Making a Space for Elementary Social Studies in the Maker Movement

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Elementary social studies teachers may be aware of the Maker Movement. The Maker Movement consists of a group of committed tinkers, who enjoy gathering to create new adaptations of materials to solve their needs through technology and found supplies. These people invent for pleasure and in order to advance technical solutions for problems. Playful people have capitalized on the Maker Movement in recent years. Spaces for makers to meet and gather have included museums, schools, and libraries (Kafai, Fields, & Searle, 2014; Bowler, 2014; Turner, 2013). Many making project events occur where a network of makers meet in specific spaces or makers use online resources for their creations. In these spaces, they have enhanced opportunities to share their attitudes, dispositions, values, and visions within the community to create learning environments. The community is key to the Maker Movement as people gather to exchange ideas on what they have created and looked for new ideas through shared media spaces (Martin, 2015). Makers share their principles of construction, commitment to investigation, and creativity particularly during rapid prototyping. The problem and solution seeking culture particularly enjoys working with Science Technology Engineering and Mathematics (STEM) based subjects in their creations. In the communities of education and cultural institutions the purposes the empowering people to tinker with Traditional Arts with their peers provides a strong attraction for those with nascent interests in social science content.

Social Context of Makers

The social importance of the Maker Movement rests on the foundation of felicitous intercourse with peers in the Maker community. A deeper rational for the Makers includes ideas about how the movement influences society (Hagel, Brown & Kulasooriya, 2014; Zhong & Fan, 2016). People cooperating to create their own solutions rather than waiting for an industrial or intuitional solution is a powerful way to engage citizens. The Maker Movement offers a new source of social discourse away from traditional industrial domination of institutions. Citizens engage in creating a new green economy based on adaptive reuse of found materials could create jobs in postindustrial society. A democratization of who can create, innovate, and become an entrepreneur lies at the heart of the Maker Movement.

Unfortunately as egalitarian as the Makers Movement aspires to be, for children it is the prerogative of privilege. Only those with transportation to Maker space or Maker events can create. If Black and Hispanic children do not get the experiences associated with Making, the digital divide could become a digital wall separating those who can from those who cannot create and problem solve (Bajarin, 2014). Moreover, the digital divide accentuated the contrast between suburban and rural children who do not have close access to Maker Spaces. Wealth in transportation, mentors, and technology all play a role in whether a child will get to Make, how they Make, and under what circumstances they will Make. These ideas may sound familiar to those people familiar with the Arts and Crafts Movement at the turn of the last century.

The ideas proposed by William Morris in England crossed the Atlantic Ocean and entered the United States as the Arts and Crafts Movement. The idea of rejecting manufactured solutions, finding value in work done well by the individual, and teaching people to work together in non-industrial spaces guided the Arts and Crafts Movement. Now once more I will say that we well-to-do people, those of us who love Art, not as a toy, but as a thing necessary to the life of man, as a token of his freedom and happiness, have for our best work the raising of the standard of life among the people; . . . *Nothing should be made by man's labour which is not worth making;* . . . (Morris 1884)

The human experience required that people create unique things of beauty rather than replicating the stereotype in aesthetics, work, or society. Those seeking a quality of life would find freedom and happiness through the creation of meaningful work with significant products coming from that labor. While the most talked about part of the Arts and Crafts Movement today is Mission Style furniture, the educative component of the movement influenced Progressive Education through the 1970s when many kindergarten through second grade classrooms contained wood working benches for creative construction projects.

Elementary social studies teachers are aware of the influence of John Dewey. John Dewey was interacting with the Arts and Crafts Movement when he encouraged students to construct products in school. The students in his laboratory school were learning about the skills of members of the community who were coming in to share their experiences with technology with the students.

The basal fact in that room is that it is a workshop, doing actual things in sewing, spinning, and weaving. The children come into immediate connection with the material, with various fabrics of silk, cotton, linen and wool. Information at once appears in connect with these materials; their origin, history, their adaptation to particular uses, and the machines of various kinds by which the raw materials are utilized. (Dewey 1990 p. 89)

The Arts and Crafts Movement encouraged a return to hand work rejecting the standardization of automated industrial practices. Students learned information set in the context of society so that education would not be divorced from the world in which they lived and worked. In the same way, students were not to be machines in the educational institutional assembly line but to be creative and practice original thinking in order to gather information and solve problems.

