Arts Integration Supports Social Studies Content Learning and Creativity: A Case Study

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Abstract

Arts integration with core subjects has been recognized as improving academic achievement. The current study investigated the mechanisms / principles supporting success by examining artist-reported thoughts during an art-integrated social studies project in which the artist created a diorama about a Native American tribe's use of corn. The research questions centered on these issues: the ways corn was depicted in the artwork, types of themes emerging from the data, types of interactions present, processes occurring when art and social studies inquiry are combined, and aspects of creativity theory occurring in the final artwork and data. The data for this case study were collected over four months during the creation of the artwork, and consisted of notes of the artist regarding questions, thoughts, feelings, and decisions while working on the art piece. The diorama showcased various scenes of corn's place in Hopi society such as courtship during corn grinding, corn kachina dancers, perfect "mother" and "father" ears of corn for a newborn, corn petroglyphs, and a small cornfield near a stream. These data were explored by thematic analysis using the constant comparison method, techniques common in art research. Thematic analysis yielded seventeen themes and sixty subthemes, including the finding, from interaction analysis, that artistic inquiry facilitated and guided social studies inquiry and vice-versa. These art-facilitated interactions resulted in new social studies content learning by the artist, along with facilitation of creativity. Data statements showed support for fluency, flexibility, originality, and elaboration; Torrance's creative strengths; Piirto's Seven I's of Creativity; and Csikszentmihalyi's flow. Art-driven social studies inquiry could be used by social studies teachers as a motivating educational tool to increase content learning while encouraging students to increase their creativity. Art education can be recognized as an integral partner of social studies. This concrete example not only showed increased motivation and content learning but improved creativity.

*Key Words***:** Thematic analysis, social studies, arts integration, education, Hopi culture, creativity

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Introduction

National Curriculum Social Studies Standards call for an inquiry approach to social studies education (National Council for the Social Studies [NCSS], 2010). According to the College, Career & Civic Life C-3 Framework for social studies, inquiry promotes success in college, career, and civic life by motivating student learning through students' natural curiosity (NCSS, 2013). Another movement gaining momentum is arts integration into core subjects because "… integration connects big ideas found and created through inquiry into cross-disciplinary similarities" (Cornett, 2015, p. 31). This study investigated the process of art interaction with social studies inquiry during the making of a work of art to determine the themes that emerged from this process. From the outset, data were collected from the artist to record her thoughts, plans, considerations, and actions as she began the artwork focusing on the social studies concept of corn in Hopi Native American culture. Data analysis revealed many themes and interactions, including an important self-sustaining curiosity-driven cycle of thinking. For example, the artist may consider adding an aspect to the art prompting social studies inquiry to make the new component accurate. This new social studies information results in more interest to research other social studies ideas and to incorporate them into the art, resulting in a cycle of working on the art and researching further into social studies.

Connections to the Standards

Subject integration is widely regarded as one of the most effective educational tools (Kokko et al., 2015). Commonly recognized benefits (Cornett, 2015) of arts integration include:

1) Problem-based projects resemble real-life situations, which support the central school purpose of preparing students to lead successful and active lives.

2) Subject integrated projects reveal connections among different spheres of life, because they include not a mere set of activities, but are a purposeful "whole" in which subjects are so deeply interconnected that the boundaries between them are often blurred.

3) Subject integration helps save valuable instructional time. Today, the content and skills that were required at a specific grade level in the past have become a requirement for an earlier grade (Bassok et al., 2016; Hustedt et al., 2018; Kim et al., 2005; Pyle & Luce-Kapler, 2014). Therefore, teachers feel considerable pressure to rush through the curriculum and often feel forced to focus on test scores more than on deep learning and understanding of the disciplines. Teachers, because of limited class time and the requirement to meet standards, need to know how arts integration into their subject area is going to meet content standards.

4) Differentiation of instruction is one of the natural components of subject integration (Drake & Burns, 2004). For example, various student interests, ability levels, and learning preferences can be addressed through subject-integrated projects.

Arts integration is one of the research-based effective methods of teaching that improves student learning, understanding of the content of the subject integrated with the arts, and even test scores (Cornett, 2015; Stevenson & Deasy, 2005). The arts-integrated project that provided data for this study meets National Core St2 with the theme of "Culture" for Social Studies (NCSS, 2010) and Arts Anchor Standards 1, 7, 10, and 11 (State Education Agency Directors of Arts Education [SEADAE], 2014). The following section introduces the current project.

The Project Supporting Art and Social Studies Integration

This project began when the artist created a work of art in response to a museum contest to make art related to the theme of "Food." The artist chose the food topic of "corn" and eventually decided to focus on the central role of corn in a specific Native American culture, creating a multi-scene papier-mâché diorama depicting corn in Hopi life. The two authors of this study, "researcher" and "artist," are colleagues who had worked together on other creativity and arts integration projects in the past. They explored through thematic analysis the artist's thoughts during art creation related to a social studies topic. This analysis of social studies-art inquiry might uncover meaningful themes about art and social studies integration.

The following section provides an overview of current literature on social studies inquiry and arts integration, a concise review of pertinent creativity concepts, relevant thematic analysis studies, and some brief background of Hopi culture, as the art project of the current study focuses on the sacredness of corn to the Hopi.

Literature Review

Theoretical Framework

The National Curriculum Social Studies Standards were chosen as part of the framework for this study because they represent the goals of schooling in this area of education and act as benchmarks for measurement of the effectiveness of the approach to teaching and learning chosen by an educator or an education institution. Because the authors wanted to investigate the effectiveness of an arts-integrated project of building a diorama for social studies learning and motivation, the components, actions, and results, e.g. intrinsic motivation, social studies inquiry, interpretation and connecting information, were chosen as the base for creating the themes and subthemes for the analysis and categorization of data.

Arts integration is an approach that is gaining interest and popularity among teachers trying to leverage the positive effects of the arts to benefit subjects integrated into the arts (e.g., Burstein, 2014; Cornett, 2015; Vitulli & Santoli, 2013). Diorama is one of the forms of artistic

expression (Metzler, 2007). The researchers were interested in investigating the potential of this approach to improve student learning in social studies lessons.

Creativity is a concept tightly and traditionally related to the arts (Cornett, 2015). Creativity is also a part of 21st century skills, which address the major skills students need to acquire for successful life in the 21st century (The Glossary of Education Reform, 2014, p. 1). The development of these skills is the ultimate goal of schooling that in turn guided the design and selection of the content standards (The Glossary of Education Reform, 2014, p. 1). Therefore, creativity development also becomes one of the goals of content standards in social studies and other areas. The researchers were interested to see if constructing a diorama as an arts-integrated project would provide a medium to develop and apply creativity within the social studies context.

Thematic analysis was chosen as the data analysis method for this study because it is commonly used by artist-researchers (Lin, 2019). This approach allows for reflection and interpretation of the data that is produced by artmaking and connects it with conceptualization. Thematic analysis allows researchers to categorize qualitative data in relation to the posed research question (Lin, 2019) and is a common research method in the area of the arts (e.g., Mason et al., 2008; Ritter et al., 2007; Teske et al., 2018). The constant comparative method was chosen to ensure the categories that emerged during the data analysis were compared and contrasted with each other to allow the researchers to generate explanations and meanings that eventually answer the questions of the study.

Self-studies and artist participation in research analysis are appropriate in the field of art research. The artist responds to an open-ended problem or stimulus when creating art. The artist often has the dual role of both creating the work of art and observing or interpreting it, because the artist understands the thoughts and symbolisms at its core (Lin, 2019; Sullivan, 2009). Thematic analysis is employed to make aspects visible that are not evident to others. Therefore, the mental connections of the artist who created the work are valuable in forming themes that encompass ideas within the data (Lin, 2019). The following section provides insight into the benefits of arts integration involving students in inquiry, especially social studies inquiry.

Social Studies Inquiry and Arts Integration

The traditional social studies classroom is teacher-centered with little to no opportunity for student engagement and application of such 21st century skills as creativity (Burstein, 2014; Foster & Padgett, 1999; Kahn, 2017). However, more student-focused social studies teachers attempt to improve this situation through inquiry-based instruction that turns a learner into an active participant and a leader of his/her learning, resulting in a significantly deeper content and conceptual understanding (Busby & Hubbard, 2007; Ukpokodu, 2007).

Involvement of students in inquiry brings them closer to meeting the goal of this subject area, raising "knowledgeable, thinking, and active citizens" (NCSS, 2013, p. 5). In fact, inquiry is thinking and asking questions, along with obtaining and evaluating information aimed toward the goal of making an informed decision and acting on it. Through inquiry, learning becomes more personal and relevant, because it reveals to students their role as participants of history rather than as passive observers; inquiry uncovers connections and mutual influences of history, society, and learners' personal lives (Burstein, 2014; Foster & Padgett, 1999). Additionally,

inquiry facilitates engagement of learners' prior knowledge, understanding, experiences, and views of the world. This idea is supported by the Constructivist Theory of learning, which states that learners construct new knowledge through experience and by connecting new and preexisting knowledge (Cobb et al., 1992; Hedden et al., 2017; Kumari, 2014).

