Chapter 13
Teaching the Twenty-First Century Competencies through Museum Interactives on Ancient Art and Archaeology

Carol Ng-He
The Oriental Institute of the University of Chicago, USA

ABSTRACT
This chapter includes perspectives of the museum educators on the importance of the integration of scholarly research and museum education for the online K-12 audience. The chapter is written primarily for museum educators, classroom teachers, and individuals who are interested in the museum-school partnerships, and ancient art and archaeology education through digital technology. The chapter includes some students’ work to reflect their progress on making the connection between ancient art and archaeology to our society today.

INTRODUCTION
This chapter addresses the importance of the integration of study of archaeology and ancient art, scholarly research and museum education, and digital interactives as a gateway for a K-12 audience to develop twenty-first century competencies. The goal of this chapter is to promote the interdisciplinary pedagogy among museum educators and classroom teachers to enhance student engagement, build their literacy levels, and prepare them for success in the twenty-first century.

BACKGROUND
If we teach today as we taught yesterday, we rob our children of tomorrow (Dewey, 1944, p. 167). (John Dewey, 1859–1952, philosopher, psychologist, and educational reformer)

The twenty-first century has changed how, when, and where we all learn... It is critically important to align and leverage all participants in the learning system – schools, institutions, organizations, programs, individuals, families, and neighborhoods. (Institute of Museums and Library Services, 2014, p. 13)

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Museums in the Era of Shifting Learning Expectations

Technology advances and shapes our culture at an exponential pace in the twenty-first century. For young people and adults in many developed countries, digital technologies and the web have given learners easier access than ever to information and the expertise of professionals. In the United States, it is estimated that more than 1.5 million K-12 students were engaged in some form of online or virtual blended learning in the school year of 2009-10, according to the International Association for K-12 Online Learning study in 2010. Of the fifty states, schools in forty-eight states have supplemental or full-time online learning opportunities available to students (The International Association for K-12 Online Learning, 2010). These learning opportunities include the integration of using online tutorials, application of interactive software, and digital devices such as iPads. The number is expected to grow in the future. With the availability, access, and integration of technology, the way students learn is changing, and hence teachers’ methods of teaching in their classroom must also change.

In the first decade of the twenty-first century, there has been a growing body of evidence that points to informal learning environments as significant sources of knowledge and skill development. Not only do museums face the challenge of leveraging the power of digital tools and social media to reach out to their audiences, but they are also striving to align their education programs with the new Common Core State Standards (CCSS) in English language arts and mathematics, and Next Generation Science Standards (NGSS) for K-12 student engagement and teacher professional development in the United States. The CCSS and NGSS were released for states’ adoption in 2010 and 2013 respectively. They were both designed to prepare students for college, careers, and citizenship. They help build the foundation and ability of the country to continue to grow and innovate for the future. These two sets of standards are aligned to provide children comprehensive education in all content areas.

The CCSS requires students to systematically acquire knowledge in literature and other disciplines through reading, writing, speaking, and listening for English language arts, as well as a solid conceptual foundation and application of mathematics.

Across the English language arts and mathematics standards, students learned the twenty-first century themes and real-world issues through critical thinking, problem-solving, collaboration, and communication. Today, forty-five states (excluding Alaska, Minnesota, Nebraska, Texas, and Virginia), the District of Columbia, four territories, and the Department of Defense Education Activity have adopted the Common Core and are implementing the standards according to their own time lines.

Through coherent progression aimed at overall scientific literacy with instruction focused on a smaller set of ideas, the NGSS requires students to learn the integrated nature of science as it is practiced and experienced in the real world. Unlike the way the science education was taught in the past, as separate disciplines disjointed from other curricula, students develop a contextual understanding of how science is applied.

In 2012, a report from the National Research Council found that transferable knowledge and skills are key to success in education and work. The ability to apply what one learns in one situation to new situations is key to not only academic achievement but also to success in education, work, and other areas of life. More importantly, this report calls for curricula and instructional programs design with a focus on clear learning goals along with assessments to measure students’ progress toward and attainment of the goals.

Museums play a significant role by offering necessary tools to meet the goals stated above. The National Research Council report suggests research-based teaching methods help students