Museums & Social Issues: A Research Synthesis of an Emerging Trend

Kris Morrissey, Kaylan Petrie, Katherine Canning, Travis W. Windleharth, Patricia Montano

Abstract

Museums are increasingly engaging with their communities in understanding and addressing the complex questions of our society. How is this effort manifested in museum practice, and what is the impact of this work? Our study attempted to explore the boundaries of these questions by reviewing and synthesizing reports on InformalScience.org. The work was part of the NSF-funded Building Informal Science Education project (BISE). We selected a small set of reports of projects that aligned with our definition of social issues as conditions that are harmful to society, complex and characterized by a lack of agreement.

The review and synthesis of the selected studies suggests that museums are addressing a very limited number and scope of social problems; museums are ignoring social problems that are grounded in mathematical or economic knowledge. When museums do address social problems, it appears that the efforts are generally successful. Two promising trends and strategic opportunities revolve around the use of dialogue in museum programming and the design for collective impact across institutions and organizations.

Synthesizing and aggregating what is known about this emerging area of practice is limited by a lack of shared vernacular or platforms where the conversations take place. Articulating and operationalizing a definition of social issues was the most difficult and perhaps the most useful part of the challenge.

Introduction

What is the place of museums in addressing society's most pressing questions? The 2010 report *Learning Science in Informal Environments* called on museums to actively advance the ability of citizens to "understand the implications of our actions on the world and the potential to change those actions in light of scientific evidence" (Bell, Lewenstein, Shouse, & Feder, 2009). The National Science Foundation's Strategic vision calls on the field to "Build the capacity of the nation's citizenry for addressing societal challenges," and the Association of Science and Technology Centers encourages ISE institutions to "create new platforms where citizens and organizations work together to support evidence-based decision making about the global challenges facing our planet" (ASTC, 2013).

How are museums responding to this vision of social responsibility? Bell (2009) suggests that museums are expanding their role from helping the public *understand* the natural and human-made world to *using* that knowledge to make the choices that impact

our lives, our families, our communities, our country, and our world. He points to topics emerging in the intersections between science and social policy such as climate change and nanoscale technologies. Garfinkle (2009) believes that this trend has the "potential to fundamentally shift the focus and the role of ISE's and their relationship to their community" (p. 9). Given the potential implications as well as the growing interest, there is surprisingly little research around this emerging field of museum work.

This paper reports on an exploration of some of the ways museums are interacting with society's questions and the range of ways impact is pursued, measured and achieved. The work is part of the Building Informal Science Education (BISE) Project, funded by the National Science Foundation to synthesize and apply the knowledge base developing through the work on InformalScience.org. The scope of this work is grounded in a specific definition of social issues and bounded by the parameters of those reports posted on the website informalscience.org as of May 2012. Articulating and operationalizing a definition of social issues, as discussed below, was the most difficult and perhaps the most valuable part of our work.

Defining Social Issues

The lack of a shared definition or common vernacular describing the intersections between science, lived experiences and civic choices presents a significant challenge in identifying, discussing, distinguishing or aggregating the impacts. Listening to talk radio, conversations across the dinner table or other common experiences quickly confirms that people often disagree about what is considered a social problem. Within ISE institutions, this lack of common understanding is underscored by the range of terms used, including *social problems*, *SEI (social and ethical implications)*, *social justice*, *social change*, *socio-scientific, social issue*s, *equity*, *quality of life* and *social practice* (used particularly by art museums). In his aptly named book, Social Problems, Best (2012) suggests that the process of labeling a condition as a *problem* comes not from the objective characteristics of the condition but rather from subjective claims from the public or from those who are experiencing the condition. Claims can take the shape of public discussions or visibility in media coverage, opinion polls and other public forums. A condition is, therefore, referred to as a social problem when significant and evidence-based claims are made that it is a harmful condition. Applying this perspective, we did not attempt to define conditions as social problems (or not) but to look for topics where there were significant claims, either visible in the media or within the description of the project, that the topic could be reasonably described as a social problem. We particularly drew upon, and benefited from, the public rhetoric and opinion polls that were evident during the 2012 Presidential election.