Cultivating active thinking and citizenship in students requires effective interaction between learners and social studies content. This includes building meaningful connections between preexisting knowledge and understanding of the world through the new information, while critically assessing both (Burstein, 2014; Foster & Padgett, 1999). Arts-integrated projects foster this kind of meaningful interaction (Burstein, 2014; Cornett, 2015; Vitulli & Santoli, 2013). Additionally, one of the guiding principles of the (C3) Framework is: "Social studies involves interdisciplinary applications and welcomes integration of the arts and humanities" (NCSS, 2017, p. 1).

Multisensory engagement (Booth, 2013), enjoyment of the process of making art (Cornett, 2015), and other features of the arts benefit the students' learning in subjects integrated with art (Booth, 2013; Vitulli & Santoli, 2013). Students complete arts-integrated tasks *for themselves* and out of sheer desire to create a good quality work of art, which fosters constant self-evaluation and evaluation of their artwork. Through this evaluation students make personal connections with the new knowledge and decisions regarding their perspectives on the new information. This feature of arts integration also represents the second dimension of the social studies inquiry process: "Applying disciplinary concepts and tools" (NCSS, 2017, p. 1).

Authors like Bas and Durmus (2019), Burstein (2014), Taylor et al. (2015), Taylor et al. (2014), and Vitulli & Santoli (2013), support the notion that arts integration improves student understanding of social studies content, internalization of the new learning, and increases student motivation to learn. Benefits have been identified in specific social studies education settings. For example, Maloy et al. (2017) investigated the use of modeling objects with 3-D printers in middle school classrooms connected to the topics of world geography, United States history, and government. They found that this integration was initially challenging, but often reversed the teacher-as-expert/student-as-novice paradigm, supported partnerships with content experts, and positively changed how teaching and learning occurred. Arts integration into social studies has been found to support learners with special needs. Anderson et al. (2019) investigated three arts-integrated social studies lesson units for students with disabilities. The first used dramatic inquiry in an inclusive preschool setting to improve positive social interaction and lesson engagement. Students were motivated by the activities and expressed great interest in careers they had dramatically explored during the lessons. In the second lesson set, 25 fifth graders who had identified language-based learning disabilities focused on learning about the Italian Renaissance through in-role characterization and perspective drawings to highlight academic vocabulary and reading comprehension. Student vocabularies improved along with self-reported positive attitudes toward social studies content. The third project applied multimedia visual arts and theater to promote connection and belonging among 11 middle through high school learners who were either typical students or those qualifying for special education services. The study occurred within a summer school program highlighting sociocultural dimensions of students' learning. Students reported increases in self-efficacy and feelings of empowerment while expressing an increased sense of hope after the week-long project.

The current thematic analysis study was focused on finding mechanisms operating during art-facilitated social studies inquiry, specifically, during learning about the Hopi culture

and demonstrating this learning through a diorama. The following sections focus on pertinent creativity concepts and previous content area - arts integration studies that used constant comparison analysis of themes (Dye et al., 2000; Ritter et al., 2007; Suh, 2013). Finally, the social studies content of the project, Hopi culture, along with the role of corn in Hopi lives is highlighted.

Creativity

This section concentrates on three well-recognized researchers who investigated creativity and developed models or theories of creativity. These experts were chosen because of their connectedness to both the field of creativity and to educational settings. Torrance and Piirto were schoolteachers, and Csikszentmihalyi's dissertation research involved college art students in educational activities.

The central goal of teaching social studies, raising "knowledgeable, thinking, and active citizens," (NCSS, 2013, p.5) is supported by the 21st Century skills, which prepare youth for active and successful lives in the 21st Century (Partnership for 21st Century Skills, 2019). Creativity, one of the 21st Century skills, is important in social studies lessons because of assistance with solutions for social studies problems in new and potentially better ways (Ukus, 2018). Creativity can be facilitated by integrating social studies lessons with the arts (Corbisiero-Drakos, 2021). In this section, we review major approaches to creativity described by Torrance, Piirto, and Csikszentmihalyi.

Torrance's ideas about creativity were developed when, as a teacher, he worked with students who presented behaviors considered problematic by other teachers, but which he recognized as creative traits. Torrance identified four facets of creativity that can be developed and measured: fluency (generating many ideas); flexibility (thinking of ideas from different categories or aspects of a situation); originality (generating unique ideas); and elaboration (adding details to ideas) (Torrance et al., 1992). He also recognized many other creative strengths: internal visualization, unusual visualization, three dimensionality, breaking boundaries, movement or action, speech or sound, colorfulness or sensory impact of imagery, emotional expressiveness, storytelling articulateness, fantasy, richness or appeal of imagery, parody, abstract ideas, resistance to premature closure (resistance to taking the first reasonable idea and, instead, staying open for a potentially better one), humor, parody, and effectiveness of title (Rule et al., 2011; Torrance et al., 1992). He developed many standardized creativity tests including a very popular one in which the test-taker produces drawings or adds to figures to make meaningful pictures. These creative thinking skills and creative strengths may be applicable to the *Sacred Corn* diorama the artist made in the current study.

Piirto (2016) recalled how she began as a teacher of identified gifted and talented students, seeking to apply creative thinking ideas in her lessons. She read biographical writings of highly creative adults, looking for personal qualities and themes. She determined that many of these highly creative adults had creative processes that exhibited certain core attitudes toward creativity: openness to experience; risk-taking; self-discipline; group trust; and tolerance for ambiguity (Piirto, 2016). They also experienced what she termed the Seven I's: inspiration through art, imagery, incubation, imagination, intuition, insight, and improvisation (Piirto, 2004; 2016). Piirto developed activities to afford students practice in these attitudes and the Seven I's

(Piirto, 2016).

According to Schutte and Malouff (2020), being in the state of "flow," identified by Csikszentmihalyi, is related to an increased level of creativity. Csikszentmihalyi et al. (2005) described a balance between the level of mastery of a task and its level of challenge as one of the core prerequisites of achieving flow along with clear goals and immediate feedback from the task. In turn, the state of flow includes the following characteristics: deep immersion in the task; being intrinsically motivated by the internal sense of reward; clear, self-determined goals intense focus on the task; feeling of control over the process and outcome; disappearance of self-consciousness and fear of failure; immediate feedback; loss of sense of time; and deep feeling of enjoyment of the process (Csikszentmihalyi, 2008). All of these characteristics not only foster creativity but are likely to enhance inquiry-based social studies instruction that aims at helping students become active leaders in their learning and active participants of society (Busby & Hubbard, 2007; Ukpokodu, 2007).

Previous Thematic Analysis Studies Related to Arts Integration

Thematic analysis is a trustworthy qualitative research method widely used in different fields of knowledge to identify, analyze, organize, describe, and report data-set themes with insightful findings (Braun & Clarke, 2006; Nowell et al., 2017). These epistemologies include art and artist-researchers in which the investigator has the dual role of both creating the work of art and observing it (Lin, 2019; Sullivan, 2009). Thematic analysis is often used in social studies (Roberts, 2014). For example, Ritter et al. (2007) analyzed self-observations of instructors who prepare future social studies teachers identify major themes that could help improve their preparation. Suh (2013) used grounded theory analysis of teachers' utilization of images and paintings to study the practice of the arts as historical evidence in social studies education. Husband (2010) used Glaser's methodology of identifying broad categories emerging from data to study teacher engagement in critical anti-racist pedagogy.

Only a few studies have been conducted using thematic analysis to investigate arts integration into other subject areas. Strand (2006) used interviews with, and observations of, students and teachers to investigate connections among instruction, content, and learning in two arts-integration settings. The first setting involved artist-teachers from a theater company collaborating with elementary school teachers situated in an urban neighborhood who were working with third and fourth grade students with a wide range of motivation, maturity, and achievement. The second setting consisted of collaborating pairs of arts and humanities teachers at an intensive residential summer program designed to enrich a statewide selection of gifted and talented secondary students in the performing and visual arts and humanities. Personal characteristics of students affected their collaborative success. Initially students were disappointed with a lack of final public performances and grades. Effective interactions among students created more positive views of these projects emphasizing creative process rather than products. The teachers were chosen for participation in the projects by their administration because of their teaching philosophies and classroom teaching styles. This supported stronger collaborations between art teachers and classroom teachers, with administrators taking active roles in mentoring them and facilitating relationships during collaboration. Strand found in both programs a focus on process over product that stressed higher order thinking skills including

improvisation and reflection. This focus challenged the students to move beyond their comfort zones. For example, high school program teachers noted that they had to provide constant positive feedback and abstain from giving answers or opinions as students requested premature evaluation of their work, having not yet become accustomed to the process of letting ideas flow and develop.

