend so much time around all the panels.”

Collin said, “I had to be a docent at the adult luncheon. That was enough. I already know all of it, though. I went around and read all the panels.”

Olivia concurred when she said, “Not really my thing to be a docent over and over. But I feel I still know lots of topics. I feel like I get Greece and the past now.”

Ryan said, “I did a docent tour for the adult visitors, but I didn’t want to work with the younger kids.” Me: “Could you tell the adults about ancient Greece beyond your own topic?”

Ryan: “Yes, I could. I knew everything.” Me: “Why didn’t you want to work with younger students at your school?”

Ryan: “They are going to touch stuff. I didn’t want to control that.”

There were two students who did not give tours beyond the mandatory adult tour, but expressed concern about their level of knowledge.

Oscar said: “I’m not really good at giving tours. I didn’t feel I knew enough.” Me: “Was it like stage fright?” Oscar: “No, I had that before. I didn’t know the most important things for each panel and I didn’t want to be boring for the kids.”

Zane explained why he didn’t participate in more tours when he said, “It was pretty hard for me. I had read all the panels and still didn’t feel like I could remember it all.” Me: “Sounds like you were worried about your personal knowledge?” Oscar: “Yes, that’s right.”
In the process of becoming a docent the students found a purpose for learning the subject matter in the whole museum-in-the-classroom exhibition. There was less of a feeling of learning for a test, because the teacher required it or other external reasons. The tours were an end in themselves. The tours required students to be knowledgeable in subjects beyond their own research. I think the added aspect of performing the knowledge contributed to the success and even the real-world relevancy of the work. When the students became docents, they gained awareness of and confidence in their own ways of knowing and retelling the past. Even the students, who worried about their level of competency for being a docent, show how seriously all the students approached their role in the museum-in-the-classroom project. This level of respect reveals a level of maturity the class had overall regarding the learning process created by the museum/school partnership.

Teacher and Student Teachers’ Interview Results

The classroom teacher, Diane Forest’s interview with me bears witness to the significance the docent component plays in the museum-in-the-classroom program. She said, “I also think when the kids docent that is when I see the full outcome of the process. It might even be the most meaningful part, because they have to explain the content of everybody’s exhibit; not just theirs.” She went on to say that, “The museum program is applied learning and real world experiences. It’s not a multiple choice test at the end of a unit. If you can’t get the exhibit up and explain it to others, you didn’t pass the test.”

Todd Larson and Clara Irving were the two student teachers in this classroom. They spoke about their contributions to the museum-in-the-classroom project and its
overall merits. Todd Larson summed up this way: “It teaches students to think about how to find relevance and connections between disparate groups and pieces of data, and how experts go through the process of sorting that data out and presenting it to the public in an organized, narrated fashion.”

Clara Irving introduced an art extension, by having students make replica pottery pieces after seeing the museum artifacts, I brought to the class. She spoke about the connections between art history and social studies. “My use of art history in social studies and my BA in art history are all because I am a visual learner. I respond better to information that is presented to me in a visual, hands-on manner. Social studies and art history are easy to put side-by-side and you can instill the same information, but they are presented in different ways.”

Data Shows Museum Intervention Enhances Student Learning

The yearlong museum-in-the-classroom instructional partnership between the Valene L. Smith Museum of Anthropology and the local school was designed to benefit and enhance the upper elementary social studies learning of sixth graders. The results of the three data collection methods, student generated concept maps, the Likert scale questionnaires, the interviews of students and teachers, suggest that sixth graders do greatly benefit from producing a museum exhibition to augment their usual classroom social studies lessons. The majority of students, according to the concept map results; in fact, became proficient at decoding and deconstructing the interpretative aspects of the museum, helping them lay the groundwork for understanding their own process for making meanings. I think students were honest in their responses to the Likert Scale and
revealed the very real burden of working with primary sources and artifacts to uncover how history comes to be known. At the same time, students seemed to feel the import of engaging in historian-like activities such as historical empathy and perspective-taking. So much so that some students expressed a lack of capacity for this, reflecting more their understanding of the complexity and importance of this skill. The sixth graders in Diane Forest’s class became aware of the interpretive process and recognized the complexity this introduces, which marks the successful transfer of new learning, in my estimation. The process of researching, designing, and installing the classroom museum, combined with the final product of the museum exhibition itself, contributed to students’ overall understanding of the many voices that come together to tell historical narratives. The combination of student interviews and the Likert questionnaire revealed students’ ability to grapple with VanSledright’s (2002) concept of the “interpretive paradox.” However, they still struggled to reconcile the distinction between history as a set of facts and dates versus people and their stories. In the end, the majority of students understood and tried to accept this more flexible and fluid construct of history, which represents a huge shift from traditional elementary social studies teaching methods. Finally, it is clear from the student and teacher interviews that the component of becoming a docent for the whole exhibit makes students become accountable for the entirety of the class research, not just their own. Giving them a real-world reason to “know” the museum content imposed a gentle testing environment that yielded a class full of better informed students compared to rote-style memorization of textbook information on ancient Greece. Moreover, the instruction and experience of building the classroom museum, which allowed for student input, generated self-motivated students, which, in turn, created an ideal learning
environment for fostering the habits of mind, which promote historical critical thinking. The pride students took in their final work and their joy in sharing it with the younger cohort at the school is a real palpable experience, underscoring the success of the project.
CHAPTER V