Museum staff, volunteers, and visitors engaging in folk crafts are certainly not new ideas at living history museums. Traditional arts, folk culture, folk crafts, and folk traditions are the interpretive bread and butter of many sites because those skills were important to visitors as they established the cultural center and their values system encouraged the promulgation of those sets of skills. Science, technology, engineering, and mathematics create a good work force (Bevan, Gutwill, Petrich & Wilkinson, 2015; Hurn & Storer, 2015). People have long experimented with those skill sets in order to demonstrate proficiency to their peers in the context of community. Therefore, Makers are not new. The new idea is that STEM content alone is valued without the social science content that was always associated with Traditional Arts as context. [Figure 1 about here]

Traditional Arts

While constructing Maker spaces in many libraries and schools, those institutions need to consider the cost of traditional arts tools and the space needs. The traditional arts cluster around several skill areas: agriculture, food, leather, lime, livestock, metal, textiles, and wood. The National Endowment for the Arts defines folk and traditional arts as:

The folk and traditional arts are rooted in and reflective of the cultural life of a community. Community members may share a common ethnic heritage, cultural mores, language, religion, occupation, or geographic region. These vital and constantly

reinvigorated artistic traditions are shaped by values and standards of excellence that are passed from generation to generation, most often within family and community, through demonstration, conversation, and practice. (NEA, 2016)

The tools needed for the traditional arts are specialized in function, and the tools and the mentors in learning how to use them should come from both the school and the cultural site. In addition, the place and space to use them between school and museum requires new relationships between schools and cultural institutions. Both institution should share the space with some traditional arts happening at the school and some happening at the museum.

Museums offer a variety of summer enrichment programs for a plethora of reasons ranging from revenue enhancement -- to day care -- to academic internships. The best of these experiences helps meet the institutional mission of exposing students to the site, adds a dash of fun, and helps the students develop new ways of thinking about a variety of ideas. They may include role-playing, folk crafts, or reenactment components.

Locust Grove: The Home of George Rogers Clark

Locust Grove offers a variety of day camps that promote Maker ideas in the museum space. They also offer day camp experiences on specific topical themes. At Locust Grove, the Louisville plantation house that was the last home of the American Revolutionary hero George Rogers Clark, the staff and volunteers create three one-week long theme summer camps for students ranging from age seven to fourteen. The camp staff provides instruction about skilled crafts, emphasizes the work that children would have done, and explains how the students can volunteer to interpret the house at Locust Grove.

The staff and volunteers at Locust Grove offer three types of camp: woodworking, pioneer, and junior docent. Eleven-year-old camper Charles said, "I have done pioneer camp,

woodworking camp, and I have done one junior docent camp." Locust Grove offered Woodworking Camp for two hours in the afternoon for seven to ten year olds. The students learn about the qualities of different types of wood and use historic tools to create a woodworking project. Locust Grove offered the Pioneer Camp also for seven to ten year olds, but it is for three hours in the morning. Here the students weave, write with quill pens, make candles, engage in storytelling, play historic games, and take nature walks. Locust Grove held the Junior Docent Camp in the morning for three hours, but it is for students who are from eleven to fourteen. The students engage in nineteenth-century cooking, surveying, and first person interpretation.

At Locust Grove young people learn about the history of the house, the context of the time, and how the house related to the geography that surrounds it. Classes meet on the grounds of Locust Grove and consist of touring the house, hearing stories on the porch, cooking in the kitchen, and working with wood in the wood shop. These experiences range from hearthside cooking to taking their turn behind a block plane. When students engage in museum programs, they particularly like artifacts and textiles (Ingle, 2000). They work with first person interpreters, craft specialists, and experts with deep content knowledge. The types of experiences in which children engage when they attend camp involve them, prove that social science content is fun, and demonstrate that it is actually interesting to learn about the past.