Mason et al. (2008) studied arts integration programs for students with disabilities by conducting focus group interviews in 16 states over a two-year period. They used thematic analysis driven by classic grounded theory to analyze the results. They found that arts integration provided depth to the curriculum, increased student engagement, and allowed for greater freedom in instructional practice.

Teske et al. (2018) used constant comparison methodology to investigate themes emerging from elementary students' fossil mobiles made during a science-arts integrated summer day camp project. Each day, students and their teachers wrote short reflections in response to several questions about the mobile art project and their observations from learning about fossils. The researchers identified major interactions that occurred among students, science, and art. These included the idea that art promoted science inquiry and positively influenced science learning. This science learning then increased interest in fossils and influenced the detail and high quality of the art that was produced. The student-centered artwork increased students' desire for more art knowledge as well as facilitation of the connections to science and increased interest in fossils.

Corn and Hopi Culture

Corn or maize (Zea mays L.) originated in Mesoamerica, greatly influencing the development of agricultural societies beginning around 10,000 years ago (García-Lara & Serna-Saldivar, 2019). Native American cultivation of corn was widespread at the time of European explorers: in I535. Jacques Cartier found wide fields of corn at Hochelega, now Montreal, Canada, and Champlain, in 1605, described sighting fields of corn near Cape Cod (Sturtevant, 1885). Many Native American tribes in the upper Missouri River area planted corn, notably the Mandan People (Will & Hyde, 1917). Native peoples of the southwestern United States, prior to European contact, grew primarily corn, beans, and squash (Teufel, 1996). Corn is a highly interconnected component of Hopi culture used in most rituals and events.

The Hopi Nation, currently numbering close to 10,000 people (U.S. Department of Commerce, n.d.), is located on a one and a half million acre reservation in Arizona in the semi-arid American Southwest, composed of 12 villages on three mesas (The Hopi Tribe, 2019). The Hopi village of Oraibi, established in 1150, is the longest continuously-occupied settlement in the United States (Page & Page, 2007). The Hopi people are an agricultural society, growing corn along with beans, squash, and melon in the desert lowland areas, sometimes several miles from their mesa pueblos and more modern homes. Although some of the younger Hopi have moved off the reservation to pursue jobs, most return to the reservation for family gatherings and in their retirement. Hopi artisans make beautiful pottery and silver jewelry, with many talented Hopi becoming artists to supplement or earn their incomes. Hopi people take their religion to heart with most family and community activities being deeply connected to religious events.

Growing corn successfully in a climate of sparse rainfall is achieved by management of

the environment through religious ceremonies in which nature spirits, kachinas, are beseeched to provide adequate and timely rain. Kachinas are represented in three ways: first, as the actual nature spirits; second, as ceremonial male dancers dressed in costumes and masks; and third, as hand-carved wooden dolls that teach youngsters to recognize the different spirits. The ceremonies occur throughout much of the year with men preparing and praying in underground kivas and appearing in costumed dances and ceremonies in the community plazas. The Hopi have clowns called "Mudheads" who attend the ceremonies, entertaining the audience and teaching morals through their humorous and ribald behaviors that are reprimanded by some of the kachinas. Most ceremonies involve the sprinkling of life-sustaining cornmeal or corn pollen, revealing the central role of this plant in Hopi lives.

The psycho-socio-cultural context of the Hopi may be described as manifesting a high level of functional dependency integration, meaning that the different aspects of society are so closely interconnected that a change in one part results in changes in the remaining parts through time and eventually a change in the whole (Thompson, 1945). Hopi culture also encompasses an underlying abstract logical unity based upon the Hopi's view of the inherent order of the cosmos in which people, animals, plants, ancestors, clouds, mountains, stars, and other components work together for the good of all, exchanging similar values and services (Thompson, 1945). Hence, the Hopi are essentially a peaceful and cooperative people (Thompson, 1945). This strong interconnection of cultural components means that humans can influence rainfall, crop growth, animal abundance, and other desirable attributes of the world by their actions in following universal law. The snake dance ritual of the Hopi people, in its purpose to bring rain to the crops partly through the symbolism of snakes as lightning that accompanies rainstorms, is the most photographed, sketched, painted, and written about ceremony in North America (Murphy & Cardwell, 2021; Udall 1992; Waters 1963, Whitley 1988).

Method

This largely qualitative thematic analysis study was undertaken to document the artist's process as she engaged in social studies inquiry into corn in Hopi lives to gain information for constructing a diorama artwork. The artist's recorded thoughts, feelings, plans, and reactions may reveal mechanisms of success for arts integration with content areas noted in other studies. First, research questions are identified, and then, the artist and general art methods are described. Finally, methods of data collection and analysis are explained.

Research Questions

This study investigates the process of the arts interacting with social studies inquiry during the making of a work of art to determine the themes emerging from this process. More specifically, the study was conducted to determine answers to the following:

- How is corn depicted in the resulting diorama artwork?
- What themes emerge from the data? What kinds of things does the artist think about as she engages in art combined with social studies inquiry?

- What types of interactions occur among the artist, the work of art, and social studies during the project?
- What process occurs when art and social studies inquiry are combined?
- What aspects of creativity occur in the final artwork and in the data statements regarding the artmaking process? What creativity theories do they support?

Participant

This project was conducted with an adult, amateur artist who was a former elementary teacher and education professor (referred to in this writing as the "artist"). She volunteered to participate and collaborate in the research study with a colleague (referred to here as the "researcher"). Although the "artist" will be referred to with this single title for the sake of simplicity, she also played a role in the collection and analysis of the data. The artist and researcher had conducted previous studies together, collaborating well, and were discussing possible new research ideas when they developed the idea of the current study. During the data collection and making of the artwork, the artist worked alone without influence from the researcher, but after her sorting of data statements, they worked jointly on the study analysis and manuscript.

Materials and General Art Methods

The artist decided to use the medium of papier-mâché to produce a diorama of Hopi life involving corn. The base of the work consisted of a large cereal box cut to open like a book, with another box glued to the front panel (the "book cover") of the first box to constitute the pueblo home. As the work unfolded, many additional platforms and features were added. The cereal boxes and recycled cardboard elements were covered with recycled white paper attached with white craft glue, a type of papier-mâché. The completed form was coated with white gesso, painted with acrylic paints, and highlighted with black permanent marker. Figures of people and animals added to the diorama were fashioned from recycled paper (sometimes twisted and occasionally with cardboard pieces) and white craft glue. The plan for the entire diorama was not decided in the beginning; there was only the vague vision of a diorama made of two boxes hinged together to allow viewing of the interior that would be gessoed and painted. The parts and details unfolded as the artist worked over the ensuing months.

Data Collection

This thematic analysis-based study was undertaken over a period of about four months while the artist created the work of art related to sacred Hopi corn. The artist recorded her feelings, thoughts, plans, and actions into a spreadsheet each day, putting one complete idea on each line of the spreadsheet to build a database. The artist did not attempt to write statements on days that the diorama was not being built, envisioned, or planned.

Data Analysis

After the artwork had been completed, major theme categories were identified in the spreadsheet data by the artist. She read and re-read the data statements, looking for commonalities. She copied all of the data into a new section of the spreadsheet and used spreadsheet functions to move the statements around to group them. After all statements had

been placed into groups, each group was given a descriptive name. These groupings were subsequently examined, questioned, and corroborated by the researcher. Then, statements in the 17 categories were examined, category by category, and subdivided into meaningful subgroups with redundant or similar statements grouped together. Each of these subgroups was given a descriptive title that generalized the *action* indicated in the data statement. Again, the researcher and artist discussed the groupings.

Because the artist and the researcher were both interested in how these ideas (the 60 subcategories of data) interacted, three main components of the project were considered: the artist, the artwork, and social studies. During the analysis, two other unanticipated, yet important, aspects appeared: "creativity" and "research". These additional components were used in the data analysis of major interactions occurring in the study. The *action* subcategories were grouped and labeled with a *general action* title, and an interaction diagram was constructed that displayed interactions with each of these five components (artist, art, creativity, social studies, and research). Such a diagram could potentially reveal themes of what happens when social studies and art are integrated. Analysis and interpretation of the interaction diagram were conducted by both the artist and researcher working collaboratively.

Finally, a verbal model of the process of art as social studies inquiry was constructed, using the interaction diagram and data statements. The results of this study are presented in the next section.

Results

The results section provides answers to the first four bulleted questions from the research questions addressed by the study. These questions are tackled in order as shown in the following list. The final research question is addressed later in the Discussion section.

- How is corn depicted in the resulting diorama artwork? [Examined in the section titled "The Diorama Art Product."]
- What themes emerge from the data? What kinds of things does the artist think about as she engages in art combined with social studies inquiry? [Explained in the section titled "General Themes that Emerged from the Data."]
- What types of interactions occur among the artist, the work of art, and social studies during the project? [Detailed in the section titled "Interactions between the Artist, Artwork, and Social Studies."]
- What process occurs when art and social studies inquiry are combined? [Described in the section titled "Process of Art as Social Studies Inquiry."]