CONCLUSIONS

The theoretical framework of this study joins the strands of constructivism, methods of historical critical interpretation, and the contemporary museum paradigm, which defines museums as communal spaces for meaning-making. The weaving of these strands presents a pedagogical model that brings the museum gallery and schoolhouse together as John Dewey first envisioned. It was important to me at the outset of this study to develop in the minds of the sixth graders a sense of historical empathy and insight into the interpretive paradox. I also wanted to expose them to the authentic challenges of scholarly research and provide an opportunity to see a practical outcome of these endeavors. The museum instructional interventions that spanned the academic year built upon each other in such a fashion as to hone and deepen student understanding of their own thinking. From the initial concept map activities, where students developed a successive hierarchy of terms, to the Treasure Trove Challenge activity, where students confronted varied contextual, interpretive meanings of objects, the sixth graders were exposed to the metacognitive processes necessary to engage in the epistemological tasks of interpretation. The layering of instruction over the course of a year, which culminated in the creation of the Museum-in-the-Classroom exhibition, shaped a rich learning foundation for historical critical thinking. The yearlong process became a methodology
for teaching and confronting the interpretive paradox and offered a tangible product to reflect the realm of meaning-making in their collective work.

The information contained in the social studies unit on ancient Greece, while of primary focus and concern, is ultimately less important than the development of the skills of interpretation and meaning-making, in my opinion. The Museum-in-the-Classroom project became the vehicle in which historian and curator-like activities could be enacted. The combination of classroom presentations, field trips to museums, using concept maps, and building the museum exhibition formed a foundation of critical thinking and interpretive skills for the sixth graders at the elementary school. This ability to see the thoughts behind display design and artifact selection enabled the students to think like curators, and begin to recognize someone is always involved in the interpretive process.

I recognize now that my visits and presentations, while assisting them to create an amazing real-world experience that transformed their understanding of ancient Greece and perhaps even how they approach future research projects, may not have made the perspective-taking model of history transparent or a fully accessible idea to them. On the one hand, the research results bear witness to a class shift from seeing history as mere facts and dates toward and acceptance of people and their stories as an effective strategy to comprehend the past. On the other hand, the interviews document a solid minority who desire to hold history to the standards of seemingly empirical sciences with hard and fast facts. The acceptance of history and all knowledge, for that matter, as being part of one’s own cultural lens and subject to interpretation, takes much more than a nudge to transform. The idea that the past is a set of inalterable facts is lodged deep in the
collective cultural psyche—this author’s included. Accepting this paradigm poses challenges to young minds that are in the process of formulating ideas, building frameworks, and acquiring knowledge.

By the same token, a measure of success really can be seen in the uncertainty some students expressed in the end. Being exposed to the process of retelling the past with its mixture of uncertainty and interpretation, provides a means by which students can explore and apprehend abstract ideas derived from concrete data. For sixth graders to venture into this new territory is both daunting and illusory. The first forays into the historical critical method are truly unsettling.

Frankly, many classrooms do not have a structure to sort and sift historical narratives that ultimately question the authority of texts. There is a prevailing sentiment that if it is written in a book, shown on a video, or found online, it is true. The questioning approach is a new and unfamiliar process that takes years to cultivate. In some museum/school partnerships, this process might be challenging, as not all school sites might be open to exposing elementary school students to the habits of mind needed to critically examine the past. The teacher and principal at the School were very embracing of these methods and philosophical framework, making our work together productive and mutually rewarding. Museums are in a unique position to be able to offer a format for integrating critical thinking, interpretive strategies and real-world outcomes which in turn meld seamlessly with Common Core State Standards — English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects. Museums provide a laboratory-type platform to delve into meaning-making and show ways to formulate ideas that have import on learning in the social studies. Sadly, the Social
Studies has been relegated to the backburner as if it were unimportant. Indirectly, students pick up on that message and find it uninteresting. But even students who may not have been passionate about ancient Greece at the beginning of this study, found the activity of museum-building exciting and a highlight of the year.

Museum education researcher, George Hein (1998, 2006) has discussed the importance of a hands-on approach, deeming it necessary in the constructivist understanding of learning. Dewey too spoke of *learning by doing* as paramount in the learning process. In that vein, museums exploded with interactive exhibitions. But critics have called these methods an “interactives fetish” (Hughes, 2001, p. 175) or an elaborate marketing plan (Henning, 2006). George Hein (1998, 2006), once again, has led the way in developing a minds-on counterpoint that moves interactives toward “interactivity” (Witcomb, 2006, p. 355). Art and history museums are exploring strategies and models to tap into field trip participants’ prior knowledge, processes for making connections, and their historical empathy to build understanding and improve critical thinking (Hooper-Greenhill, 1999; Greene et al., 2014). The Museum-in-the-Classroom project offers its own counterpoint to meaningless busy work and fully incorporates the minds-on, purposeful activity intended by Hein (2006) and Greene et al. (2014). Meaningful interactive lessons and constructive engagement with the subject matter are integral to the methodology and final outcome of the project. Moreover, as students are asked to wrestle with the idea of how they will tell the story of their exhibit and which images or artifacts can help them do this, they are grappling with both the real-world issues a museum curator faces and the necessary discernment needed to be scholarly. These endeavors
reach beyond the content of the exhibition and formulate the building blocks of life-long learning that can be transferred to any future research in which a student will engage.

Following the constructivist model, the Museum-in-the-Classroom is a co-created act that happens inside each learner. The process of building the museum and becoming docents gave the students a chance to work out meanings and begin to experience how knowledge is constructed. Sturtz and Hessburg (2012) identified the goal of social studies education as one of leaving the old model of rote recall and moving toward critical thinking. The Museum-in-the-Classroom project attained this, even if some students still expressed a certain value in seeking right answers. The docent portion of the program supports the ideas of Barton (2012) and Smagorinsky (2001), who speak to the necessity for students to creatively engage, ingest, and transform their subject matter in order to fully retain the new learning.