(please see Figure 2 in appendices)

Four Summer Day Camps

In setting up each of the four Locust Grove Day Camps the Programs' Director, Elaine Novak, needs to recruit teachers and counselors. She looks at the very active 150 person volunteer pool to see if there are former teachers or volunteers who have worked with school groups who are good at interacting with children and might still enjoy working with them. She

finds that many former teachers still enjoy working with children. Most of the camp instructors are retirees, who are no longer working. If they are still working, they have flexible schedules. Then she contacts them to see if they would be willing to volunteer at the camps. One of the volunteers, a former school librarian, thought that silhouettes would be a fun project. Elaine finds volunteers who wish to contribute to the camp program such as the woman who walked in with one-hundred pounds of bees' wax to donate and wanted to dip candles with the campers. Elaine works harder to find costumed interpreters, because they usually have full time jobs. It is hard for them to meet except for weekends and in the evenings. These are not typically popular times for day camps.

Elaine provides training for the junior high and high school counselors by making sure that they understand both the goals of the camp and appropriate behavior for the campers. Many of the counselors, who have volunteered at the camp for multiple years, are also junior docents. In the larger camps with a maximum size of forty-five group members, campers work in groups of twelve to fourteen; the counselors move the campers from place to place and keep them on schedule. The counselors do not provide instruction, but they are instrumental in the flow of the instructional day. The role of the counselor represents a continuing relationship bridging camp participant to adult volunteer.

Elaine meets with the people, who are planning to lead projects with the campers, when they are at Locust Grove for other things thus reducing the number of meetings required. Then they talk about what they are doing for the campers and how the campers will participate. It is important that the campers actually do something; by actually trying something and by making the experience a little more exciting the campers find it easier to remember the activities. Elaine collects or purchases all of the supplies the campers and staff will need for the week. In the

mornings, the camp staff arrives early to make sure that everyone has a good over view of what they will be doing that day. The camp staff knows everyone and what their job is at the camp; they review the schedule and know where to find Elaine if they need assistance.

(Please see Figure 3 in appendices)

Almost all of the students attracted to these camps are from Louisville, therefore Elaine advertises the up-coming camps in the family sections of the local newspaper, the membership newsletter, the metro park newsletters, and at their special events. Parents call to reserve a spot for their child and fill out the requisite registration, emergency medical forms, emergency contact forms, and photo permission forms. Parents pay a modest sixty-five dollars per week registration fee for the pioneer camp or seventy-five dollars per week for the woodworking camp. This fee allows the camps to pay for themselves and yet remain accessible and affordable to the residents in the area. The large staff, which is mostly volunteer, makes this successful program function with an extremely low overhead.

Woodworking Camp I

The volunteer woodworkers really pull the woodworking camps together and make them run successfully. The wood camp for the younger students is limited to twelve people, but it requires lots of people to monitor the tools under the tent by the wood shop. The younger campers make toolboxes and benches for their two projects. They do not use power tools; rather they learn about and use the historic tools in their workshop. Students find the volunteers fascinating as they take a block of wood and transform it into a useful object. The introduction to the proper use of tools and kinds of wood is important as a foundation for other creative endeavors.

Woodworking Camp II

Campers usually know nothing about the woodworking tools when they start. In the wood shop they learn by working with the wood worker. The wood camp for the older students requires less supervision and has fewer students. The students can now take on an additional project because they have more skills and are better coordinated than the younger campers. The students seem to enjoy working with master craftsmen who can help them learn complex new skills.

Pioneer Camp

The pioneer camp is for the camper who is looking for an experience with more hands on history. They also meet Howard the blacksmith, who is dressed in period clothing, uses period tools and bellows, and demonstrates his smithing skills. The campers get a tour of the house at Locust Grove and become familiar with the material culture and its artifacts. The campers become history detectives as they look at objects such as a hearth-side toaster which has been removed from its context and displayed on a table. The students try to guess its use and purposefulness in the hope of generating open-ended questions. After looking at artifacts students try to simulate experiences by talking about pioneer trunks to determine what essential items people might have brought with them. This is difficult for the campers to imagine because they have so many possessions.

Campers also have living history experiences in which they recreate events similar to life at Locust Grove. Each camper bakes a loaf of Irish soda bread in a Dutch Oven so the campers can visualize what it was like. The campers make silhouettes and dip candles. The campers also get to do pioneer chores such as washing clothes with a washboard, hauling water, and washing dishes. The campers think it is really interesting and exciting since they only have to do it for a brief time. The campers get the idea that there was a lot of work to do, and that children often did

the hard work for the family. Other living history experiences include playing some authentic games such as hoops, graces, and stilts. This is another basic tool and environment class that helps students learn what they can do and how to work safely at Locust Grove as they create objects.