The Diorama Art Product

The completed artwork, a diorama, was titled *Sacred Corn,* because it portrayed Hopi cultural scenes in which corn played a central role. The role of corn as a staple food and the intimate intertwining of corn throughout Hopi culture makes corn sacred to these people. This section provides the answers to the first research question, "How is corn depicted in the resulting

diorama artwork?" Figure 1 shows two views of the completed diorama. The corn maiden figure is shown prominently at the top. Also, on top and along the side are the six directions shown with corn of the appropriate color: white for northeast, red for southeast, yellow for northwest, blue for southwest, purple for the zenith above, and mixed colors for the nadir below.

Figure 1

Two Views of the Completed Diorama with the Corn Maiden on Top

Figure 2 shows four close-up scenes from the diorama. The top left view shows three corn kachinas dancing; the top right scene is a mother with her newborn baby, accompanied by the two perfect ears of corn representing Mother and Father Corn drying on the wall; in the bottom left scene, a girl of marriageable age grinds corn while a suitor talks to her through a window; finally, the bottom right scene shows the Antelope Priest in the kiva preparing for the snake dance ceremony to bring rain to the corn.

Figure 2

Corn-related Scenes from the Diorama

Figure 3 shows additional scenes from the diorama. The two top scenes show corn planted on the flood plain of a small canyon stream with native animals enjoying the corn. The bottom left scene shows a Hopi ancestor creating corn petroglyphs, while the bottom right shows the ladder at the entrance to the kiva.

Figure 3

Additional Scenes from the Diorama

General Themes that Emerged from the Data

Over the four-month course of the project, the artist recorded 372 data statements. Each data statement contained one complete thought (often a sentence or two) about the project. The data statements were sorted twice by the artist. First the data were sorted into 17 categories based on content, and these categories were later divided into 60 total subcategories. The initial set of categories consisted of the following groupings, which answers the second set of research questions, "What themes emerged from the data? What kinds of things did the artist think about as she engaged in art combined with social studies inquiry?":

- **Art construction work** [e.g., "I decided to make an arched platform at the bottom of the pueblo building to represent the plaza where the kachina dances occur. I traced around a mug and cut two pieces of cardboard from a cereal box. I glued the pieces into place and covered them with glued-on paper" (Statement 194).]

- **Attachment to the diorama** [e.g., "I am excited about this project, but finding it to be a lot of work. This is making me reticent to part with the finished product" (Statement 254).]

- **Audience for the work and validation** [e.g., "Trying to figure out what will really appeal to other people who may judge or purchase the artwork" (Statement 76).]

- **Data collection process** [e.g., "Then I have to remember how the ideas came to me, and I am not totally sure that I can capture every aspect. But writing ideas down every day or twice a day is working fairly well" (Statement 293).]

- **Evolution of the project** [e.g., "I am enjoying the fact that this project evolves as I learn about the Hopi through research" (Statement 233).]

- **Factors preventing work on the project** [e.g., "I spent all day grading. Tonight, I felt like I could have time to myself and finally work on the project. I set up my little tray table and while watching a mystery crime DVD, I worked on the project" (Statement 134).]

- **Generation of ideas** [e.g., "It seems to be important to me to be able to look at the partly-finished diorama and to look at the spaces that I will be filling with scenes" (Statement 294).]

- **How to create visual appeal** [e.g., "The deer scene on the back turned out very nice. The black marker on the deer allowed them to look more realistic" (Statement 371).]

- **Incubation** [e.g., "I didn't think about the project much while at the store or out on a walk in the state park" (Statement 109).]

- **Judging-rejecting ideas-determining criteria** [e.g., "I made the ladder for the front of the diorama. I had made a ladder a few weeks ago, but I threw it away because it did not look like the style of ladder the Hopi people make" (Statement 312).]

- **Message and symbolism** [e.g., "I considered whether to make the ends of the corn shuck leaves on the corn maiden into snake heads. I am undecided. It would symbolize something the Hopi usually associate with growing corn and ties with the snake dance" (Statement 142).]

- **Multiple purposes** [e.g., "Need to document how this project involves inquiry rather than just solving the creative problem… what new things will I learn through inquiry related to the subject of my art construction?" (Statement 42).]

- **Planning and visualization** [e.g., "I keep trying to form an image of the corn maiden in my mind so that I will be ready to form her when I have time" (Statement 128).]

- **Problem-solving** [e.g., "I had been looking at the diorama and did not like the way the back was so boxy and wanted the stream to turn the corner of the box gracefully and naturally" (Statement 306).]

- **Questions leading to social studies research** [e.g., "I am going to look through the corn maiden images online and in books to determine features I want to include in my corn maiden" (Statement 161).]

- **Source of motivation** [e.g., "I kept trying to visualize what it would look like. The more I visualized, the more motivated I felt to start making it" (Statement 116).]

- **Thinking about research design** [e.g., "I am thinking about what journal will publish this study? I will have to keep a lookout for a good journal" (Statement 290).]

This set of themes shows the thoughts, feelings, and recorded actions of the artist as she worked on the project. She discussed her methods and approaches to making the diorama and its human, animal, and spirit characters. She mentioned her feelings about deciding whether to enter the museum art contest because that requires selling the artwork and she was feeling attached to it.

The artist wrote much about her creative process, how the project evolved, how she generated ideas, how she visualized, how she allowed time for incubation of ideas (leaving the problem open), and problems she encountered and solved, along with messages and symbolism of parts of the diorama. She discussed thoughts about the audience for the work and self-generated criteria for a successful work of art. The artist pointed out sources of motivation and factors that hindered her from working on the project. Motivating factors included feelings of empowerment, confidence, and independence to make the artwork as she wished, appreciation of the limitations of the papier-mâché medium, success in completed parts of the diorama, inspiration from reading about the Hopi, feeling a connection to the Hopi, having a peaceful, quiet time without pressure, feeling that the art is personally meaningful, and visualization of the completed artwork. Major hindrances were work duties, such as grading or attending conferences, housework, not having a large enough block of time to relax and work on the project, and the mess created by the project, an annoyance to other household members.

The artist also documented questions she had that led to social studies research. Besides determining the corn maiden characteristics previously mentioned, she investigated the shapes of the mountain ranges important to the Hopi, what kivas look like inside, types of Hopi ladders, traditional Hopi home interiors, Hopi girls grinding corn, types of trees and animals native to the area, corn plants, corn petroglyphs, Hopi babies, kachinas, mudheads, and kachina dolls.

Interactions between the Artist, Artwork, and Social Studies

This section explains the answer to the following research question: "What types of interactions occur between the artist, the work of art, and social studies during the project?" The artist and researcher began considering *interactions among* major aspects of the project with the three main components of "artist," "art," and "social studies," but added "creativity" and "research" as additional components due to the content of the data statements. An interaction statement was prepared for each of the 60 subcategories that indicated the *nature of the interaction* between two main components. Four examples follow:

- "Before I made the sloping platform for the stream, I was thinking about some Asian vases carved out of jade that I saw in the art museum. They had trees and scenery carved around them, and it sloped upward or downward. This is similar" (Statement 275; General category: Generating ideas; Subcategory: Making connections to generate ideas). This is an ***art to artist interaction*****,** because the artist is recalling previous art viewing experiences, and these works of art are influencing the artist.

- "I think about ideas while taking a bath later that evening" (Statement 10; General category: Generating ideas; Subcategory: Relaxed state ideas – intuition and flow). This is an ***artist to creativity interaction*****,** because the relaxation of the bath allowed ideas to flow.

- "Reading more about the mudheads made me want to include one on the diorama" (Statement 232; General category: Source of motivation; Subcategory: Learning about the social studies motivated me to work on the diorama). This is a ***social studies to artist interaction,*** because reading social studies facts has inspired the artist.