We then articulated a distinction between social problems and social issues, defining social issues as problems that are harmful, complex *and characterized by a lack of societal agreement*. We chose to make this distinction based on our hypothesis that social

issues may benefit from or even require a different approach to engage communities in learning experiences than social problems. We also hypothesized that social issues may be more difficult yet important for museums to address. The distinction between social issues and social problems is somewhat arbitrary and used here primarily to focus our study, but there is significant literature to support such a distinction. For example, Heifitz, Kania and Kramer (2004) identify a difference between problems that require a *technical* solution and those that require an *adaptive* solution. *Technical* problems are well defined; their solutions are known and could potentially be solved with adequate resources and capacity. In contrast to technical problems, *adaptive* problems are more complex, the answer is not known, and they often grow out of conflicting values and opinions. Reforming education, addressing climate change or solving the problem of the high number of incarcerated people in the U.S. are more complex problems to solve and typically require collaborations, mediations and innovative approaches (Heifitz, Kania & Kramer, 2004). Political and social scientists describe issues where there is general agreement, such as obesity, ending hunger or decreasing crime, as "valence issues," contrasted with issues where there is a lack of agreement. While there is a range of opinions about the specific approaches to addressing problems such as ending obesity, the claims for addressing obesity are so compelling that society has agreed to view obesity as a social problem. Addressing this problem requires creative and strategic approaches to knowledge and behavior changes, but the barriers and opportunities to advance change are likely to be different than those surrounding topics without general societal and policy-based consensus.

For the purposes of our synthesis, we therefore adopted a working definition of social issues as **conditions that are harmful, complex (the solution is unknown) and characterized by a lack of consensus or agreement.** In our deliberations, we did not resolve (despite considerable animated discussions), whether there were advantages to considering *social problems* and *social issues* as mutually exclusive categories, overlapping categories or whether social issues were perhaps a subset of social problems.

Research Approach

Our study followed the approach of a research synthesis (or a literature review) rather than a meta-analysis. A research synthesis does not attempt to apply quantitative measures to statistically measure or aggregate results as with a meta-analysis, but rather to describe "the state of knowledge concerning the relationship(s) of interest and to highlight important issues that research has left unresolved" (Cooper, 2010, p.4). Cooper describes literature reviews as characterized by the specific goal, focus, perspective, scope of coverage and intended audience for the review. The *goal* of our synthesis was to identify central issues and themes for an *audience* of museum practitioners, evaluators and researchers. (See Table 2.) We were not attempting to critique or analyze findings or to

build theory but to inform *practice*, although we hope our synthesis helps with future work around theory building.

Characteristics	**Our Research**
Goal *(Generalize, critique or identify central issues)*	Identify Central Issues
Focus *(theory, practice, findings or methods)*	Practice
Perspective *(Neutral or takes a position)*	Takes a position
Coverage *(Representative or exhaustive)*	Representative
Audience (public, specialized scholars, practitioners, general scholars)	Practitioners and general scholars

Table 2. Characteristics of a Research Synthesis (Cooper, 2010)

Sample

At the beginning of this work, there were 427 reports posted on InformalScience.org and coded by the BISE project. We scanned the project titles and abstracts looking for words or phrases that fit our definition of a social issue. Reports were selected if the topic or content of the project was discussed publicly in polls, media coverage and other public forums associated with areas of controversy or public concern including the opinion polls taking place during the 2012 election (Pew Research, Gallup, and major news networks). These sources yielded topics such as climate change, abortion, gun control, economy, same-sex marriage, immigration laws, budget deficit, terrorism, wealth distribution and international relationships. Projects were also selected if the reports posted on informalscience.org included claims that the topic was harmful and/or characterized by a lack of agreement using terms such as "public controversy," "social issues," "questions facing society." After our first selection of reports, we did two additional sweeps of the remaining reports by randomly selecting batches of ten studies and looking for any indication of a social problem. This process added one additional study to our final subset of studies. The selection process was not intended to be *exhaustive* but *representative*.

Projects focused on the broad categories of environmental stewardship and health were generally not included unless the report presented the topic as characterized by a lack of agreement and/or unknown solutions. For example, a study on educating youth on river stewardship was not included as a social issue, but a project that explored the Alaskan oil spill was included because language such as "to find solutions to long-term energy needs" and the evaluation goal that "visitors can generalize about this incident to more national and global environment problems" fit the project's definition of a social issue.

Once the sample was selected, the studies were reviewed to look for trends in the ways learning was pursued, facilitated, measured and achieved. All of the studies had been coded by the BISE project on a number of criteria including audience, type of project, and

type of evaluation methodologies. We used the coding to look for trends in our sample and then reviewed the executive summaries and occasionally the full reports, utilizing NVIVO software to identify themes.

What topics are museums addressing?