Students had to give a tour at least once to demonstrate that they could be accountable for the content beyond their own panel. Not only did they write narrative labels to illustrate their research and interpretive voice, they gave docent tours to show the depth of their learning and content mastery. Research into the basis of how learning occurs in museum exhibitions identifies a dialogic model for acquiring new knowledge. Becoming knowledgeable about their classmates’ display panel fits into the dialogic understanding of how meaning is constructed through conversation in informal learning situations. Moreover, as the students became docents they became mediators in Vygotsky’s zone of proximal development. Students reported that with each successive tour they gave they felt less reliant on reading the panels and became more astute in the topic, confirming conversation as the educational medium for meaning-making and
learning. The docent component especially underscores the full potential of the program. Students incorporate and speak aloud their learning to others, making the learning visible. The docent process offers a final assessment and embodies the entire theoretical framework of constructivist principles, historical critical methods, and contemporary understandings of museums as places to work out meanings.

I do not expect that the Museum-in-the-Classroom project as detailed in this study will be easily replicated in other districts across the nation. The program emerged in an organic way with both the museum and the school sites contributing to its evolution and relevance. Many schools might be reluctant to incorporate and devote an entire academic year to this process. That being said, there are portions within the model that might be useful units for teachers and museum educators to consider when developing museum tours or classroom outreaches. Specific instructional interventions, such as the Treasure Trove Challenge (Appendix F) or the Field Trip Exhibition Forms (Appendices B & C) might be useful supplements to existing units of study. Though there are specific limitations to completely replicate this study in other communities, my hope is that this research becomes an inspirational template to expand the dialogue on the role of museums in education. Museums should not be in the business of prescribing curricula or providing just another narrative to affirm textbook learning. Museums should be capitalizing on their unique status in the community as informal learning sites providing opportunities to explore meanings with its constituents, especially schools.

To examine and understand the potential impact of the project over the long term, one can look toward contemporary museum education research. Falk and Dierking (2000) explain that the timeline for informal learning within a museum is more plastic
and the influence far reaching. They found that learning from an exhibition didn’t stop when a visitor left the door. The inquiry process continued to unfold weeks and months after the visitor had gone home. In this way, the Museum-in-the-Classroom will continue to contribute to the students’ learning who participated in the yearlong program at the school in this study.

Over the last 20 years, museums have been moving away from traditional field trip formats and analyzing the rich educational merits of their programming. Exhibitions are not just alternate platforms for delivery of textbook content, just as students are not just empty vessels to be filled. The new paradigm of museum pedagogy asks of its followers to recognize constructivist principles of how knowledge is created and provide new ways for shared community experiences in meaning-making. Museum exhibitions are certainly areas of complex study, which can become more useful for schools when they offer methods that help decode, demystify, and deconstruct the interpretive lens behind the topic. Projects like the Museum-in-the-Classroom provide a mode of instruction that validates a student-centered learning model, while upholding the academic rigor necessary for scholarly success.

Museums are well-documented locations of life-long learning in action. People of all ages and abilities gather in these communal learning institutions to contribute and extract knowledge. John Dewey might not have fully understood the long-term impact of museum artifacts on student learning when he suggested libraries and museums as part of his Normal School model, but he recognized that the act of interacting with exhibits could infuse the rote learning of the day with enriched elements to construct new knowledge. It is doubtful that his dream of a museum housed at every
school, like the library will ever take hold; however, the lessons of this museum/school partnership behoove us to look for opportunities beyond the field trip. This study creates and effective model for future museum/school collaboration by combining the pedagogies of informal learning and artifact-based epistemology present at museums with traditional classroom academics. Museums and schools can build vital partnerships and create substantial programs to support each other’s educational goals.
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# Common Core Standards for Literacy as Applied to History and Social Studies for 6-8 Grades

<table>
<thead>
<tr>
<th>Concept/Purpose</th>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Ideas and Details</strong></td>
<td>CCSS.ELA-Literacy.RH.6-8.1</td>
<td>Cite specific textual evidence to support analysis of primary and secondary sources.</td>
</tr>
<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.2</td>
<td>Determine the central ideas or information of a primary or secondary source; provide an accurate summary of the source distinct from prior knowledge or opinions.</td>
</tr>
<tr>
<td><strong>Craft and Structure</strong></td>
<td>CCSS.ELA-Literacy.RH.6-8.3</td>
<td>Identify key steps in a text’s description of a process related to history/social studies.</td>
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<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.4</td>
<td>Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.</td>
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<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.5</td>
<td>Describe how a text presents information.</td>
</tr>
<tr>
<td><strong>Integration of Knowledge and Ideas</strong></td>
<td>CCSS.ELA-Literacy.RH.6-8.6</td>
<td>Identify aspects of a text that reveal an author’s point of view or purpose.</td>
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<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.7</td>
<td>Integrate visual information with other info in print/digital.</td>
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<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.8</td>
<td>Distinguish among fact, opinion, and reasoned judgment in a text.</td>
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<tr>
<td></td>
<td>CCSS.ELA-Literacy.RH.6-8.9</td>
<td>Analyze relationship between primary &amp; secondary source.</td>
</tr>
</tbody>
</table>

Station A – Turtle Bay Exhibit -- *Homage to A River*

What is the first thing you notice when you walk into this space?

What is the story that is being told through these images?

Notice the height of the images on the wall. Why do you think they are hung at eye-level?

What would be the reason for the artist and curator to work in black and white tones?

Does it draw more attention to the images?

Does this exhibit tell you about the river’s history?  
Give an example: 
Can you detect a beginning, middle and an end?

Looking strictly at the floorplan of the gallery, how do the walls help the visitor move through the exhibit?