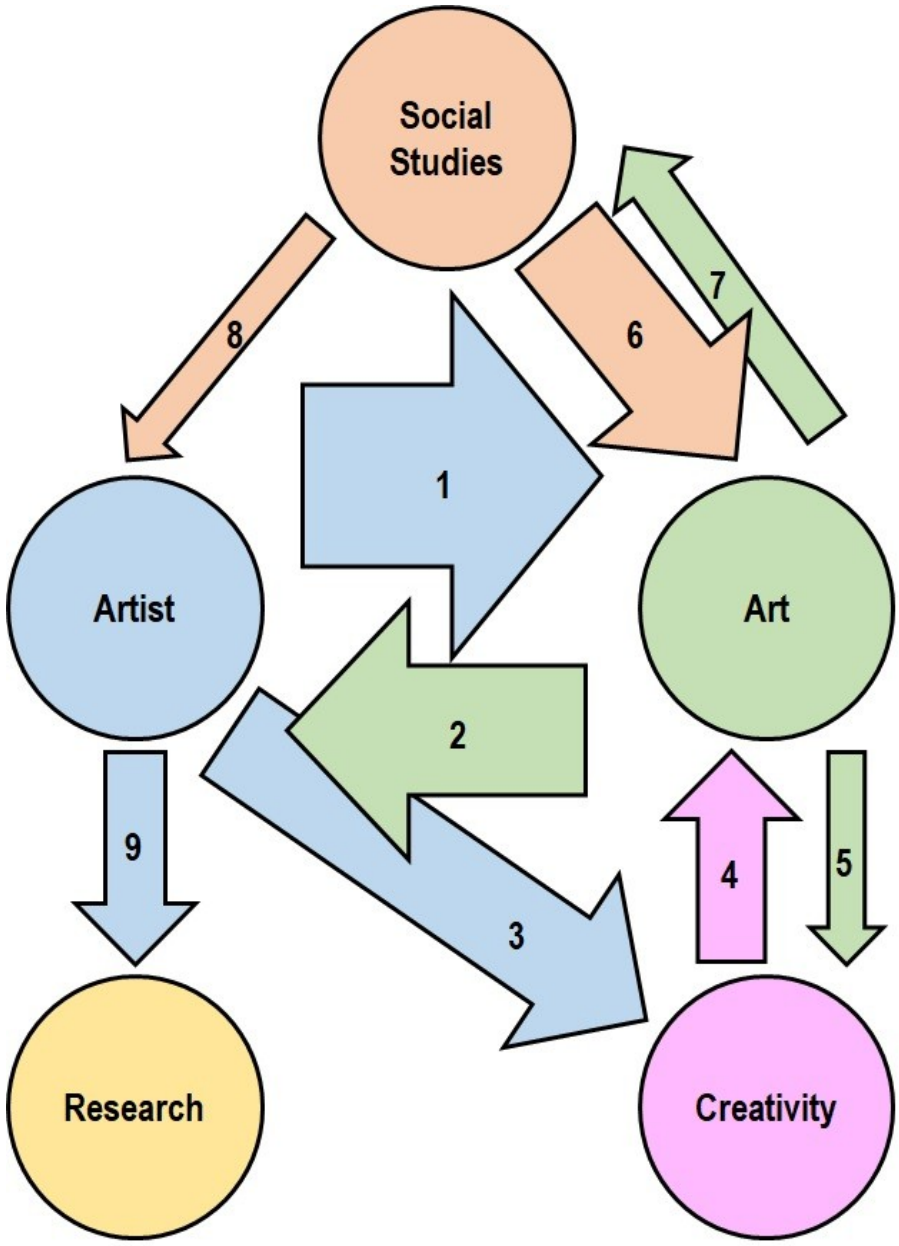
- "I also looked at the type of deer to portray – probably mule deer with the black tipped tails" (Statement 287; General category: Questions leading to research about the Hopi; Subcategory: Mammals of North America book). This is a ***social studies to art interaction*****,** because the geographic information of the mule deer led to them being portrayed in the diorama.

A diagram of the interactions, Figure 4, was produced. The five main components (artist, art, social studies, creativity, and research) are shown in circles, and the interactions among them are shown as arrows with the width of each arrow approximately symbolizing the number of subcategories of interactions. This scaling allows the reader to visually gauge the magnitudes of various interactions. Table 1 through Table 9 give details related to these interactions and list the

subcategories used in each part of the interaction diagram. The numbers on the arrows in Figure 4 correspond to the numbered main interactions on which each of these tables focus. The next section discusses the interactions in more detail.

Figure 4

Diagram of Interactions between Major Components: Artist, Art, Social Studies, Creativity, and Research



Note. Numbers in this diagram correspond to numbered sets of interactions in Tables 1 through 9. The width of each arrow corresponds approximately to the number of subcategories supporting that arrow.

Interactions Between Artist, Art, Social Studies, Creativity, and Research

Table 1 through Table 9 present the interactions that are shown in the interaction diagram, Figure 4. Interactions are shown by recorded data statements that indicate some sort of interplay between two of the components of the project (artist, art, creativity, social studies, and research).

Artist and Art Interactions

Table 1 shows the artist-to-art interactions, and Table 2 shows the art-to-artist interactions; these were the most frequent types of interactions in the study. The high frequency of these interactions is shown visually by wide arrows on Figure 4. This high rate of occurrence is natural, as the main work of the project was making an art object; therefore, interactions in both directions between this art object and the artist would be expected to occur frequently. Table 1, focusing on artist to art interactions, displays how the artist values art, solves art problems, considers criteria, and judges art, prepares, and feels motivated to do art, plans art, and experiences barriers to art. Table 2, which addresses the art-to-artist interactions, shows subcategories about the art world's criteria for good art, inspiration of art, value of art, and motivation of art.

Table 1

Artist-to-Art Interactions

General Action Category	Action Subcategory	Number of Data Statements
Artist values art	Artist desires to make art with deep meaning	7
	Artist invests time and talent in art	2
Artist problem solves and improves art	Artist perceives and solves art problems	9
	Artist made changes to art as it evolved	5
	Artist makes the art more three-dimensional	4
	Artist experiments to produce art	8
Artist has criteria and judges	Artist creates mental images to decide artwork choices	6
	Artist's criteria for success applied to art	5
	Artist's judgments are applied to art	6
	Artist's need for beauty is applied to art	7
Artist prepares and is motivated to make art	Artist's relaxation leads to work on art	7
	Artist's sense of free time motivates artwork	5
	Artist's sense of autonomy motivates art	9
	Artist's visualization of next step motivates artwork	1
	Artist's subconscious produces ideas for art	2
Artist plans art	Artist plans sequence of making the art	11
	Artist's mental envisionment produces readiness for artwork	10
Artist's barriers to art	Artist's faculty workload prevents work on art	9
	Artist's housework prevents work on art	3
Total		116

Note. This table displays the data that composed the central large blue arrow labeled "1" on the interaction diagram, Figure 4.

Table 2
Art-to-Artist Interactions

General Action Category	Action Subcategory	Number of Data Statements
Art world provides audience and criteria	Art contest provides outside audience for judging the artist's work	4
	Art contest supplied criteria to artist	2
	Art that is beautiful appeals to artist	3
	Art that is detailed appeals to people	10
	Art that is realistic appeals to people	9
Art inspires	Art with action and motion inspires artist	8
	Examining the art inspires more valuing by the artist	1
Art is valuable	Art with multiple purposes is useful to artist	7
	Art is personally meaningful and hard to part with	7
	Artwork allows artist to escape from other problems	1
Art motivates	Artwork partial completion motivates artist	4
	Artwork that is successful motivates artists to do more	6
	Art symbolism connects to artist	6
Total		68

Note. Table 2 displays the data that composed the central green arrow labeled "2" on the interaction diagram, Figure 4.

Artist, Art, and Creativity Interactions

Table 3 addresses artist-to-creativity interactions in which the artist applied constraints to the art problem, made connections, visualized the developing artwork, relaxed, and kept herself open to the problem. Table 4 shows the creativity-to-art interactions that indicate that creativity produced an elaborate work of art and allowed new, unique, and transformational ideas. Table 5 shows the art to creativity interactions of works of art inspiring creative ideas in viewers. Effective art requires creativity. Therefore, these interactions, although not originally anticipated, appear organic in hindsight. Table 5 shows a minor interaction, art to creativity, in which works of art inspire creative ideas.

Table 3
Artist to Creativity Interactions

General Action Category	Action Subcategory	Number of Data Statements
Artist applies constraints	Artist applying constraints leads to creativity	4
Artist makes connections	Artist making connections between ideas allows emergence of new ideas	8
Artist visualizes the artwork	Artist explaining the work to others leads to creativity	6
	Artist staring at empty or undeveloped areas of the diorama leads to creativity	9
Artist's rest and relaxation allow incubation of ideas	Artist has sudden creative insights after rest or removal	2
	Artist pausing and working on other work leads to creativity	3
	Artist's relaxed state leads to creativity	7
Artist keeps the problem open	Artist having confidence that the right idea will arrive leads to creativity	1
	Artist delays decisions to generate creative ideas	15
Total		55

Note. This table displays the data that composed the long blue arrow labeled "3" on the interaction diagram, Figure 4.

Table 4

Creativity-to-Art Interactions

General Action Category	Action Subcategory	Number of Data Statements
Creativity allows project to become elaborate	Creativity allowed art project to become very elaborate	2
Creativity allows new, unique, and transformational ideas	Creativity allows transformation into art	2
	Creativity generated new ideas for art	2
	Creativity involving unique materials adds to art	5
Total		11

Note. This table displays the data that composed the pink arrow labeled "4" on the interaction diagram, Figure 4.

Table 5

Art-to-Creativity Interactions

General Action Category	Action Subcategory	Number of Data Statements
Art inspires creative ideas	Art inspires creative Ideas	2
Total		2

Note. This table displays the data that composed the green arrow labeled "5" on the interaction diagram, Figure 4.

Social Studies, Art, and Artist Interactions

Table 6 and Table 7 reveal the interactions between social studies and art with many going from social studies to art (as social studies information informed the artwork) and fewer in the opposite direction. The social studies to art interaction mainly involved social studies primary sources and themes used in the artwork, while the path from art to social studies noted that art contributes to social studies and society. The other interaction involving social studies to the artist, shown in Table 8, centered on social studies information motivating the artist to make art.

