

Integrating Practical Geometry and Statistics into Service Learning Activities: Remediating Stormwater Runoff with Community Rain Gardens

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With the increasing urgency to restore and manage coastal seas, the more you communicate and educate today's younger generation on environmental issues the better solutions will arise. In this respect, it is crucial to identify appropriate teaching strategies and other means to sensitize future teachers to practical aspects of math and science in order to motivate, develop awareness, and instill engagement and social responsibility skills in our youngsters. This paper will present an instructional model that was utilized to instruct statistics and geometry to future elementary school teachers from a transdisciplinary perspective.

The model involved practical aspects of geometry and statistics in the context of current environmental issues. This project took place primarily in a charter school where future teachers were able to introduce basic skills in geometry and implement environmental solutions to runoff pollution by engaging charter school students in building rain gardens at a community center. The concept that teachers can connect course content to real world problems and concurrently contribute to the development of students' critical thinking skills has been discussed previously elsewhere but little has been done to implement this concept on the professional development curriculum of future elementary school teachers.

Assessment of learning outcomes was based on a questionnaire implemented before and after instruction at the Charter school. Analysis of the effectiveness in active learning linking lecture with a practical activity was evaluated based on the level of environmental consciousness and the understanding of mathematical processes to solve real world problems. This instructional model emphasized the importance that future teachers implement systemic thinking to integrate subject content and real world problems in order to develop creative and critical thinking skills in our children to live each day of their lives with an environmental consciousness and to become better decision-makers.

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