

Engaging At Risk Populations Outdoors, Digitally

Researching Youth Attitudes on Technology and Nature



Students use a field microscope in conjunction with a tablet to observe details of their surroundings as a part of the 2015 Project EARPOD. EARPOD was designed to research student engagement in a technology-rich learning environment outdoors.

Project EARPOD: Engaging At-Risk Populations Outdoors, Digitally was a program funded through the 2014-2015 Wisconsin Environmental Education Board (WEEB) grant. Project EARPOD used an integrated technology program to engage underserved youth in meaningful outdoor experiences that increased environmental literacy and provided substantial evaluation data with implications for pedagogical approaches in environmental education. This project collected data on the impact of classic and technology-integrated environmental education programming on youths' environmental awareness, knowledge, and attitudes towards the natural world. Research in this area will help future educators and administrators make decisions regarding best practices and resource allocation within the field of environmental education.



Students first use hand lenses and field guides to observe details and figure out the identity of a tree growing on their school grounds.

Classic Observation



Students then use state-of-the-art resources to examine their surroundings and learn more about what they cannot see at first glance.

Technologic Observation



Students create scientific sketches of what they see without the aid of technology and then again with the use of the provided technology tools.

Scientific Sketches

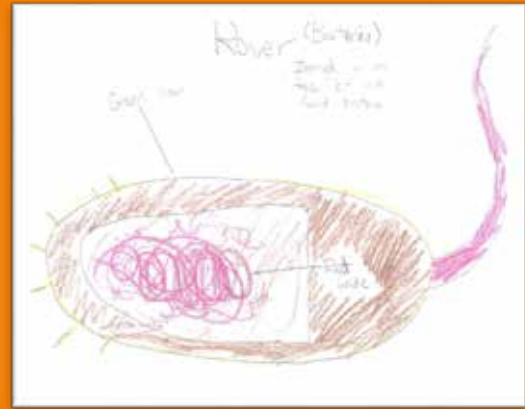


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Students create personal scientific sketches of what they observe with analog tools as well as with technology tools. Observations connect students with minute details of the world around them. Corinth Micro Plant (tablet app) allows students to zoom into and learn about a tree's leaf, down to the cellular and sub-cellular level.



Results: Changing Student Attitudes on Technology and the Outdoors

Assessment Questions	Pre	Post	Difference	p Value
I know about different types of technologies*	3.81	4.15	0.34	<0.001
I like to be outside	4.39	4.48	0.09	0.236
I like to use technology*	4.25	4.46	0.21	0.017
I know how to use different technologies*	3.76	4.11	0.35	<0.001
I like to use technology outside*	3.40	3.99	0.59	<0.001
I can use technology to learn	4.33	4.44	0.11	0.12
I care about nature	4.57	4.52	-0.04	0.53
I use technology at home	4.38	4.51	0.13	0.098
I can use technology to have fun*	4.35	4.54	0.20	0.024
I like to look at birds*	3.53	3.87	0.34	<0.001
I like to look at plants*	3.57	3.97	0.40	<0.001
I want to learn more about technology	4.15	4.29	0.15	0.123

Students were asked the above questions before and after the EARPOD lesson (n=136). Answers were collected on a five-point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The average response was calculated with total paired student responses. Differences in the average between pre and post assessment were then calculated. To test for significance, a paired t-test was calculated for each assessment question.

*Assessment questions that have significantly different post assessments scores when compared to pre assessments. This means that the measured change in response is due to the EARPOD lesson and not random variation in responses.



EARPOD met students on their home turf: a technology rich environment. By using technology to enhance outdoor observation, students have significantly more interest in the use of technology outdoors and interest in observing plants and birds (see table, right). Student's confidence in knowing about and using mobile technology has also increased due to this project. Capable, confident students with a new found passion for outdoor observation are eager to contribute to both the scientific and local communities.



"It was amazing to see the level of excitement in each and every student when they were given the responsibility of exploring the outdoors with the Microsoft Surface tablets, microscopes, and Corinth Micro Plant App."