Table 6
Social Studies-to-Art Interactions

General Action Category	Action Subcategory	Number of Data Statements
Social studies primary document photographs from Internet inform Art	Social Studies images from Internet inform art	24
Social studies related books inform the artwork	Social Studies information on Hopi from books inform art	9
	Social Studies cultural history of petroglyphs inform art	2
	Social Studies Hopi culture and kachinas from books inform art	6
	Social Studies natural history facts from books inform art	2
Social studies themes embodied in the artwork	Social Studies opposites are embodied in artwork	10
	Social studies message of recycling applied to art	2
Total		55

Note. This table displays the data that composed the orange arrow labeled "6" on the interaction diagram, Figure 4.

Table 7
Art-to-Social Studies Interactions

General Action Category	Action Subcategory	Number of Data Statements
Art contributes to social studies	Art represents spiritual ideas of social studies group	13
	Art represents social studies concepts	13
Total		26

Note. This table displays the data that composed the green arrow labeled "7" on the interaction diagram, Figure 4.

Table 8
Social Studies-to-Artist Interactions

General Action Category	Action Subcategory	Number of Data Statements
Social studies motivates artist	Social studies information motivates artist	2
Total		2

Note. This table displays the data that composed the orange arrow labeled "8" on the interaction diagram, Figure 4.

Artist and Research Interactions

A final interaction revealed by this project involved the artist to research interaction, shown in Table 9. This interaction occurred, because the artist was involved in the current research study and probably would not appear in art-social studies integrated activities that did not involve a research study.

Table 9
Artist-to-Research Interactions

General Action Category	Action Subcategory	Number of Data Statements
Artist plans study	Artist determines the central purpose of the research	5
Artist considers outlets for study	Artist considers journals for publication of research	3
Artist collects data	Artist records actions for research	20
	Artist records photos or data on spreadsheet for research	9
Total		37

Note. This table displays the data that composed the blue arrow labeled "9" on the interaction diagram, Figure 4.

The categories shown in the left column of these tables are general action categories that summarize the action subcategories. These general categories were used to construct a verbal model of the process of art as social studies inquiry, presented in the next section.

Process of Art as Social Studies Inquiry

This section answers the research question, "What process occurred when art and social studies inquiry were combined?" The process begins with the artist deciding to make a work of art that is related to social studies. The current study began with the artist deciding to enter an art contest with the theme of "Food," and then choosing to focus on the sacred corn of the Hopi, eventually making a diorama with scenes of corn being used in Hopi life.

Early Steps in the Process

Many of the early statements were about deciding the theme of the work of art, specifically deciding whether the artist would be able to part with the work, and determining criteria for the work of art. This dilemma came about, because the art contest required it to be sold with a percentage of the proceeds to be retained by the sponsoring museum. Eventually, the artist decided not to enter the contest, but to continue the thematic analysis research study on the process of art as social studies inquiry. Many early statements focused on criteria for judging art, resolving that this work should be beautiful, detailed, realistic, and displaying action or guiding motion of the eyes from scene to scene.

Igniting Creativity

Many data revealed a theme of visualization to plan and decide choices in making the art and the requirement of a relaxed atmosphere without other pressing duties for free flow of ideas. The need for the artwork to be personally meaningful was mentioned several times. The artist drew inspiration from other works of art that portrayed action scenes of cultural life or scenes that moved around the surface of an object.

Creative ideas occurred when constraints were applied to the work of art. Making personal connections between everyday objects and the artwork spawned new ideas, as did discussions of the art with other people. Removal from the project and pausing or rest generated additional creative ideas. Visualization in a relaxed state and having the confidence that the best ideas would appear led to more creative insights. These creative ideas were applied to the Hopi *Sacred Corn* diorama to make it interesting and unique. Additionally, the idea of recycling was applied to the diorama through the use of recycled cardboard and paper used in its construction.

Results of this thematic analysis study showed that an artist's relaxed state, sense of autonomy, visualization of the next step, and lack of pressures from other activities motivated the work. Art that was beautiful, detailed, realistic, depicting motion, examined carefully, multiple in purpose, and meaningful was valued. Art that was in progress, regarded as successful, or that contained meaningful symbolism motivated the artist to engage in the art. Thematic analysis also suggests that creativity was fostered by constraints on the work; connections between ideas; explanations of the work to others; focus on unfinished parts of the work; rest or absence from the artwork; relaxed states; confidence; and delay of art decisions. Social studies information from factual sources informed the artwork.

Social Studies Inquiry

Social studies inquiry of how the Hopi utilized corn in different contexts ensued when the theme of the artwork had been decided. Many different sources were used for this work, including several books about Hopi life, ceremonies, kachinas, and rock art (Branson, 1992; Fewkes, 1991; Page & Page, 2007; and Patterson, 1992). The artist conducted many Internet searches for historic photographs of Hopi people, homes, corn-grinding, kivas, and ceremonies (e.g., Enrico, 2012; Frey, 2011; James, (n.d.); and Wilk, 2010). The work of art, then, represented Hopi ideas related to the sacredness of corn, a central idea in their culture (Waters, 1963). The corn maiden sits atop the pueblo; corn spirits represented by kachina dancers are shown in the front; a young man courts a girl of marriageable age through the window as she grinds corn; upstairs, her mother holds a newborn child, with two perfect ears of corn representing Mother and Father Corn drying on the wall. An inside scene shows the plaza at night with an antelope priest preparing for the snake dance ceremonies in the kiva (after which snakes are released to take the message of the need for rain for the corn plants back to the nature kachinas); the back of the diorama features corn plants sewn on the floodplain of a canyon stream with mule deer, a rabbit, and a raven nearby (all animals that enjoy corn); below, in a rock shelter, is an ancestor of the Hopi carving petroglyphs into the cliff face; the top of the back side shows the San Francisco Mountains where the kachinas spirits live for about half of the year, until the winter solstice; finally, the top and remaining side show the traditional Hopi directions, including zenith and nadir, with colored corn. Learning about Hopi culture inspired the artist to make representations of that culture in this artwork. As each part was successfully completed, the artist was motivated to engage in more social studies research and more artwork.

Cyclic Interactions

The results of this study show that the process of engaging in art as social studies inquiry produced a cycle of interactions. For example, the artist examined books and Internet information on the Hopi, looking for the roles of corn in Hopi life. This led to depiction of these ideas in the artwork. The desire to make these scenes correct resulted in further research. As more was learned about the Hopi, the artwork expanded. This cycle of social studies research leading to artwork that generated a need for more social studies information produced a curiosity-based cycle of art and social studies inquiry. In summary, the data analysis indicated that arts integration with social studies allowed a cycle of 1) motivation to create art; 2) interest in gathering social studies information to enhance the art; 3) valuing of that art; and 4) influx of creative ideas leading to additional motivation to create art, investigate more social studies information, and so forth. (See Figure 4.)

Discussion

This section begins with a discussion of the mechanism of art as social studies inquiry, making connections to the literature. The remaining sections provide insight into the last research

questions: “What aspects of creativity occur in the final artwork and in the data statements regarding the artmaking process? What creativity theories do they support?”

Mechanism of Art as Social Studies Inquiry

The artist’s desire to make the artwork realistic required her to consult historical photographs, texts concerning Hopi culture, and books detailing the natural history of the area. This searching for answers to self-posed questions was how the art project became social studies inquiry. The artist searched for historic photographs of interiors of Hopi homes: “I used Google Images to search for images of Hopi interiors so that I could make the one on this diorama authentic” (Statement 318). This desire compelled the artist to seek primary and secondary sources. Using primary sources is beneficial for social studies, because it promotes deeper understanding of the content (Anthony & Miller, 2014). As the artist learned more about Hopi life, she determined ways to incorporate those ideas into the artwork, as indicated in the following data statement. “I put a rug on the floor upstairs. I saw striped rugs in several old photos” (Statement 322). “Below the slanting stream bed will be rock petroglyphs related to corn. The stream bed is the cliff overhang, and the petroglyphs are below. I will consult my books on petroglyphs to choose the correct images” (Statement 268). This data statement shows how the artist consulted books about petroglyphs to enhance the artwork’s accuracy. The artist conducted Internet searches to find images of the San Francisco Peaks so that her depiction of them would be correct: “I will need to look at photos of the area to make sure I get the shape of the mountains correct” (Statement 300).

