AIC Position Paper: *Beyond Career Day: Conservation and K-12 Education*

Introduction

The American Institute for the Conservation of Historic and Artistic Works (AIC), and its Foundation (FAIC), encourage collaborations between conservation professionals and K-12 students and educators to develop and implement conservation-based educational programs. The interdisciplinary and inquiry-based nature of the field of art conservation makes it a natural fit with K-12 educational goals. Conservation can provide a unique and engaging approach to learning in a wide range of subject areas and skills. The goals of this position paper are to elucidate the applicability of conservation topics to K-12 learning environments and goals, and to outline a number of ways in which conservation professionals and educators can develop and implement conservation-based educational programming.

Conservation and its applicability to current challenges in K-12 education

The present challenges within the American educational system have been well-reported: students' proficiency in math, science and reading is stagnating at levels that are not competitive with those of many other countries[i], while budget cuts are eliminating art programs from schools[ii]. In recent years there has been a particular emphasis on improving and expanding education in STEM subjects (Science, Technology, Engineering and Math) to ensure this country's competitiveness in the current economy[iii]. While attempting to address these challenges, public schools must also follow state-defined learning standards that outline the topics and skills to be taught at each grade level. There is a need for innovative and effective programming that particularly supports the arts, writing, and the sciences while also satisfying these standards.

Conservation-based lesson plans and curricula are particularly well-suited to this challenge on a number of levels. Art conservation topics are:

- *Inquiry-based:* Observation, deduction, and problem solving are fundamental activities engaged in every day by conservators. Conservation-based lesson plans are thus ideal for promoting problem-based[iv] or discovery learning, helping to develop the important critical skills outlined in state standards.

- *Multi-disciplinary:* Incorporating not only the visual arts and the physical sciences, but also connecting directly to other core subjects such as history, math, and social studies, conservation topics can be readily integrated with, or used to reinforce, lessons in other areas. This can provide opportunities for classroom teachers to work together. Critical reading and descriptive writing are also fundamental conservation skills that can be developed through such lesson plans.

- *Visual and practical:* Teaching conservation provides countless opportunities for students to engage directly with materials and concepts. Hands-on activities and laboratory learning are proven to be effective teaching tools at all levels.[v]

- *Arts-focused:* Numerous studies have demonstrated that learning that integrates the arts leads to improved overall outcomes, and produces students with innovative and critical thinking skills.[vi] Programs that incorporate the arts into other subject areas are particularly appealing as arts budgets are reduced.

- *Scalable:* On a practical level, conservation topics can be readily tailored to a wide variety of age groups, from kindergarten through high school. Furthermore, incorporating the visual and practical with the intellectual and theoretical aspects of conservation makes the lesson plans appealing to all types of learning styles.

- *Global*: Integrating conservation into K-12 education communicates to younger audiences the fundamental values of preserving, studying, and advocating for cultural property across the world. These values contribute to a sense of community and connection with others, as well as a respect for different cultures and beliefs, through exploring the material heritage of the world's cultures.

With current pressures on schools to create innovative and interdisciplinary methods of teaching that still conform to state standards, the field of conservation is particularly well-positioned to make an important contribution.

Development and implementation of conservation-based educational programs

A partnership between a conservator and a K-12 educator may take many forms. Educational opportunities exist not only within traditional classrooms in schools but in other institutions with an educational component, or independently in a conservator's studio or lab. The following sections outline some general considerations of audience, venue and level of involvement for such programming, and review some key elements that must be considered when developing a program. Finally, a list of subject areas is provided as a starting point for collaboration between conservators and educators.

A. Audiences and Levels of Interaction

The opportunities for collaboration between conservators and educators are diverse. Potential venues for K-12 conservation outreach programs include public, private, and charter schools, after-school programs or local community centers, art museums/museum education departments, historical societies, art centers and foundations, science centers, children's museums, and other cultural organizations. In all of these venues, a conservator may have the opportunity to work directly with students, or choose to work primarily with the educators, who will then utilize the information conveyed when teaching their students. In all instances, the level of interaction can vary from one-time programs to ongoing collaborations.

Examples of one-time collaboration include participation in "career day" events at the K-12 level, or presenting "introduction to conservation" talks to groups of students or educators. The conservator may also give tours to student or teacher groups at private or museum studios, or offer one-time webinars, videos, or other internet-based content. Videos and webinars may be made available for future viewing by other groups as well. Conservators may also provide one-time demonstrations of materials or concepts as part of an established curriculum.

Participation in school-based programs not only offers students new learning opportunities within their existing framework, but also facilitates relationship-building within the community. These programs may be short- or long-term, limited in scope or general, depending on the interests and commitments of those involved. Conservators and educators can collaborate to enhance core curricula in the classroom, or as part of after-school programs. For example, a conservator may work with a high school chemistry teacher to provide art-related examples and hands-on demonstrations during a segment on oxidation reactions, or participate in an after-school chemistry club. Conservators and educators may also work together to develop a semester- or year-long curriculum on conservation, offered as a separate course for selected students.[vii] Collaborations with schools may also include involvement with special education programs, which are often afforded access to non-traditional learning approaches and thus may be open to integrating conservation and hands-on learning into their curricula.

In addition to schools, institutions such as community centers, historical societies, art or science centers, children's museums, historic houses and museums that already provide audience development programs for children and families may welcome conservation outreach that coordinates with their existing offerings. Programming can be developed together that focuses on the institution's collections and aligns with their particular educational mission.

B. Key elements

The following are some key recommendations[viii] to keep in mind while developing this type of programming.