What would the exhibit be like if the walls were black? Would it be a good idea? Why or why not?

Notice the benches. How does this help the visitor enjoy the show?

Which photograph is your favorite image? (Title)

What do you think the exhibit designer wanted you to learn about the river?

Did you see the postcard at the end of the exhibit? What other kind of take-away souvenir could there be?
Station B The Turtle Bay Exhibit- At the Water’s Edge

How does the Wintu Cedar house act as a transition to the Water’s Edge exhibit?

Sit in the cedar house and listen to at least one story. How does this interactive give you a feel for Wintu traditional life?

Look at the glass cases dioramas as you approach the water’s edge. How does the canoe put you in touch with California Native American Life along the Sacramento river?

Further down look at the more than meets the eye exhibits- how do these explain the ecology of the river?

Notice how the stones are made into labels by the river bed portion of the exhibit. How effective was this? Did it make you want to read more?

See the fish pages that look like placemats? Do they make you want to read more? What else could they be used for?

What is spelunking? The light up cave walls identify types of rock formations in caves. Name 3 formations.

See the notebook on the stand in front of the aquarium. Why did they label the fish this way?

Go To Interactive Watershed Display

Look at Erosion Demo Can you describe what’s going on?

Would it help if there were a label? Why or why not?

Name 3 things that show how this side of museum is set up for small children

What can you learn at sink and float exhibit?

Find the Feather exhibit. Notice the combination of feathers and drawings. Does this help you understand what a feather is?
Station C— Logging Past of Shasta County and Resources over Time Exhibits

When you walk into the room by the gravity well, what do you think this room is for?

Find the tool exhibit. Can you guess what some of the tools were used for?
Name as many tools and their uses as you can.
Can you imagine making a similar style exhibit for our school museum?

What other topics would you be able to do a similar display with?

Look at the table. What is under the glass? Name 3 documents. Why do you think they are on display?

How do the 3-D objects of the lunchbox, fishing basket and radio help tell the story without words?

Making the Home exhibit room has many things on display. Count and make a tally of the labels and artifacts in the whole room.

Go to map table - pull out 2-3 maps; lay them on light table one by one; compare differences between maps. How are the maps different?

Is this a useful way to learn instead of reading a label?

Go to the Resources over time Exhibit

Can you identify any cultural universals?

Name 1 similarity and 2 differences between the traditional Native American culture and the early pioneers?

Use an example from the exhibit to explain an economic system

Find the timeline on the wall. How does it help you understand the changing resources over time?

Are timelines useful in exhibits? Why or why not?

Which light bulb uses less energy?

What does apiarist mean? How do you know?
APPENDIX C
Circle an Exhibit to Evaluate:

Vaka Taumako Project       Art of Navigation       Shipwreck Archaeology
Charting the Way            California Maritime      Goldrush
Gifts of Celestial Kingdom  Women in Navigation    Dashed Hopes
Three Lives of the Frolic

Before you find that section and read any of the labels, answer these 2 questions.

1. What do you think this section will be about?

Now read three labels from the panels connected with this section.

List two things new that you learned:

1. ________________________________________________________________
2. ________________________________________________________________

What do you still wonder about?

______________________________________________________________

How will you learn more?

______________________________________________________________

Now use the table on the next page to evaluate the rest of the museum exhibits listed above.
Exhibition Evaluation and Experience

<table>
<thead>
<tr>
<th>Topic</th>
<th>New Information or ideas for me</th>
<th>New vocabulary</th>
<th>Wondering about</th>
</tr>
</thead>
<tbody>
<tr>
<td>My Favorite Topic</td>
<td>Why?</td>
<td>My Least Favorite</td>
<td>Why?</td>
</tr>
</tbody>
</table>
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Today India cultivates more tea than China. The process began during the time that Britain colonized and ruled India. The British government wanted to beat China economically. China at that time controlled the tea trade.

Tea is indigenous to China. People there have been harvesting and brewing tea for 4,000 years. It was brought to Japan and then spread along the Silk Road into the near east and Africa. Some historians have claimed that Marco Polo drank tea, but he does not write about it in his diaries.

When you visit your neighbor or friend in China you take this pot with you. When they offer to make you tea, you politely decline. Then you show you brought your own pot. The residue of past tea will make a batch without tea leaves. But delighted by your manners, your host will offer a scoop to fill your pot.

In 1908 the teabag was invented by an American tea merchant. It was made of cloth and allowed customers to just have a cup of tea at a time.
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

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The Tongass National forest in Alaska is the largest national forest in the United States with 17 million acres. It is part of the great temperate forest in the Northwest Pacific region.

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There are two types of rainforests: temperate and tropical. Rainforests grow on every continent except Antarctica. Originally, the Earth had 6 million square miles of tropical rainforests, now only 2.4 million remain. Over half of the temperate forests have been cut down also.

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The rainforests of the world put oxygen into Earth’s atmosphere and absorb excess carbon dioxide. The air we breathe is created largely by dense forests. Rainforests also regulate the temperature and weather patterns of our planet, providing rainfall for fresh water.

---

To help patients fight diseases, scientists are turning to plants. The hope is to find more medicines that might come from plants growing in the rainforest.
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

The cacao plant is native to Central America. The cacao plant played an important role in early cultures of Mesoamerica, for example Maya and Aztec people.

The cacao vessel in this image belonged to a Maya nobleman. Similar cups were found in Chaco Canyon in the American Southwest region of New Mexico. This indicates there was a vital trade and belief system spanning hundreds of miles.

The cacao drink of the Maya and Aztec people was bitter, spicy, and cold—Nothing like our modern version of a hot chocolate. The cacao drink was treated as sacred. It could give warriors an energy boost before battle.