Many data statements reveal factors motivating the artist. Completing a part of the diorama successfully, based upon the researcher’s self-chosen criteria, motivated her to continue the work and to add more scenes of Hopi use of corn. “When the deer looked good, I felt very happy and motivated” (Statement 361). “I want the diorama to have ‘special’ or ‘sacred’ scenes that I value. I feel a strong connection to the Hopi” (Statement 352). Identification with the ideas portrayed in the artwork motivated the artist, allowing a stronger feeling of attachment to the work. Motivation is vital for learning any subject (Froiland, 2021). In this instance, the artist was motivated by the esthetic appearance of her work and a personal connection to the meaning behind the art, which supports the common belief in the motivational power of the arts (Cornett, 2015). Fairly early in the project, the artist found herself so attached to the work that she decided not to enter the art contest (which required that submissions be put up for sale), but to keep this artwork. Arts projects are often complex and grounded in real life application (Cornett, 2015). As evidenced by the artist’s statements, the project motivated her to explore the following areas of social studies: geography (e.g., Statement 300- mountain shapes), history (e.g., statement 322- using historical photos), and culture in depth (e.g., Statement 318 - home interiors). Having participated in social studies inquiry is highly desirable for replicating it in teaching. “If a teacher has experienced the curriculum as a researcher/explorer, then that teacher will, in turn, be able to assist students in the development of inquisitive attitudes and skills necessary to facilitate deeper student learning and skill development in mathematics, science, and technology” (Barrett & Green, 2009, p. 22). Therefore, it is possible that a project similar to the current project could be used by preservice and inservice teachers in teacher preparation programs.

The current social studies art-integration project found a cycle in which the artist investigated social studies information to answer questions she had about creating various scenes

in her diorama of Hopi *Sacred Corn*. This led her to read more information and to add additional components to the artwork. Curiosity about newly-added areas of the artwork resulted in additional questions, the answers of which resulted in additions to the art in a curiosity-driven cycle. This same type of cycle was observed in a classroom science-art-integration project during a summer day camp with elementary and middle school students (Teske et al. 2018). In this study, kids made balanced art mobiles with sticks and string, featuring hanging student-made models of the fossil organisms they were learning about. Many library books and teacher-owned books about fossil organisms were provided for students to use in their investigations. This connection to the existing literature indicates that content area inquiry driven by self-posed questions while making a work of art can occur in different subject areas.

Creativity Aspects in the Artwork and Data Statements

This section provides a detailed answer to the following research questions: "What aspects of creativity occur in the final artwork and in the data statements regarding the artmaking process? What creativity theories do they support?" First, evidence for Torrance's creativity components and strengths are examined, then data statements supporting the seven I's of Piirto, and finally, data statements supporting aspects of flow.

Torrance's Creative Characteristics Evidenced in the Diorama or Data

Many of Torrance's creative characteristics and strengths are present in the data statements or through examination of the resulting artwork. The concepts of fluency, flexibility, originality, and elaboration are embodied in the diorama. ***Fluency,*** a proliferation of ideas, is shown by the numerous scenes involving corn. ***Flexibility*** of ideas stemming from different categories is evidenced by the many ways corn is used: as the corn maiden spirit, corn dancer kachinas, sacred mother and father corn ears for a newborn baby, corn grown near canyon streams, corn petroglyphs, corn grinding as part of a courtship, corn sprinkled in ceremonies and corn colors used to demark the directions. ***Originality*** is evidenced in the unique modeling of the artwork from recycled cereal boxes and paper and in the hinged nature of the work so that it can be opened to view the interior. ***Elaboration,*** attention to detail so that a story is told, occurs in the human, animal and spirit figures that populate the diorama, showing the various Hopi activities related to sacred corn.

Besides these four important creative characteristics discussed in the previous paragraph, Torrance listed many additional creative strengths. Of these, four creative strengths seem particularly prominent in the artwork: interior visualization, three dimensionality, movement, and storytelling articulateness. The hinged nature of the artwork allows the interior scenes to be viewed in detail, while windows in the pueblo accommodate brief peeks into the inside happenings. Such things as a ladder placed inside the kiva opening and rock art underneath a cliff also can be applied to this ***creative strength of interior visualization***. Of course, ***three dimensionality*** is well embodied by the artwork with many different views of each feature allowed by turning the piece or walking around it. ***Movement*** is shown by figures in action

dancing, grinding corn, handling a snake, and by water flowing down the slope of the stream. The overall shape of the diorama guides the eye around it. ***Storytelling articulateness*** occurs as the scenes visually tell the story of Hopi life with its various corn-related activities.

Additionally, movement, elaboration. and resistance to premature closure appear multiple times in the data statements. ***Movement, motion, or action*** is indicated by these examples:

- "I am particularly excited or inspired by the movement through the spaces like looking through windows or things that open up or are under other things" (Statement 296).

- "I feel pleased with the general motion of the items I have added to the back of the diorama. I am just trying to decide if there is anything else that needs to be added to this part of the diorama" (Statement 329).

- "I am pleased with the way the front of the diorama is expanding with all of the added platforms. This makes it have more action and more spatial intrigue with different things going on in different spots." (Statement 240).

The artist's thinking about ***elaboration*** is evidenced by these examples:

- "The kachina figures look pretty good and so I gesso them some more, especially getting the places I missed. I try to fill in holes and cracks" (Statement 208).

- "I am thinking that I may purchase some very fine Sharpie permanent markers to add shading and detail later after painting" (Statement 317).

- I used a fine-tipped Sharpie marker to add contrast and detail to the diorama. The scene on the back looks good and improved." (Statement 368).

Resistance to premature closure was another creative strength well-evidenced in the data statements. This behavior allows the artist to wait for a truly creative idea rather than jumping onto the first reasonable idea generated. Generally, the mind generates a lot of common and familiar ideas or solutions to the problem first, with more original or unusual ideas arriving later. Amassing a list of possibilities before deciding on a course of action may result in a more creative product. Two examples from the data include:

- "I can pause if I don't know what to do next and watch the show while I wait for the idea of what to do" (Statement 180).

- "I am not sure of what to put on the back side yet. The right idea will come to me" (Statement 245).

Piirto's Seven I's of Creativity Applied to the Project

Creative thinking processes appeared prominently in the data. Many of these can be related to the "Seven I's of Creativity" identified by Piirto (2004), which include: inspiration through art, imagery, incubation, imagination, intuition, insight, and improvisation. All of these appeared in the data, as shown in the following paragraphs.

Inspiration. Regarding *inspiration*, the artist wrote, "I am particularly excited or inspired by the movement through the spaces like looking through windows or things that open up or are under other things" (Statement 296). "I felt inspired by the scenes that the artist whose work is displayed in North Platte made of the Wild West Show - all of those different related scenes of the show and the animals" (Statement 259). This comment shows the artist appreciated other artworks, such as the wooden Buffalo Bill Wild West Show in miniature on display at the Fort Cody Trading Post in North Platte, Nebraska, hand-carved by Ernie Palmquist over a 12-year period with scenes occurring inside buildings and connected to belts to produce motion. This project encouraged the artist to apply her creative skills, supporting the notion that arts-integrated projects foster creativity (Corbisiero-Drakos, 2021). Additionally, the artist was compelled to investigate other primary sources, such as historical photographs, which constitute purposeful application of real-world information to culture, an important part of social studies (Anthony & Miller, 2014).

Imagery. The use of mental *imagery* to make decisions about the artwork was evident in this statement: "I keep trying to mentally envision the people on the bench and whether I want them on the diorama" (Statement 154). Images on the Internet or in books assisted the artist, as indicated in the following two data statements: "Might want to read in my Hopi book about how corn is used and look for the best images to portray" (Statement 65); and "I looked for images of Hopi babies so I could show a baby with mother and father corn on the inside of the diorama" (Statement 350).

Incubation. *Incubation* of ideas is indicated in this data statement: "I am letting the papier-mâché work dry and then will think about what to add later. In the meantime, I will do some grading" (Statement 148). Moving on to other activities allows the subconscious to generate ideas. Allowing incubation, rather than rushing to complete the artwork with whatever idea comes to mind is indicated by this data statement: "I am not sure of what to put on the back side yet. The right idea will come to me" (Statement 245). Another indication of allowing time for incubation of ideas is: "I didn't think about the project much while at the store or out on a walk in the state park" (Statement 109).

Imagination. A technique often used by the artist to generate ideas of what to do next was fixing her gaze on the empty area and using her *imagination* to picture various ideas as shown in the following statement. "So, I realized that the staring is really sort of imagining what shapes would be most pleasing if added. I want the overall shape of the diorama to flow from one part to the next" (Statement 303). Imagination of how the artwork will look became a motivating

factor to continue work in this statement: “I kept trying to visualize what it would look like. The more I visualized, the more motivated I felt to start making it (Statement 116).”

Intuition and Insight. In the following statement, the artist received ideas through *intuition* while involved in making the art. “Some of the ideas just came to me as I worked, and I had not previously considered them” (Statement 247). “Last night I suddenly decided most of the rest of the diorama” (Statement 260) indicates a sudden *insight* into how to complete the work.

Improvisation. Finally, *improvisation* also became part of the data. The artist watched a recent video of a Rolling Stones rock concert and tried to improvise by applying the appeal of their performance to making the diorama more effective. “Mick Jagger moved and danced the entire time- thinking of how action figures might help the project” (Statement 99).