- ✓ *Curriculum materials or lesson plans that are outside of state- or school-mandated curricula must be proven to support that curricula.*

  When working within schools, new programming must align with the mandated standards. Generally speaking, conservation-based learning opportunities do support a wide range of existing curriculum areas, so it is not difficult to link a particular conservation topic to a state-defined standard. For example, a workshop on outdoor sculpture can be aligned with and support existing curriculum sections on weathering, the environment, corrosion reactions, sculpture techniques in art class, and so on.

✓ *Materials must provide multi-modal instruction to meet different types of student learners.*

The different modes of learning as defined by educators include kinesthetic-tactile, auditory, visual, and verbal. A workshop or lesson plan on outdoor sculpture can thus include an illustrated lecture component along with a hands-on experiment or demonstration of copper corrosion on coated vs. uncoated surfaces, as well as a site visit.

✓ *Ideally the effectiveness of the lesson plan or workshop will be assessed.*

To appeal to schools that are strapped for resources and time, it is most useful to provide some kind of means for judging the impact of the programming, whether that be a simple questionnaire administered at the end of the day or a few days later, or more involved testing for a more elaborate curriculum program.

✓ *The information provided should be complemented with teacher training modules.*

Creating opportunities to "teach the teachers" is the most effective way to ensure that the content lives on after the conservator's involvement ceases. The tools to teach basic conservation topics should be placed in the hands of the teachers, and their familiarity and comfort level with the material should be established, as well as routes for them to reach out to other conservators and arts professionals as time goes on.

C. General topic areas and ideas

The following is a list of themes or topic areas; by no means exhaustive, it is included here to provide a launching pad for the development of conservation-focused K-12 programming.

- **Focused looking**: Practicing observation and description skills by looking at and writing about art objects, their materials and their condition.
- **Media and materials** throughout history: Observation, classification and synthesis according to media/materials/time period/culture/etc.
- **Art making**: How did they do that? How was it made? What is it made of? Who made it? How can we find out the answers to these questions?
- **Preventive conservation:** What is happening to this art object, how can we tell? How can we stop it from happening?
    - Corrosion/tarnishing; weathering; light fading; pigment alteration
- **Scientific analysis**: formation of hypothesis, acquisition of data, interpretation of data together with information from other sources
    - Pigment or binder identification for dating or authentication; x-radiography for determining methods of manufacture or existence of restoration; identification of materials with XRF, XRD, GC-MS, etc.

- **Scientific method:** formation of hypothesis, experimental design, interpretation of results
- **Advocacy** for the preservation of cultural heritage: connect with local efforts, Save Outdoor Sculpture or other local programs.
- **Handling skills** and best practices for caring for your objects; can incorporate personal collections or archives
- **Ethics and history/current events**: Discuss the preservation of sites in war zones, the presence of cultural artifacts in museums far from their original intended audiences, etc.
- **Contemporary art**: Its materials and their deterioration; concepts of preserving video art and other ephemeral artworks; intention of artist; broadening students' understand of "what is art".

Conclusion:

Collaboration between conservators and educators offers the potential for many positive outcomes. Students gain awareness of new ways to understand applied sciences, are able to make connections between subject areas often kept separate in their curriculum, and gain an understanding of the importance of cultural heritage. Teachers are provided with new ways of teaching science concepts and satisfying state standards, while integrating the arts into their classroom teaching. Conservators benefit from forging new relationships with educators and other allied professionals, and contribute to creating awareness of and value for the preservation of cultural property.

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[i] The National Center for Education Statistics (www.nces.ed.gov) reports on the National Assessment of Educational Progress (NAEP) and the Trends in International Mathematics and Science Study (TIMSS). The Organization for Economic Cooperation and Development (www.oecd.org) reports on the Programme for International Student Assessment (PISA) test. Further reading on these and other assessments can be found via organizations such as Education Week (www.edweek.org), Change the Equation (www.changetheequation.org) and Students First (www.studentsfirst.org).

[ii] For further reading on the reduction and elimination of arts programs in schools, please see
www.nea.org/home/10630.htm
www.afsaadmin.org/art-music-classes-fall-victim-to-budget-cuts/
www.thecreativecoalition.org/issues/public-education/

[iii] For further reading on STEM education please visit the STEM Education Coalition at www.stemedcoalition.org. The After School Alliance has also published a recent study on outcomes of STEM afterschool programs (afterschoolalliance.org/STEM_Outcomes_2013.pdf)

[iv] For more on problem-based learning (PBL), see the Buck Institute for Education at www.bie.org

[v] For more on hands-on learning, please see http://www.raft.net/public/pdfs/case-for-hands-onlearning.pdf

[vi] Hetland, L., E. Winner, S. Veenema, K. Sheridan. 2007. *Studio Thinking: The Real Benefits of Arts Education*. New York: Teachers College Press. Also see the Americans for the Arts information sheet at www.artsusa.org/pdf/get_involved/advocacy/research/2011/artsed_facts11.pdf

[vii] Kerr-Allison, A., H. Shockey and M. Waterfall. "Bridging the Gap between Science and Art: A Behind-the-scenes Introduction to Art Conservation for Science Students from Thomas Jefferson High School in Alexandria, Virginia". In conference proceedings: *Playing to the galleries and engaging new audiences: the public face of conservation",* Colonial Williamsburg, November 14–16, 2011

[viii] McKeown, R. 2003. "Working with K-12 Schools: Insights for Scientists", *BioScience Journal*, Vol. 53, No. 9 (September 2003), pp. 870-875.