

Project Profile

Project Title: Classroom with a Current Watershed Laboratory

Grantee Organization: Grand Rapids Public Museum

Project Team:

Grand Rapids Public Museum

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Grant Amount: \$59,742

Time Frame: 4/1/17- 6/30/18

Focus Area: Stewardship

Brief Project Summary:

The Grand Rapids Public Museum (GRPM) Classroom with a Current program provided an opportunity for thousands of students to experience inquiry-based learning with a focus on Great Lakes Watersheds. Programs were designed to provide information that assisted students in becoming (1) active and effective stewards of the Great Lakes and (2) advocates for strategies that support the long-term sustainability of the Great Lakes fisheries. Programming included Museum based field trip programs, extension of a traveling exhibit and summer camp experiences.

Project in Context

For the past 163 years, the Grand Rapids Public Museum has been viewed as an important institution that served the basic purposes of collecting, preserving and sharing artifacts for the community's benefit. This project worked to synthesize and compile best practices of cutting-edge educational approaches into teachable experiences for informal education at the GRPM. The skills that are in demand in our new knowledge economy include: Active Learning, Complex Problem Solving, Active Listening, Speaking, Critical Thinking, Reading, Comprehension, Monitoring, Social Perceptiveness, Coordination, Judgment and Decision Making, Time Management, Writing, and others. These are 21st century skills that require practice and many experiences to master. Museums are ideal environments that can cultivate the curiosity and skills necessary to practice and perform in these critical 21st century capacities. When children have opportunities for purposeful learning that is inquiry-based and interactive, the potential for learning is increased (Piaget, 1973). Research also shows quality learning experiences play a central role in adolescent brain development (Bransford, Brown & Cocking,

2000). However, low socioeconomic students, such as those who comprise a majority of students in urban school districts, like the Grand Rapids Public Schools, often lack quality learning experiences (Wikeley, Bullock, Muschamp, & Ridge, 2007). Quality learning experiences including inquiry are critical for students' practice and mastery of the skills required within the new knowledge economy (Wilson, 2012).

This program focused on inquiry based learning through an informal education setting using Great Lakes stewardship principles and themes. With the GRPM's location on the bank of the Grand River in downtown Grand Rapids, there was an opportunity to discuss urban watersheds, stewardship and the threatened and endangered species that are still present in the river. This focus on species, such as lake sturgeon (*Acipenser fulvescens*), wild rice (*Zizania sp.*) and the snuffbox mussel (*Epioblasma triquetra*) imparted a relationship to place and a connection for stewardship actions. By creating activities in the watershed laboratory engagement with the students was enhanced and discussions of watersheds and the Great Lakes became more common.

Goals of the Effort

This project provided residents and students from the region an opportunity to learn about our local ecosystem and water resources at the Museum. A laboratory setting allowed for hands on content to be delivered to students. Targeted programming was developed for classroom visitors and summer visitors (summer camps). The general public was targeted through an extension of a traveling exhibit called *Water's Extreme Journey*. The extension focused on the Grand River Watershed specifically.

Results

The Classroom with a Current Watershed Laboratory grant allowed for creation of an engaging space and associated program delivery at the GRPM. Through feedback and testing it was determined that programming that was most successful included field trip opportunities focusing on special species in the watershed, cultural resources and artifact discovery. This is aligned with the Museum's mission and education plan and has been incorporated into standard programming. The Watershed Wonders summer camp was also again very successful and will continue to be offered. The laboratory will now be open on Saturdays for the general public to participate in activities.

Products and Resources

Educational opportunities offered at the GRPM can be found through the GRPM website. This site contains content for school visits specifically.

<https://www.grpm.org/schools/>

FINAL NARRATIVE REPORT

Background/Overview

This stewardship project was built to be a multi-tiered approach to watershed education and outreach. The overarching goal was to raise awareness of watershed issues and build on the success of a previous grant that developed initial prototypes for museum education as it relates to Great Lakes stewardship. Enhanced programming at the Grand Rapids Public Museum (GRPM) allowed a large audience to experience hands-on watershed education. The GRPM Classroom with a Current watershed laboratory is a hub of information related to watershed ecology. In addition, new laboratory-based programming as well as summer camp adventures enhanced offerings at the GRPM. By incorporating artifacts and object-based discovery into watershed education the GRPM provides a local context to Great Lakes watershed themes. Overall the Laboratory and associated programming was implemented as planned. The specific content was altered in that we were able to incorporate developing technology in the form of an augmented reality sandbox. This technology allows students to manipulate a topography table and create their own watersheds and landforms.