(Please see Figure 4 in appendices)

Junior Docent Camp

In an attempt to get more docents of a younger age to volunteer and share history with others, in 2005 the Junior Docent Camp initiated longer activity periods for the older campers, added greater depth. Older campers get more choices. Because the blacksmith really interested them, they get to do a two-day project with Howard the blacksmith. The campers get more time to explore what they are interested in such as getting more time with the woodworker. The campers created a knitting project where they made bookmarks. Pictures looked different at the time of Locust Grove so campers made shadow art by creating silhouettes.

Older campers also go into more depth. They take more time to explore the house, and they look at artifacts that Lewis and Clark might have carried on their trip to the West. They get to make an apple pie whereas the younger campers get to make bread. The students listen to stories of the families of enslaved people on the plantation. The campers explore the trails closer to the river to determine what the land would have looked like when the Indians used the land. While recreating life prior to Locust Grove, a member of the Cherokee nation made bows, arrows, flutes, and an *atl atl*. He performed some music on the flute.

In meeting with the parents at the beginning and the end of the day, the assessment for these programs is informal. It is interesting for the campers to share what they are learning. Parents commonly say, "They were giving us a history lesson yesterday." It is important for the Locust Grove staff to hear what the parents and campers are saying about the program. Further it is a great time to meet parents and invite them to join the volunteer staff.

Problems

While the program does multiple things very well, there are two minor questions that the program might examine: retention and authenticity. Obviously this program needs a critical mass of older campers, and the very low numbers of campers caused the continuation of the program to be questioned. Certainly the highly verbal and talented campers would speak with persuasion and passion. If they could have the opportunity to speak to their peers at school, at the younger camps, or at other events, they could make a difference in recruitment. If younger campers worry that the program is the same from year to year with little real difference between what younger campers do and what older campers do, these peer testimonials could allay such fears. Building a cadre from the younger campers who wish to move into the older camps should be a long-term goal.

Balancing the role of authenticity among safety, health, pragmatism, numbers of campers, and cost is always tough to achieve. Of course, Locust Grove does an excellent job most of the time, and they certainly are not teaching misinformation. The procedures, which the campers used in the kitchen, replicated those from 200 years ago. However, when campers learned to knit they used acrylic yarn in variegated colors. What would have happened if the younger campers dyed wool yarn for the older campers? Further, the older campers ate ice cream from a store. What would have happened if the older campers had made their apple pie the day before they made the ice cream? Locust Grove should be applauded for the authentic immersion experiences they provide in their camps, and they should endeavor to look for future ways for campers to create even more immersion experiences.

(Please see figure 5 in appendices)

In the Classroom

While Locust Grove provides a variety of introductory traditional arts creation events, elementary social studies teachers can adapt museum Maker experiences to their classrooms. In schools as in museums Maker examples allow for students to use specialized equipment, work in a community of learners, and create new products that meet their needs. At the same time they determine how people at different places and times met their needs. Teachers have created Maker spaces in schools internationally in order to combat classroom rote instructional practices (Crichton, 2014). Since the Maker Movement is predicated on experimentation and creation, it is neither direct teaching nor is it everybody's doing the same project at the same time. A Maker space provides a link between the informal education done at museums, cultural institutions, and the home with the formal education done at school as part of the curriculum (Halverson & Sheridan, 2014). As a nexus between the two, the largest obstacle for teachers may be the discomfort with allowing students to experiment. If an elementary social studies teacher were to create a Maker space similar to Locust Grove they would want to provide a carpentry space. It would be filled with the tools of the trade, raw materials for creation, and access to contextual materials), information on how to care for tools, information on how to use tools, information on raw materials, and instructions for simple creation projects (Allen, 2014; Alter Eagle, 2016; Sofas and Sectionals, 2016; Glenn, 2014; Fine Woodworking, 2016; Woodworking Tools & Tips 2012; Wood species in furniture, 2016; Pinterest, 2016; Natural Papa, 2016). Learning how people used and cared for tools in the past informs students of the value of items prior to a consumable society and the responsibility of caring for a tool across a life time of use.