Nanotechnologies and climate change dominated the topics addressed in this small set of studies, perhaps related to the heavy funding of these topics by National Science Foundation initiatives and the NSF requirement to post summative evaluation reports on informalscience.org. Energy sources seems to be a relatively quiet but emerging area of interest in museum projects, and there was some evidence that energy projects may be focusing on girls, perhaps suggesting energy as a potential path to engage females in STEM. Other topics were as varied as Internet privacy, sustainable agriculture (specifically coffee), race inequities and robotics.

There was a strong disconnect between the social problems represented by museums and those that were highly visible in the 2012 election, such as immigration, same-sex marriage, national security, income disparity and the economy to name just a few topics that have a potential connection to STEM knowledge. Social issues related to mathematical or economic literacy were notably absent. Even though the budget deficit has been a key topic in past elections, we found no examples of nationally funded projects that address this topic. When museums do address math, it is focused on youth, distinct from a social context (other than daily life skills) and not presented as a tool necessary for civic engagement and societal decisions. This may suggest that within the context of STEM informal learning, science literacy is viewed as a civic tool, but mathematical or economic literacy is not. This is particularly troubling with a recent report by the US Department of Education's National Center of Education Statistics revealing that Americans rank 21st in numeracy and tie for 15th in adult literacy among 23 advanced economies (Goodman, Finnegan, Mohadjer, Krenzke & Hogan, 2013).

Museums do appear to be addressing social problems that would be described as technical and uncontested, but avoiding the complex issues around the boundaries. For example, health is currently a popular topic, with major science museums currently planning or presenting a significant exhibit and associated programs. However, the debates over the economics of health care or the biology of abortion are not as evident, and mental health is considerably less visible than physical health issues. Similarly, the nuanced intersections between health and current events are not typically explored such as the growing issue of Post-traumatic stress disorder and the suicide and depression rates associated with the increased war efforts in the United States in the last two decades.

Key trends in topics:

- Museums are addressing only a very limited number of social problems and a narrow scope of these problems,

- Museums are not addressing significant social issues that are grounded in mathematical or economic knowledge.
- When museums address social problems, such as health, they avoid the edges of the topics where there is a lack of consensus.

How is Learning Facilitated, Measured and Achieved?

Museum projects that engage with social issues appear to be successful in achieving their goals. A review of the first five years of the NISE Network cumulative projects found that "NISE Net has had and may continue to have an impact on the public's awareness, knowledge and interest of nanotechnology" (417). This finding was based on evidence found in the large number of people engaged at 400 partner institutions and summative evaluations of a range of educational products, programs, exhibits and forums. The summative evaluation of the *Race* exhibit found positive change in the majority of learning outcomes including the key goal that "Visitors will understand that race is a human invention" (116). Visitor comments in interviews included words such as "excellent," "well-done," "interesting," "moving" and "compelling" and comments touched on issues of racism encountered every day.

Our limited review also suggests that situating STEM content in a social issues context appears to engage visitors in the issue as well as the related STEM content. A summative evaluation of an exhibit on sustainable coffee practices at the Burke Museum in Seattle had a sweep rate of 104 and the Race Exhibit had a sweep rate of 169 square feet per minute, both lower than what Serrell found as an average SRI for large non-diorama exhibitions or science museums. In both of these cases, visitors paid attention to the science-based content in the exhibits. A review of five years of NISE Network activities similarly reported that "Learning the societal and ethical implications does not diminish learning other science or technology-related content" (417).

The specific types of impacts were more difficult to synthesize because of the inconsistent format and content of uploaded reports and, therefore, coding of the project. Supplementing the coding of impacts done by the BISE team with our own coding suggests that the projects in our subset focused primarily on *knowledge* with 97% of the projects having an impact goal categorized as *knowledge*. Given the potentially controversial or sensitive nature of some of the topics, we expected to see a higher percentage than the 30% of projects than had an impact goal focused on attitude. Goals related to behavior or skill were rare.

Learning Format and Audience: A quarter of the projects focused on an adult audience, and more than half of the projects involved a learning format that was a real-time, interactive or live experience such as a forum, performance or workshop in contrast to an exhibit or experience with a static format. Different formats of dialogue were prevalent in much of this work. NISE Net successfully utilized deliberative forums to engage audiences

in a range of topics around nanoscale technologies such as alternative energies and medicine. The exhibit *Race Are We So Different* utilized Talking Circles with positive evaluation results (116). The significant use of dynamic and interactive formats may suggest a trend that should be further examined.