As evident from the data, this project of making a diorama fostered creative behavior and included examples of creative behavior from all seven categories of Piirto’s (2004) classification. Creativity is a 21st century skill (Partnership for 21st Century Skills, 2019) that is recognized as important in social studies lessons (Ukus, 2018). Likewise, application of critical thinking is important for social studies lessons (National Council for the Social Studies, 2013), because assessing information critically, making inferences, and conclusions are a part of the social studies inquiry process. These skills are developed in the arts, and they spill over into other content areas such as social studies (Booth, 2013).

Flow

Csikszentmihalyi and colleagues (2005) recognized three criteria required for flow to occur: 1) skill mastery of a task balanced by the level of challenge; 2) clearly defined goals; and 3) immediate feedback from the task. The data provided examples of these three ideas. First, the challenge of the project was balanced by the high level of artist skill: “I am thinking about putting in some texture of the stone walls of the front and also putting cardboard tongues on the snakes. That will require some skill” (Statement 213). Second, the artist defined as a goal for the project that all the materials to be recycled paper and cardboard: “I could have everything be recycled materials- that fits with how I have begun.” (Statement 87). Third, feedback from the task of making components of the diorama was shown in this statement: “The kachinas do not look very three-dimensional. They seem very flat. I try to pinch them and decide to add bits of paper here and there to make them plumper…” (Statement 190).

The results of this project also show how the concept of flow was supported by other characteristics identified by Csikszentmihalyi. ***Deep immersion in the task*** along with a sense of ***timelessness*** (Csikszentmihalyi, 2008; Nakamura & Csikszentmihalyi, 2014) is supported by this statement: “I spent a lot of time this past weekend working on the project- hours and hours. It was pleasant and satisfying” (Statement 281). Being ***intrinsically motivated*** by an ***internal sense of reward*** was supported by this statement: “When the deer looked good, I felt very happy and motivated” (Statement 361). ***Control over the process and outcome*** was shown by this statement: “Working on the diorama does make me feel good. I feel more empowered and working toward something positive.” (Statement 337). An ***absence of self-consciousness*** and

lack of fear of failure occurred as the artist confidently experimented with materials: "I am not really sure how to begin, but I feel that if I just go ahead and make a start, I can then alter the product or add to it and eventually get what I want" (Statement 181). The ***deep feeling of enjoyment of the flow process*** was evidenced in this statement: "It is a quiet morning and very enjoyable to sit here working on gesso with the rabbit running around under the table and some birds singing outside. Even though it is winter and snow-covered, we still have birds. I am really enjoying the quiet time, just taking my time to apply gesso and listen to early morning sounds" (Statement 210).

The concept of flow is not attached to any particular subject area (Csikszentmihalyi, 1990), yet the benefits of increased concentration and engagement in a challenging subject content will benefit students in social studies lessons, because engagement is vital for student success in various subjects (Bas & Durmus, 2019; Burstein, 2014; Taylor, Iroha, & Valdez, 2015; Taylor et al., 2014, and Vitulli & Santoli, 2013).

Connections to Previous Thematic Studies of Arts Integration from the Literature

Strand's (2006) study found that arts integration facilitated students moving beyond their comfort zones to produce more creative works. This finding connects to the increase in creativity expressed by the artist in the current study after she investigated cultural photographs and texts. The combination of social studies information and the arts resulted in a creatively enhanced product. In Mason et al.'s study (2008), the arts allowed student choice and autonomy, motivating them. Similarly, in the current study, autonomy in making the artwork motivated the artist. Finally, the current study found many two-way interactions between components of the arts integration system. These feedback loops were also noted in the study by Teske et al, (2018), particularly science content area learning that led to interest in adding more to the art, which resulted in a desire to learn more about science.

Conclusion

Summary of Findings

This thematic analysis has shown that art can inspire and direct social studies inquiry when the theme of the artwork is related to social studies content, and the artist has set criteria for the work to be authentic, realistic, and/or accurate. The study had the following findings:

- ***Regarding the diorama product.*** Corn was portrayed in numerous settings of Hopi life, including a spirit of the corn symbolized by the corn maiden atop the diorama, the colors of corn indicating directions, corn grinding being used as a traditional setting for courtship, perfect ears of Mother and Father Corn being saved to bless a new baby, corn kachinas dancing, a priest preparing in a kiva for the snake dance ceremony in which sacred corn is sprinkled and snakes are released to bring the message of the need for rain

for corn plant growth to the spirits, a small cornfield near a stream with animals that like to eat corn watching, and corn petroglyphs on an ancient cliff face. The diorama depicts the interconnection of so many different aspects of society through the use of ***Sacred Corn*** showing the Hopi's belief in the interdependence of the cosmos and their ability to interact with nature and the spirit world to bring benevolent prosperity to all.

- ***Regarding data themes.*** Many themes emerged from the data indicating the artist's thoughts concerning her construction work, ways to generate creative ideas, visualizations, problem-solving strategies, and sources of motivation, among others. The artist drew motivation from: interest in the social studies content; personal connections to the work through meaning and symbolism; a sense of autonomy in creating the artwork; success in completing parts of the artwork to satisfy personal criteria; and positive feelings associated with flow.

- ***Regarding interactions during the making of the diorama.*** Interactions between the various components of the project (artist, art, social studies, creativity, and research) were found in the data, and an interaction diagram (Figure 4) was constructed. The most frequently observed interactions were artist to art interactions. This finding is natural, with the main activity the creation of a work of art. These interactions included statements in which the artist recognized the value of making art, criteria and judgments, preparation, and motivation, specific plans for the artwork, and barriers to doing art. Art to artist interactions included observations that the art world provides an audience and criteria for effective art, viewing art inspires the artist, art is valued by the artist, and art motivates the artist. Artist to creativity interactions included the artist applying constraints leading to creativity, making connections among ideas to generate creative ideas, visualizing, the artist resting, relaxing, and incubating ideas, along with keeping the problem open. Creativity to art interactions allowed the project to become more elaborate, and produced new, unique, and transformational ideas. The art to creativity interaction focused on art inspiring creative ideas. Social studies to art interactions included social studies related books informing the artwork and social studies themes embodied in the artwork. Art to social studies interactions consisted of observations of art in society. The social studies to artist interaction noted how social studies information motivated the artist. Finally, artist to research interactions consisted of the artist planning the study, considering outlets for the study, and the artist recording data.

- ***Regarding the art as social studies inquiry process.*** The process of art as social studies inquiry involved many back and forth interactions between the artist and the work of art, along with interactions between art and social studies. Initially, the artist determined the theme /purpose of the artwork and criteria for judging the success of the artwork, which included historic accuracy, beauty, and motion leading the eye around the diorama. The artist drew inspiration from other works of art. Creativity was enhanced by constraints on the work; connections between the art and outside thoughts; descriptions of the artwork to others; concentration on parts of the work yet to be completed; rest or absence from the work; relaxed states; confidence; and delay of art decisions to keep the problem open.

Self-posed questions were answered with social studies information from books and primary sources once the theme of how corn played a sacred role in Hopi lives was decided. Internet searches for historic and modern photographs inspired the artist to add components to the work and to engage in further social studies inquiry. Successful completion of a part of the diorama motivated the artist to research more information and to incorporate this knowledge into the artwork. This curiosity-based cycle of art and social studies inquiry assisted the artist in obtaining and representing ideas in the artwork.

- ***Regarding creativity.*** Four basic components of creativity of Torrance (fluency, flexibility, originality, and elaboration), along with many creative strengths were evidenced in the project. Of note were classic interactions between the artist and creativity that were then applied to the work of art, including keeping the problem open (resistance to premature closure), addressing the seven I's of creativity (Piirto, 2004), and elements of flow (such as enjoyment and skills at the level of challenges).

Limitations of the Study

This study was limited in being based on a single art project conducted by one artist who had background in artistic expression and education research, rather than on students in an education setting. The next step in determining the usefulness of art as social studies inquiry would be to initiate social studies art projects with pre-service teachers or K-12 students. Artistic drawing and sculpting skills should not be seen as a barrier to such implementation, as many types of art can be created using existing images as in a collage or via found objects to symbolize ideas. Conveying a social studies message, such as the idea from the current project that corn played a central role in the life of the Hopi, making it sacred, through the art is most important.

Study Implications

The thematic analysis results of this study suggest that arts integration with social studies can be very motivating for participants and can result in much social studies content learning. This adds to the findings of Cornett (2015), Stevenson and Deasy (2005), and Vitulli and Santoli (2013) of the efficacy of arts integration with core subjects. Not only do the findings of this study have implications for social studies education in a classroom. but they may be applied to other settings, such as history museums, art museums, libraries, and community centers at which social and historical issues are being addressed. Although this study involved a single artist in social studies inquiry, the findings show a very positive result of inquiry inspiring art and art leading to social studies inquiry. More studies in a classroom or broader museum or community setting may confirm this. Art education can be recognized as an integral partner of social studies. Additional thematic analysis studies with teachers and students may further develop this approach and improve teacher preparation.

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