*European explorers brought back the cocoa plant for royalty in the 1500s. Not until 1822 did a Dutch inventor create chocolate powder to mix with milk and sugar. It was still a drink for the wealthy as all the ingredients were very expensive.*
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

New archaeological evidence shows that 12,500 years ago people lived on California’s Channel Islands. Also in Monte Verde, Chile groups were harvesting seaweed. Both facts lead archaeologists to believe that the earliest Americans were seafarers.

The Chinese invented the compass and it was used to navigate ships at sea. This important invention spread to Persia than Europe.

The Polynesian culture developed a highly sophisticated navigational system based on star observations, ocean swells, and bird flight patterns. These early expert sailors used their canoes to travel great distances across the Pacific Islands.

The invention of the ship's chronometer expanded the European navigational ability during the Age of Sail. The chronometer solved the "longitude problem."
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Some scholars see the similarities between many game types world-wide and conclude that travelers and soldiers spread the basic games. The wide varieties represent the local adaptations. For example, decks of cards are quite different but all have four suits.

Games of all sorts are common to all human cultures. Similar aspects to these games are: rules that give equal opportunity to all players, competition, flexibility, and elements of chance.

Backgammon seems to have originated in modern-day Iran around 300 CE. It was one of the first table games and it spread across the Middle East into Europe. Checkers, another popular game today, was first played in Italy and France in 1200.

Some of the oldest games across many societies in the world involve knucklebones for dice games. Board games may have originated in Mesopotamia.
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Falconry is a symbiotic hunting practice with a long history. It combines the human’s ability to find small game and the falcon’s accuracy in hunting.

Falconry has a variety of origins. In 680 BCE the Chinese describe the sport. In 500 BCE a Roman mosaic shows a hunter and bird working together.

During the Middle Ages falconry was a common hunting style of nobles around the world, especially in Asia, Europe, and the Middle East. As firearms got more accurate, however, this kind of hunting went out of style.

The Dutch city of Valkenswaard became the premiere location to obtain falcons for European courts. The entire town had an industry of catching and training falcons from 1650-1850. They still provided the service until just before WWI.
Exhibit Design Workshop at Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Mount Shasta and Mount Lassen are two volcanoes of northern California. Both are active volcanoes in the Cascade Volcanic Arc, a range of volcanoes that stretches to Canada. Mount Lassen erupted last in 1915. Mount Shasta’s last eruption was over 200 years ago.

Volcanoes are part of the rock cycle. In general rocks can be divided into three parts: Igneous, sedimentary, and metamorphic.

One of the most famous volcanic eruptions was in 69 CE in Pompeii, Italy. Today visitors can get a window into the daily life during the Roman Empire because the eruption of Mount Vesuvius preserved a moment in time about 2,000 years ago.

Volcanoes are the engine for plate tectonics. All around the world volcanic activity are on the edges of the continental plates.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Chainmail is one of the earliest forms of metal body protection during warfare. It was made created throughout the middle ages in many parts of the world.

With the development of the crossbow, the use of breastplates made of iron became the best form of protection. Later more armored plates were made to cover other parts of the body.

Full suits of armor vary across cultures. European and Asian groups had their own independent designs, but used similar materials to make armor.

Helmets and shields were also part of armor protection. Medieval blacksmiths made a variety of helmet designs trying to make the ideal rivet to hold it all together. Shields went from big to small sizes.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

When did the dog become human’s best friend? New DNA evidence shows that the modern domesticated dog evolved from European wolves, perhaps as early as 32,000 years ago.

Pigs were domesticated independently in Turkey and China, so it is possible that dogs too were domesticated in multiple locations.

Dogs come in such a wide variety of types from Teacup Poodles to Great Danes, that it is easy to forget they are just one species. Humans for last 200 years have been purposeful in breeding certain traits for hunting or sociability. This has led to the diversity of dogs today.

The wild ancestor wolf that eventually became the modern dog was likely a hunting companion of big game hunters in the European Upper Paleolithic era. Dogs relied on humans to kill the prey, while dogs could track the prey better.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

Coral reefs are a complete ecosystem and habitat that supports diverse marine life. Coral itself is a grouping of tiny living creatures, whose skeleton is outside its body. The reef is a huge structure of exoskeletons built on top of and next to each other.

Pollution, ocean temperature rising, and habitat destruction are some of the reasons why coral reefs and their inhabitants are endangered world-wide.

When setting up saltwater aquariums in your home, be sure to find out if your fish and coral have been obtained legally. Many coral reefs have been looted by illegal poaching of these marine animals.

The clownfish and sea anemone are symbiotic partners in the reef ecosystem. Clownfish are immune to the deadly stings of anemones and get protection from predators. Clownfish keep sea anemones free of parasites.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

The first locomotive to run on a rail was built and invented by Robert Trevithide of England. He combined steam technology with a carriage style car in 1803.

The railroad technology spread to United States and by 1835 many small local railroads each a few miles long. By 1869 all of the small railroads were linked into one system across the United States.

High speed rail is now common throughout Europe and Japan. The average speed for these trains can be 220 miles per hour, compared to the common 50-60 mile per hour speeds on normal trains. California is building a high speed rail between San Francisco and Los Angeles.

Two gold spikes were made to celebrate the final set of track laid down linking the east and west coasts by rail. The second gold spike is on display at the California State Railroad Museum in Sacramento.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

China invented silk fabric by unraveling cocoons of silkworks and weaving this delicate cloth. It was a carefully guarded secret and became a prized possession along the Silk Road, the merchant path from Asia to Europe.

