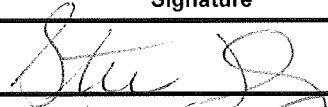



Technology Fee Award Budget Report

Part 1 of 2: Budget Summary

NDSU ORGANIZATION OR UNIT Geosciences		Award No.: 1612	Fund No.: 19234		
		Report Period:			
PROJECT DIRECTOR(s) Stephanie Day					
A. Salaries and Wages (Number)	Number of Months	FUNDS REQUESTED	FUNDS AWARDED	FUNDS EXPENDED	BUDGET BALANCE
1. Staff ()					
2. Graduate Students ()					
3. Undergraduate Students ()					
B. Total Salary and Wages (Sum A.1., A.2., and A.3.)					
C. Fringe Benefits					
D. Total Salaries (Sum B and C)		\$0.00	\$0.00	\$0.00	\$0.00
E. Equipment (List each item)					
BenQ MX631ST short-throw XGA DLP projector with 13000:1 contrast ratio and 3200 ANSI lumens		\$2,750.00	\$2,750.00	\$3,279.32	
Kinect Sensor with power adapter		\$625.00	\$625.00	\$134.32	
PC		\$6,750.00	\$6,750.00	\$6,745.00	
F. Total Equipment (Sum items in E.)		\$10,125.00	\$10,125.00	\$10,158.64	(\$33.64)
G. Materials and Supplies (List each item)					
200lbs sand		\$1,000.00	\$1,000.00	\$1,009.60	
wood and hardware		\$1,250.00	\$1,250.00	\$1,897.45	
polyurethane		\$500.00	\$500.00	\$63.73	
aluminum slats		\$375.00	\$375.00	\$0.00	
steel pipe		\$375.00	\$375.00	\$0.00	
Additional Supplies		\$0.00	\$0.00	\$495.58	
H. Total Materials and Supplies (Sum items in G)		\$3,500.00	\$3,500.00	\$3,466.36	\$33.64
I. Total Salaries; Equipment; Materials and Supplies (Sum: Line D + Line F + Line H)		\$13,625.00	\$13,625.00	\$13,625.00	\$0.00
J. Total Technology Fee Request		\$13,625.00	\$13,625.00	\$13,625.00	\$0.00
K. Match					
L. Total Project Expenditure (Sum: Line J + Line K)		\$13,625.00	\$13,625.00	\$13,625.00	\$0.00
Name (Type or Print)		Signature		Date	
Project Director: Stephanie S. Day				11/4/16	
Unit Head: Peter Oduor				11/4/16	

Technology Fee Award Budget Report

Part 2 of 2: Specific Details

Milestones

Milestone	Expected outcome	Actual Outcome	Means of assessment
Initiation of project	Materials and equipment order	materials and equipment ordered	project completed
Construction of sand table begins	carpentry starts	carpentry began	construction was completed
Construction completed	sand table constructed	stand table constructed	construction was completed
Sand table available for outreach	sand table in working order	sand table in working order	sand tables have been used for outreach
Sand table available for use in classes	sand table used in classes	sand table used in one class	Sand tables used in two classes with an additional two classes expected by the end of the semester
Sand table used in several classes and as outreach tool	students in several classes have used sand table to better understand topographic maps	sand table used in one class and expected to be used in several lab sections by the end of the year, sand table used in several outreach events	Sand tables used in two classes with an additional two classes expected by the end of the semester, and they have been used in several outreach events for the community

Equipment

Equipment	Quantity	Cost/Item	Total Cost
BenQ MX631ST short-throw XGA	5	\$655.86	\$3,279.32
Kinect Sensor with power adapter	5	\$26.86	\$134.32
PC	5	\$1,349.00	\$6,745.00

Materials & Supplies

Item	Quantity	Cost/Item	Total Cost
25 lb boxes of white sand	80	\$12.62	\$1,009.60
wood and hardware			\$1,897.45
polyurethane			\$63.73
Steps	2	\$29.99	\$59.98
Pipe Caps	2	\$13.50	\$27.00
Foam Board pack of 10	1	\$47.09	\$47.09
shop scoops	2	\$21.65	\$43.30
Canopy tent	1	\$299.95	\$299.95
Trowels and other supplies			\$18.26

Project Overview/Budget Summary

<p>Project Overview/Budget Summary</p>

The augmented reality sand tables were all in working order at the start of the Fall 2016 semester. Four sand tables have been deployed in Stevens hall for use by the Geoscience Department, and one has been deployed in Klai Hall for use by the Architecture Department. They have been used successfully in two class, and several outreach events, and before the end of the semester they will be used in two additional course as well as additional outreach events.

One course where the sand tables have been already used is Geog 262: *Geography of North America*. There are twelve students enrolled in that course this semester, yet despite the small sample size the results were encouraging. Students enjoyed the process of learning how to understand topographic maps far more than they have in the past, in fact students requested to do this activity again, something which has never been experienced in previous topographic map activities. While this result alone could in some ways be counted as a success, students also demonstrated statistically better test scores on questions focused on topographic maps. The analysis of student interest and learning within the geoscience department will continue in approximately two weeks when a larger group of students take on learning topographic maps in the Geol 105L: *Introduction to Geology Laboratory*. In this course there are 130 students representing a cross section of the NDSU student body.

The second course where the sand tables have been used is LA 472: *Environmental Planning Studio*. There are 15 students in this course where they have used the sand table to simulate flood conditions applicable to sites in and along the Souris, Missouri and Little Missouri River in North Dakota. Later this semester, the sand tables will also be used in LA 371: *Site Planning Studio* which also has 15 architecture students. Additionally the location of the sand table in Klai Hall makes it available for use by any Landscape Architecture or Architecture students who may need it, currently 98 in all.

The sand tables have also been used for a variety of outreach events including an Earth Science week event that attracted over 50 people including many children some as young as two, college students, and adults. This event was well received by the community and provided an opportunity to explore landscapes and topography in an innovative way. No surveys were collected to monitor learning at this event, yet when 5 and 6 year olds are using the sand tables to demonstrate what a peninsula is or 7 and 8 year olds are matching photos of a landform with topographic maps of the same sites, some learning is certainly occurring. Additional events where the sandbox has been used include the NDSU TechExpo and Boy Scout visits. Finally the sandbox has also been used as a recruitment tool in the architecture department where the technology has been demonstrated for prospective students when they tour the facilities.

Budget Summary:

We were able to stay on budget overall yet prices increased for some items (Projectors) and some items were found at a better price (Kinects). In addition the design of the sand tables were changed to allow more opportunity for outreach and to create a more structurally stable system, these changes rendered some materials unnecessary (aluminum slats, and steel pipes). Additional supplies were purchased to facilitate the sand tables being used for outreach including steps for children to see in the box, scoops and trowels for moving sand, and a large tent to reduce light outside or in well-lit areas. The specific budget details are highlighted in the spread sheet provided.