(Please see Figure 6 in appendices)

Maker spaces require specialized tools and raw materials in order to create. Since the Maker Movement thrives on recycling old or discarded material, the budget for this type of program is modest. None of the tools are electric patterning traditional methods and for safety concerns. The wood comes from cabinetry shop or lumberyard scraps, and the roofing nails have large heads and short bodies for a child's first experience with carpentry.

(Please see Figure 7 in appendices)

Other exemplary Locust Grove Maker events provide models for classroom adaptation. Students in a textile Maker space could pull the wool apart to separate burs and grass from the field before washing the wool on a washboard in a wash tub using lye soap. After drying the wool the students could card the wool for spinning on a drop spindle and wind it onto a shuttle. The students could use an inkle loom to create a garter from their wool. In this process they would learn how to take a natural resource and turn it into a marketable product.

As students created in the Maker space they would learn about the 3C Curriculum supported by the following standards:

D1.1.3-5. Explain why compelling questions are important to others (e.g., peers, adults).

D2.Eco.3.3-5. Identify examples of the variety of resources (human capital, physical capital, and natural resources) that are used to produce goods and services.

D3.3.3-5. Identify evidence that draws information from multiple sources in response to compelling questions.

D4.2.3-5. Construct explanations using reasoning, correct sequence, examples, and details with relevant information and data. (NCSS 2013)

The teacher may share other traditional arts materials with the students (The Foxfire Fund 2016, Special Collections at Belk Library 2016). Students would be evaluated based on their

explanation of the steps from raw materials to finished product and how they could use their product. Students would be required to explain how they gathered information to learn how to create their product. The student would need to evaluate if we still use these steps in manufacturing and how the process would be improved upon today. Students would be expected to evaluate the advantages and disadvantages of working with wool in the process of mass production and economies of scale. Even though it is the function of the curriculum since it is a Maker space, the teacher needs to provide latitude for experimentation in the space. There will be some messing around so it may not be neat, and there may not be an easily measured goal or assessment at the end.

Conclusions

Makers, thinkers, tinkers, and problem solvers are not solely the prerogative of STEM subjects. Locust Grove provides many types of experiences with their wide range of educational programs for students. This leads to an interesting observation--these students did the kitchen experience for themselves. They did not watch; they did everything from hauling the wood and building the fire to washing the dishes. Ten year old Aaron said, "It is important to know things about history and to know about the past . . . to learn how lucky you are to have so many types of conveniences that you did not have 200 or 100 years ago." Aaron and the other campers got to experiment with hearthside cooking and many other tasks that would lead them to construct knowledge about living in the late 1700s. The museum experience for those campers allowed them to be in the heart of the action as active participants. Elementary social studies teachers may wish to capture some of this excitement of exploration in their classrooms by installing Maker spaces.

The campers at Locust Grove learned informally without tests, quizzes, grades, or homework. Their intrinsic motivation to give up a week of their summer vacation and learn about history set the stage for the interest they developed in history. Their intuitive experiences excited them and took them in non-linear directions, but this wrap-around learning provided them with multiple sensual stimulations as the campers directly experienced working in a 1790s kitchen. The self-directed experience allowed the students to experience multiple jobs within a few minutes. The campers built the fire, cooked, hauled water, and washed dishes while working together to accomplish tasks that enabled a process of food preparation to occur. The campers may not be able to immediately verbalize some of the lessons of cooperation, but this is important time delayed learning. Engaging former teachers as volunteers helps ensure a quality docent staff that understands how to instruct campers, but combinations of staff, volunteers, and teachers will need to collaborate to ensure that Maker Spaces in cultural institutions and schools are not the sole purview of the privileged White and Asian students. Elementary social studies teacher may find that engaged task commitment worthy of trying to emulate.

The wood shop and the kitchen hearth were the traditional cultural maker spaces of two hundred years ago, and generations of youth have experimented, investigated, and created in these areas. The same aspects of creation and play are still powerful motivators for campers and elementary students today. Cultural and educational institutions present these types of experiences in places where people go to rediscover what their great grandparents knew and enjoyed. Campers meet peers who enjoy this creative environment, and museums have unparalleled collections of examples of specialty tools used for multiple tasks along with trained staff that know how to use the reproductions in their interpretations. Educators have a great depth of knowledge about their students and instructional practices. Maker spaces are not a new fad; they are the way people for generations have passed along culture and connected with one another.

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