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Cataloging wonder: the art and science of the collection

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Cataloging wonder: the art and science of the collection

Abstract

The Exploring Science in the Studio National Science Foundation grant funded three initiatives at California College of the Arts, a private four-year art and design college in the San Francisco Bay Area. The grant sponsored annual Science-in-the-Studio which embedded scientists into the art and design studio curriculum, the creation of Mobile Units for Scientific Exploration (MUSE) and a new collection of science materials, equipment, and natural specimens, and a national symposium on integrating science into the art and design studio curriculum. Approximately 30 SitS classes have been offered since 2010, and the Exploring Science in the Studio symposium was convened at CCA in November 2015. Students played a large role in the research, prototyping, and design of the MUSE system which provides a new model for semi-permanent science classroom/lab/museum spaces in locations that lack the physical, financial, or curricular ability to have full or traditional science spaces.

Author/Artist Bio

Christine Metzger's work as both a geologist and a textile artist explores how landscapes respond to climate change and how scientific data can be presented in traditional and untraditional ways. Her work is deeply anchored in both place and time and in a consciousness of the role humans play in the grand scheme of life on Earth. Since 2010, she has worked at California College of the Arts in the San Francisco Bay Area, where she teaches interdisciplinary courses like "Bad Science at the Movies," an introductory geology class via the lens of Hollywood disaster movies, and "Life on Earth through Time," a history of four-billion years of life history that integrates illustration and other creative work with science. She earned her PhD in geological sciences from the University of Oregon in 2013, and she was the principal investigator for an interdisciplinary \$200,000 National Science Foundation grant, "Exploring Science in the Studio," from 2013 to 2016.

Keywords

collections, natural history, interdisciplinary

Cover Page Footnote

This work was funded by National Science Foundation grant #1140742. Russell Baldon (CCA) and Allan Wexler (Parsons) taught the Furniture Atelier Studio that designed the MUSE system. Teri Dowling (CCA) cataloged the MUSE collection in the Library's online database. The work of the grant was assisted by the other members of the Core Team, Kate Angelo (Project Manager), Melissa Miller, and Lisa Jonas. A special thanks to all the students who participated in both the Furniture Atelier Studio and the Life on Earth through Time course.

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Cataloging wonder: the art and science of a new collection at California College of the Arts

Christine Metzger

Mobile Units for Scientific Exploration (MUSE)

The Exploring Science in the Studio National Science Foundation grant, one of the largest NSF grants ever awarded to an art and design college, aimed to investigate methods of integrating science education into the art and design education, blurring the lines between lab and studio and bridging the gap that can seem to exist between science and art.

The grant sponsored three main activities: Science-in-the-Studio courses offered annually which paired studio faculty with outside scientists, the creation of Mobile Units for Scientific Exploration (MUSE), and a national symposium on integrating science into the art and design studio curriculum. Approximately 30 SitS classes have been offered since 2010, and the Exploring Science in the Studio symposium was convened at CCA in November 2015. This field note addresses the role students played in the design, installation, and use of the MUSE project.

MUSE Design

In Spring 2015, the students of the Furniture Atelier Studio taught by Russell Baldon (CCA) and Allan Wexler (Parsons) researched, prototyped, and designed potential MUSE system components, carts, shelves, and soft storage. Heretofore, science equipment and materials at CCA were scant and often hard to access or convey to classes. Inspired by everything from Renaissance *Wunderkammer* to hexagons, the students researched museum collections, interviewed many CCA science faculty, and visited working scientists at the California Academy of Sciences. As the principal investigator of the grant, I acted as a science advisor in the course and as a guest critic at

critiques. Designs were finalized, and the MUSE system and carts were fabricated and installed by Chris Loomis during Summer 2015.

MUSE Collection

Creating a new collection of science materials, equipment, and natural history specimens (rocks, fossils, skulls) from scratch for the MUSE was long endeavor. I began by interviewing and surveying our existing science faculty at CCA. I also researched collections management and determined how to best catalog the new collection.

The new collection has four main themes: Optics (microscopes, binoculars), Physical Properties (lenses, light, physics), Environmental Analysis (water quality test kits, soil test kits, weather station), and Natural Science (rock and fossil collections, botanical collecting equipment). I individually numbered, keyed, and cataloged the large fossil (600+ specimen) and rock (200+) collections. Fossils and rocks were grouped into thematic collections to allow for easier check out (e.g., extrusive igneous rocks, fluorescent minerals, or fossil gastropods). I created physical and digital collections of MSDS sheets, safety information, and manuals for the MUSE collections and collaborated with Teri Dowling, Assistant Director of the Library, on cataloging the science materials in the Library's online database (87 entries).