Outcomes

Outcomes of this stewardship program included 1) development of programs using the watershed laboratory and 2) hosting effective and accessible watershed wonders summer camps. The offerings at the museum include multiple programs related to the Great Lakes ecosystem and specifically the Grand River Watershed. The Museum now employs multiple staff that utilize the laboratory for programming. Five specific programs are part of the museums school offerings and the museum participated in multiple professional development events where the watershed related programs were used as examples of inquiry based programming. There are two sessions of a Watershed Wonders summer camp and multiple watershed programs options for the thousands of students that visit throughout the school year.

The targeted audiences were reached through our multi-tiered effort (school, summer and public). We received much feedback from our users that these new programs were a welcome addition to the offerings of the GRPM. Through camp surveys we learned that participants engaged with their parents and were excited to talk about watersheds and scientific concepts. Parents also indicated that students were using new vocabulary that they had learned at camp. Teachers that utilized the museum-based programs indicated that the inquiry based programming that challenged their students to synthesize information and draw inferences from observations fit well into their curriculum.

These programs built new and strengthened existing relationships. GRPM partnered with Groundswell to deliver professional development to educators in the area with the GRPM

providing content based on watershed programs delivered at the Museum. The Watershed laboratory was developed with multiple partners including Grand Rapids Public Schools (GRPS), Grand Rapids White Water (GRWW) the Lower Grand River Organization of Watersheds (LGROW), John Ball Zoo (JBZ), Grand Valley State University and Outdoor Discovery Center (ODC).

Evaluations of school programs and summer camp offerings were completed (See attached). Campers of all ages met the key learning goals for the camps. Multiple-choice tests were used before and after the camp, as well as with a proportion of the school groups. Camp and short museum based programs and showed targeted gains in understanding on a most content questions.

Benefits of this stewardship program included the ability to utilize a laboratory space and associated program to build strong and continued watershed education at the GRPM. New partnerships were built that created innovative programming based in an urban museum. This grant has allow diverse populations access to information about their local river as well as overarching themes of water and watersheds. It allows users to develop literacy in watershed topics and explore the possible effects of human intervention in natural systems. Information has been shared with many community partners and we have developed a series of banners that can travel outside of the GRPM for use in outreach to the community. These banners were created because of the background research that was needed to develop the content for the laboratory. These watershed programs and a movement towards STEM education in an informal setting are the basis for future engagement at the GRPM.

Related Efforts

The classroom with a current watershed laboratory at the GRPM has been the inspiration for many new programs. GRPM will implement watershed programming into its yearly offerings. GRPM plans to provide programs on a routine basis for schools, on Saturdays for the public and throughout the summer.. The watershed laboratory will be tied closely to work that is taking place within the Grand River watershed. With riverbank restoration, floodwall management, threatened and endangered species studies ongoing, the tie to the local environment is strong. With GRPM staff integrated into the GRForward planning process, the river rehabilitation planning process, the Lower Grand River Organization of Watersheds (LGROW), Groundswell, and coordinating with the City of Grand Rapids for interpretation and dissemination of water quality data, the GRPM will provide current and relevant programming to the community. To further ensure there is regional collaboration in environmental educational offerings the GRPM participated in coordination of environmental education in West Michigan. The collaborative process is working to inform the future direction of overall environmental education at the

GRPM. Additional programming for 2018-2019 includes having the laboratory open to the public on Saturday mornings as part of the general admission to the museum.

Communication/Dissemination

Educational opportunities offered at the GRPM can be found through the GRPM website. This site contains content for School Visits, Camp Curious and overall Science programming at the museum. The watershed programming will be advertised to all educators interested in GRPM programming. There are approximately 30,000 students that visit the museum annually. Working with Groundswell allowed for a strong professional development component. In addition, 52 classes of students spend a week at the museum annually. These students have access to the watershed laboratory and the programming associated with it.

Presentations were given at the quiet waters symposium, the Grand River Spring Forum and the American Alliance of Museums.

Reflections

This stewardship project has been a great benefit to the GRPM and the surrounding community. Overall, the results were very positive and have allowed the GRPM to build new programs based on Great Lakes stewardship principles and watershed ecology. Feedback from students and teachers has reinforced that inquiry based programs provide a superior experience for the visitors. Overall, the ability to build and implement program content in a laboratory setting has provided a strong platform for future offerings.

Attachments

1. Program Evaluation Summary
2. Watershed Impact Report