Personal Connection: The characteristics and experiences of visitors may correlate to the particular ways they respond to information and may provide potential barriers or opportunities for engaging visitors in social issues. In the *Race* exhibit, individuals who self-identified their racial or ethnic background as White, were less likely to show changes in their understanding that racism is institutionalized or that race and racism affect how individuals relate to others. However, the impact of climate change on the health of individuals appears to be of interest both to those who do and don't accept climate change, suggesting that a personal connection is an important variable to consider in exhibit design and assessment.

Collective Impact: Research and theorizing around social change suggests that complex social problems can only be solved through the collective efforts of similar or disparate institutions with shared visions and goals (Kania & Kramer, 2011). The work of NISE Net, in particular, supports the potential impact of significant collaborations on both funders and the public.

Implications for Further Work

While limited in scale and scope, this synthesis suggests a number of opportunities in the ways museums engage in the complex questions facing society.

- Social issues may be an entry to engaging audiences in science, technology, engineering and mathematics.
- There is a significant opportunity for museums to focus on mathematical/quantitative or economic literacy as tools and requisites to civic engagement. Funding agencies could motivate this work.
- Dialogue formats appear be an emerging area of practice that would benefit from increased research, professional development and experimentation.
- Further work is needed to encourage conversations and to synthesize the work around social issues across and outside STEM institutions.
- The field would benefit from common vernacular to discuss the intersections of science, society and social problems.

Conclusion

This study represents a very limited and preliminary effort to describe the parameters of the work taking place in the intersections between museums and social issues. The results suggest that the public is interested in exploring social issues and do see

museums as a place where this exploration can take place. The field would benefit from significant and collective research and dialogue across STEM and non-STEM institutions.

About the Authors:
Kris Morrissey is Director of the Museology Graduate Program at the University of Washington and the founding Editor of the journals *Museums & Social Issues*, published by Maney Publishing and *Visitor Studies,* journal of the Visitor Studies Association. Kaylan Petrie, Katherine Canning, Travis W. Windleharth, Patricia Montano were participants in a graduate seminar at the University of Washington and conducted the research and the conceptualization for this synthesis. Ari Einbinder and Erin Bond also contributed to the preliminary discussions and conceptualizing of these ideas.

References

Bazeley, P. 2013. *Qualitative Data Analysis Practical Strategies*. SAGE. Los Angeles

Bell, L. (2009). Engaging the public in public policy. *Museums & Social Issues*, vol. 4.1

Bell, P., Lewenstein, B., Shouse, A. W., & Feder, M. A. (Eds.). (2009). *Learning Science in informal environments: People, places, and pursuits*. The National Academies Press.

Best, J. (2012). *Social Problems* (2nd edition.). W. W. Norton & Company, Inc.

Cooper, H. (2007) *Research Synthesis and Meta-Analysis* Sage Publications: Los Angeles

Garfinkle, R. (2009). Exhibits are not enough. *Museums & Social Issues*, 4, 9-14

Goodman, M., Finnegan, R., Mohadjer, L., Krenzke, T., and Hogan, J. (2013). *Literacy, numeracy, and problem solving in technology-rich environments among U.S. adults: Results from the program for the International assessment of adult competencies 2012: First look* (NCES 2014-008). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved [date] from http://nces.ed.gov/pubsearch.

Heifetz, R. A, Kania, J. V. & Kramer, M.R. (2004) Leading boldly. *Stanford Social Innovation Review.* Stanford Graduate School of Business. Stanford, CA

Institute for Museum and Library Services (2012). *Creating a nation of learners: Strategic plan 2012-2016*. Retrieved from http://www.imls.gov/

Kania, K. & Kramer, M. (2011) Collective impact. *Stanford Social Innovation Review.* Stanford Graduate School of Business. Stanford, CA

Korn, R. (2007). *Summative evaluation of RACE Are we so Different?* Downloaded from Informallearning.com.

Reich, C., Bell, L. Kollmann, E, Chin, E. (2007). Fostering civic dialogue: A new role for science museums? *Museums & Social Issues* 2(2)

Reich, C., Goss, J, Kollmann, E.K., Morgan, Nelson, A. G.. (2011) Review of NISE Network Evaluation Findings: Years 1-5. Boston, MA: NISE Network

Serrell, B. (1991) Profile of an exhibit evaluation summary of 'Darkened Waters: Profile of an Oil Spill at Oakland Museum for the Pratt Museum'