There is evidence of weaving as early as 25,000 years ago. The cloth no longer survives but an impression of it in clay does. That means weaving clothes is a very old art form, indeed.

Weaving is a method of making fabric for clothing or other useful items. Weaving mostly involves a loom of some form which helps bring together two strands of yarn in an interlocked fashion.

The yarn can be made from plant material or from animal hair like sheep or goat. Both of these decompose over time so it is hard to pinpoint exactly when weaving began.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology

Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

The common materials of color pigment in European cave art were forms of iron oxide and manganese. In Africa red and yellow ochre were used most. The pigment would have been used with a binder like blood or egg, but the recipe is not known.

Art predates writing. So the reasons why early humans made art can only be wondered about by researchers. Did early humans tell stories, pray for better hunts, or teach each other how to hunt with these paintings? We can only say that it gives us a glimpse of early human worldview.

Rock art of prehistoric peoples has been found on every continent except Antarctica. There are thousands of sites showing that the urge to create and communicate is as old as humankind.

Recent research shows that rock art was not limited to European caves. Australian Aboriginal rock art is dated at 28,000 years old and African rock art from Namibia is 27,000 years old.
Exhibit Design Workshop at the Valene L. Smith Museum of Anthropology
Read the labels below. They are for an upcoming museum exhibit. Can you figure out what the topic or theme of the exhibit will be? Once you know your theme you may select four corresponding images at the curator’s table in the museum gallery. First, pair the label text with images. Next choose a color scheme using the color wheel and construction paper color choices. Then write an overall title for the exhibit, and titles for each of the four labels below. When you finish the above tasks, you are ready to design a layout on the butcher paper exhibit panel.

The discovery of fossil dinosaur nests and eggs in 1979 led paleontologists to compare dinosaur and bird behavior.

Maiasaura literally translates as good mother lizard. Paleontologists could tell from the fossils found that the hatchlings were dependent on parents to bring food, like modern birds; not like reptiles who often lay eggs and abandon the nest.

Scientists hypothesize that the Maiasaura did not sit on the nest but incubated the eggs with dried vegetation. The eggs were laid in a circular nest made of mud. Usually 40 eggs the size of ostrich eggs were laid.

Maiasaura are hadrosaurs, also known as, duckbilled dinosaurs that lived 70 million years ago in North America.
APPENDIX E
Titles Give Meaning to Books and Exhibitions

Titles of books may give you an idea of what they are about, but jacket covers also hook the reader. First you will read the below book titles and rank them by your order of interest. Then I will place the real books in front of class room and you will see if that changes your preference.

RANK the BOOKS by HOOKS

An Egg Is Quiet ____
Archaeopteryx_____
Biography of Spices______
Children of the Wind and Water_______
Cat Mummies______
I Lost My Tooth in Africa_____
The Mystery of the Mammoth Bones_____

Title Design and Exhibit Topic Work Together to Hook the Visitor
Curators use similar techniques to draw in an audience. How does the design of a title give visitors a clue about the museum exhibit topic? Read below and see how the same title can be transformed to match the exhibit topic by font design alone.

Title: \textit{Big \& small}

Exhibit Theme: Victorian houses and miniature doll houses

Title: \textit{Big \& small}

Exhibit Theme: Monster Trucks and matchbox replicas
Title: Big & small

Exhibit Theme: The art of coffee table books and the bookbinding secrets of miniature books

Museum Exhibit Titles – Can you guess what they are about?

Museums often name their exhibitions with two part titles. Part one is the hook with a mysterious and creative title to grab the audience. The second one clarifies the topic. Read the below examples:

A Four-Story Story: The Amazon Rainforest

Creatures of Light: How Bioluminescence Works in Fireflies

Fabric of a New Nation: Quilts of the 1700’s in America

Staging the World: Shakespeare’s Globe Theatre
Now can you guess what these real museum exhibition titles were about?

Footsteps Through Time

Brace Yourself

Farmers and Builders

As We Grow

Written in Bone

No Wetsuits Required

Born to Be Wild
**Answer Sheet**

Footsteps Through Time

Four Million Years of Hominids on Earth

Brace Yourself

Earthquakes Around the World

Farmers and Builders

How Ants Change the Landscape

As We Grow

Children’s Toys Across Cultures and Time

Written in Bone

What can Forensic Science Tell Us?

No Wetsuits Required

Examining Underwater Worlds in the Aquarium

Born to Be Wild

Exploring the Bond Between Humans and Animals
The Treasure Trove Museum Challenge

Ancient Egypt Exhibition Planning Worksheet

Your challenge: to create a mock-up of an exhibition on Ancient Egypt! You will receive Egyptian information from the fictional Treasure Trove Museum of New York City. Your job will be to select artifacts, write labels, and lay them out in a meaningful exhibition for your visitors to enjoy. You will receive: artifact background information, paper to write your labels and a colorful folder to design mini exhibit with a partner. Artifact images will be at central table of classroom.

PHASE 1: Exhibition Research and Planning: 20 Minutes long

The artifact images and information sheet represents the collection you have to work with. You must organize them into a coherent exhibition idea. Note multiple artifacts can fit into a variety of themes or categories. Be prepared to explain your choices. Take 20 minutes to work with your teammates to complete Phase One.

1. Each team member must select one of the following categories that will relate or connect in a meaningful way to the artifacts you select. Write your name next to the theme/category you will use.

   Everyday Life  ________________  Dress & Jewelry  ________________
   Games  ________________  Medicine & Magic  ________________
   Gods & Goddesses  ____________  Tombs & Afterlife  ________________
   Writing  ________________  Animals/Pets  ________________
   Rulers & Nobility  ________________

2. Select 2 artifacts from the descriptions provided that will tell the story of your exhibition.
PHASE 2: Label Writing: 20 Minutes long

You must write labels for the objects based on the information provided. Take 20 minutes and write a brief label for each artifact. White index cards for labels will be provided. See example label below.