Students in my Life on Earth through Time course learn how to make paleontological sketches and illustrations, a skill they are often surprised I (a scientist!) possess which opens the door to a class discussion about the many skill sets scientists and artists share. In Fall 2015, as I was readying the MUSE collection for its opening at the 2015 Exploring Science in the Studio symposium, each student in the course was assigned a phylum (ex. Porifera, Arthropoda, Vertebrata) to research. Using the fossil collection, they selected and sketched representative

specimens for their phylum. After revising and inking their sketches and labelling the morphology, I digitized their images and added them to the collection cards with credit to each student. Described by several students as their favorite activity in the course, this connected the learning happening in the classroom to both my personal scholarly research and to the larger work of the AICAD Symposium.

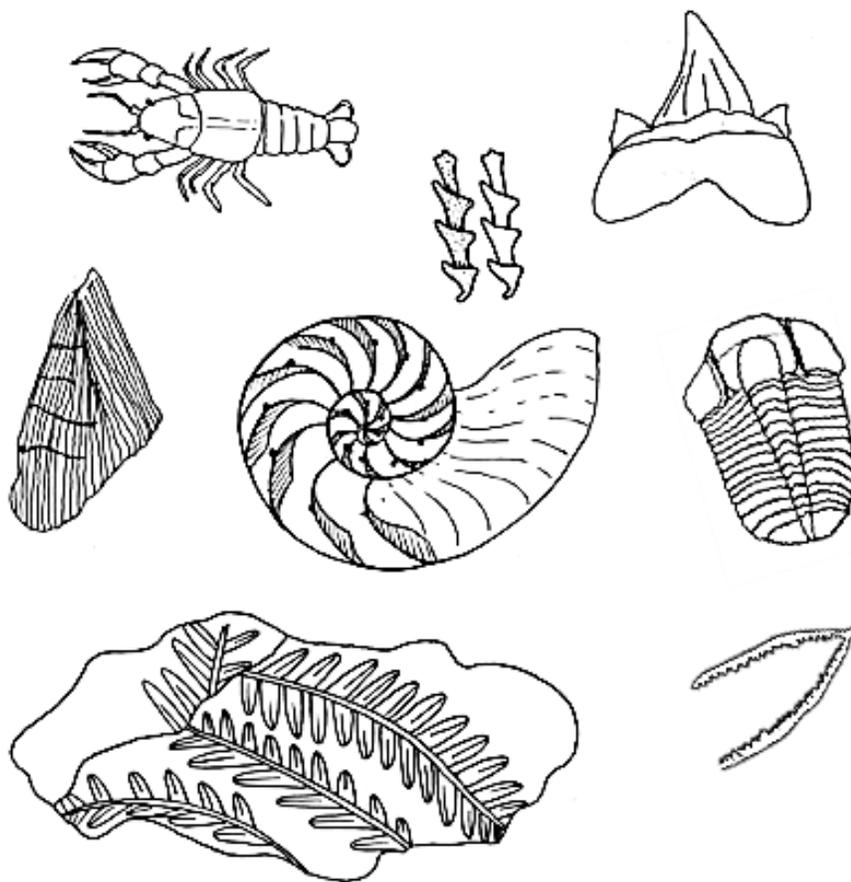


Figure 1. Student sketches for the collection cards



Figure 2. Student-designed collection cards

MUSE in Use

The MUSE carts and contents are already in active use. Faculty have begun utilizing the equipment in their courses: microscopes in a biological design course in architecture; water quality test kits in an interdisciplinary studio; hand lenses, microscopes, plant press, and plant fossils in a botany course; and the rock collection in my geological hazards course



Figure 3. MUSE Installation

Broader impacts

The work of this grant has proved successful as a model for integrating arts and design into STEM (STEM-to-STEAM) education. STEM-to-STEAM efforts in the US have been almost exclusively focused on K12 education, particularly in the direction of art into science. This grant, working in tertiary education and primarily in the science into art direction, was a novel and

ultimately successful approach. Several hundred students have participated in the Science-in-the-Studio courses over the last six years (three funded by the grant), and dozens of faculty (both studio and science) have been able to integrate science into their courses, use new science equipment, and create bridges across disciplines. As a pedagogical model, embedding scientists into art and design studio courses has enabled a greater understanding of the content of important scientific and technological topics (climate change, pollution, computing, etc.) in the context of the students' personal practice. By investigating science and scientific inquiry as another way to explore the natural world, art and design students now have the opportunity to learn new techniques or enhance their existing knowledge. The MUSE system and the science materials, equipment, and collections have also provided a new model for bringing in semi-permanent science classroom/lab/museum spaces where there perhaps is not the physical, financial, or curricular ability to have full or traditional science spaces. The MUSE system and its contents can easily be adapted to the physical space or needs of any discipline.