Example label for Servant Girl Statue image

Wealthy Egyptians had a large staff of servants to help them with daily life. This statue shows a servant carrying a basket of bread

PHASE 3: Installation: 15 Minutes long

In this phase you will have 15 minutes to install your exhibit. Your exhibition installation tools will include scissors, glue, tape, markers, construction paper, artifact images and completed labels. In groups of two

a. Choose 2 colors of construction paper to use in your exhibit.

b. Determine the general layout of the exhibit, i.e., where each category will be positioned.

c. Each partner will install their artifacts and labels in their designated area.

PHASE 4: Exhibit Title: 2 Minutes

Work as a team to create a title for the entire exhibit. Take into account all of the various sub-themes in the exhibit. Try to think of a creative and catchy title! Good titles should inspire people to visit your exhibit! White paper will be provided for your title label. Write your title below.

________________________________________

PHASE 5: Create an Interactive Activity: 3 Minutes

This activity is not on the display but will extend the story to help people get involved and better understand the big idea. For example, you got to write your name in hieroglyphics at the King Tut exhibit. Think of a different activity that would be fun and educational for your visitors. Describe the activity that you came up with below.

Congratulations!

You Have Completed The Treasure Trove Museum Challenge!
This list of Egyptian artifacts goes with the Treasure Trove Challenge. Artifacts and documents below can each belong in multiple themes or categories. Assign each object to at least two categories. This will help you select a storyline for your desktop exhibit. Once you decide on your display category, you may find matching images from online sources. Categories to choose from are as follows:


**Map of Egypt Categories**
- The map shows ancient Egyptian cities.
- Ancient Egypt emerged along the flood plains of the River Nile 5,000 years ago.
- The earliest Egyptian peoples were farmers who lived in the Nile Delta Region.
- Ancient Egypt had three great periods: Old Kingdom (3100 BC-2150 BC), Middle Kingdom (2100 BC-1750 BC) and New Kingdom (1550 BC-1080 BC)

**Treasure Trove Box Categories**
- Ancient Egyptians kept their prized possessions in boxes like this.
- This artifact is an ivory casket that belonged to priests of the Temple of Amun in Thebes.
- Because the climate in Egypt is hot and dry, artifacts have survived thousands of years.

**Servant Girl Statue Categories**
- Rich Egyptian families were looked after by large staffs of servants including butlers, secretaries, cooks, launderers, hairdressers, gardeners, children’s nurses, and maids.
- This artifact shows a servant girl carrying a basket of bread.

**Fish Pendant Categories**
- This small fish pendant is called a nekhau that was worn in the hair of children.
- Nekhau were often made of gold and inlaid with semiprecious stones.
- It was believed that the pendant would protect children from drowning in the Nile River.

**Weaving Linen from Flax Categories**
- Some linen fabric has survived for 5,000 years.
- Linen is made from linen thread spun on looms from the fibers of flax plants.
- Linen is thin and light weight; ideal for the desert.
- It was the basic fabric of the Egyptians.
- Wealthy men wore long tunics with a decorated sash; women wore wrap around smocks.

**Egyptian Collar Categories**
- This fabulous collar in the form of a vulture is made from gold, red carnelian, and turquoise.
- Egyptian men, women, and children all wore elaborate jewelry such as collars, necklaces, bracelets, anklets, belts, earrings, and ring.
Cosmetic Spoon Categories
- A decorative cosmetic spoon like this was used to hold colored pigments.
- The cosmetic spoon in form of a panther holding a leaf in its jaws and forepaw.
- Wearing a collar implies it might have been someone’s pet.
- Egyptians wore black or green eye makeup, and women also colored their lips, checks, and nails with pigments of red iron oxide.

The Snake Game Categories
- The snake game, also called mehen, was played on this circular board.
- Many of the games that Egyptians played would be familiar to modern children. They loved board games!

Playing Games Categories
- People play the games the world over.
- This mosaic shows a woman playing senet.
- Carved pieces often were of other animals chasing each other around the board

The Kitten Mummy Categories
- The ancient Egyptians buried pets with the same love and attention given to humans.
- Cats were especially popular and were sacred.
- Pets were often mummmfied, anointed with precious oils, wrapped in layers of expensive linen, and buried inside a wooden coffin that took the shape of the dead animal.
- Egyptians kept cats, dogs, and even monkeys and gazelles as pets.

Scarab Categories
- The scarab, or dung beetle, was sacred.
- Associated with the sun god, Khepri, who rolls the sun across the sky.
- Like Khepri the scarab pushes a ball of dung along the desert.

Temple at Karnak Categories
- This stone pylon gateway used to have flags flying from it
- A Pharaoh’s job was to keep a balance in the world.
- This balance was called maat.
- Temples were a place to keep maat in order.
- Priests made offerings to the gods.

Senet Game Board Categories
- Senet was the most popular game in Egypt.
- It was very similar to our game of backgammon.
- The object of the game was to get all of your pieces around and off the board.

Egyptian Comb Categories
- Egyptians usually shaved their heads and wore wigs made of human hair.
- Elaborate styles were set with beeswax.
- Combs like this were used to keep wigs well groomed.
The Wedjat Eye Categories
- This is the eye of god Horus.
- God Seth tore it out in a fight for domination.
- Goddess Hathor restored it using special powers.
- Now it symbolizes healing.

Goddess Bastet Categories
- Cats were considered sacred to Egyptians.
- This goddess had two sides of her personality.
- One was tame and gentle; The other warlike and vicious.

Amun Ra Categories
- Oldest and most important of all gods
- Ra the sun god was Creator of all the universe
- Amun was the local deity of Karnak
- Ra the sun god merged with Amun during the New Kingdom.
- Amun Ra became the king of all gods thus the kings of Thebes were rulers of all Egypt.

The Rosetta Stone Categories
- Written in 196 BC
- Written in three languages- This allowed the code of hieroglyphs to be cracked.
- Hieroglyphics on top
- Demotic (an early form of Sanskrit in middle)
- Greek on Bottom
- It was discovered in 1822 by French scholar Jean-Francois Champollion
- Before this no one thought Egyptian hieroglyphs had syntax or other aspects of written language.

Basic Ancient Egyptian Alphabet Categories
- These symbols match with our alphabet sounds.
- Notice the images for letter sounds closely resemble animals
- Other motifs come from their natural and everyday surroundings.

A Scribe’s Palette Categories
- Rectangular blocks of wood
- Sometimes engraved with owner’s name
- Mostly black ink was used.
- Red for special script used for titles or corrections
- Occasionally green or blue was available.

Louse Categories
- Big disease problem in Ancient times
- This head louse was found in the hair of an Egyptian who died 5,000 yrs ago
- They worried a lot about lice.
- Frequently shaved their heads to prevent it.
Medical Tools of Ancient Egypt Categories

- Hooks, Scoops, Pliers, Potions, Spells, Remedies
- This stone carving shows all the instruments used by doctors of ancient Egypt.
- Some small surgeries were conducted
- Priests and offerings were often part of the process.
- Noble people had their own doctors and priests
- Common people used family remedies and potions

A Doctor & Patient in Ancient Egypt Categories

- Egyptian physician of the Eighteenth Dynasty (1500-1400 B.C.)
- The patient is a member of a noble household.
- Treatment is proceeding under the care of the doctor and assistant holds treatment scroll.
- Sacred-religious rites are being observed by priests nearby.
- The best care that the science and knowledge of the day can provide.

Pyramids Categories

- Giza was the famous location where the pyramids were built
- The great Pyramid is the most famous one
- It was built for King Khufu 4,500 yrs ago
- They were built by many enslaved workers
- The technology for building the pyramids is still marveled.

Mummy Cases Categories

- They are often quite ornate to make sure the owner went to the afterlife
- This one represents Isis; a powerful maternal goddesses figure.
- Mummy case is inlaid with gold and other precious gems
- These cases offered more protection for the body to go to afterlife in their belief system.
APPENDIX G
CONCEPT MAP: KEY TERMS

The key terms for each concept map session, answering the question - *what is a museum?*

<table>
<thead>
<tr>
<th>Session #1</th>
<th>Session #2</th>
<th>Session #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>Anthropology</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Artifacts</td>
<td>Artifacts</td>
<td>Artifacts/Primary Doc</td>
</tr>
<tr>
<td>Collections</td>
<td>Audience</td>
<td>Audience</td>
</tr>
<tr>
<td>History</td>
<td>Displays or Cases</td>
<td>Book-like</td>
</tr>
<tr>
<td>Like a Library</td>
<td>Eye-level displays</td>
<td>Color story</td>
</tr>
<tr>
<td>Past</td>
<td>Hands-on/ Interactives</td>
<td>Displays/Cases</td>
</tr>
<tr>
<td>Place to Learn</td>
<td>History</td>
<td>Docents</td>
</tr>
<tr>
<td>Primary document</td>
<td>Perspective-taking</td>
<td>Eye-level displays</td>
</tr>
<tr>
<td>Specific museum</td>
<td>Pleasing to look at</td>
<td>Hands-on/ Interactives</td>
</tr>
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<td>History</td>
</tr>
<tr>
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<td>Storytelling- who/what</td>
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<td>Labels/Style</td>
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<td></td>
<td>Repeat of terms</td>
<td>Perspective-taking</td>
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<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
</tbody>
</table>

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APPENDIX H
NAME_____________________________________

1. I have an understanding of how ancient Greek people thought, lived and felt.

1________________2______________3______________4______________5

No understanding  I have some understanding with some questions still  I have a good understanding and things I could tell you

2. I can imagine daily life in ancient Greece

1________________2______________3______________4______________5

It’s hard to imagine  I have some understanding of life back then  I have a good understanding of daily Greek life

3. When looking at the Greek pottery with people on it from the museum collection, I try to imagine what the ancient Greek people were doing and thinking about?

1________________2______________3______________4______________5

I can’t imagine what ancient Greeks felt  I have some idea what ancient Greeks thought  I have a good understanding of how they felt and thought

4. Now that my class constructed a museum exhibit, how well can I imagine and understand how people lived and felt 3,000 yrs. ago?

1________________2______________3______________4______________5

Not at all  I have some idea of how they lived and felt  I have a good understanding of how they lived and felt
Interview Questions for Museum-in-the-Classroom Project 2013/2014

To be asked two times in spring of 2014. Once after museum is erected and once after students have been docents for one week.

1. What topic did you choose for the museum in the classroom exhibition?
2. Why did you select that topic?
3. Besides your own topic, what other exhibit topics in this class do you know about?
4. How do you know about them?
5. Have you given a docent tour yet?
6. What has been your favorite part of the museum in a classroom program so far?
7. When you think about the past what comes to mind?

Stories about People or particular Facts and Dates

8. If the student replies with Stories, I will follow up by asking, what kind of stories might that be?

If they reply with Facts and Dates, I will follow up by asking which facts and dates do you recall?

9. Then I will ask each to answer this question: why do you think of history in this way?