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A New Extension Model: The Memorial Middle School Agricultural Extension and Education Center

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Abstract: The Memorial Middle School Agricultural Extension and Education Center is a new model for Extension. The center applies the Cooperative Extension Service System philosophy and mission to developing public education-based programs. Programming primarily serves middle school students and teachers through agricultural and natural resource science education. Programming efforts provide students with knowledge-based information that is high in content, context, and engagement. This approach serves center goals to cultivate young scientists through hands-on activities, improve student performance through research, and develop a center relevant to the local community agriculture and natural resource needs.

Introduction

The Memorial Middle School Agricultural Extension and Education Center (MMSAEEC) is an innovative teaching and learning model and unique role for New Mexico State University Cooperative Extension Service. MMSAEEC is a youth science center emphasizing participatory learning and experiential education that engages youth in inquiry-based learning projects. The center represents a shift from the traditional Extension role of extending research-based information in a nonformal education setting to direct involvement in the public education system. This article examines the Cooperative Extension Service involvement in facilitating public education and the development of a new model to meet that end.

About the MMSAEEC

For over 90 years, the New Mexico 4-H Youth Development Program has successfully helped both urban and rural youth gain the life skills necessary to become responsible members of society. To accomplish this goal, a variety of delivery methods have been used, including clubs, special interest programs, and camps.

One of the three primary delivery methods in New Mexico is school enrichment programs, where, with permission of the teacher and school administrators, youth can pursue both traditional and short-term projects during school hours. But never before in New Mexico has Extension been fully integrated into an entire school's curriculum.

MMSAEEC modifies the traditional Extension approach and applies it to youth education in an innovative approach to youth development. The center serves all students at the middle school, grades 6-8. The MMSAEEC model features a synergistic partnership among New Mexico State University (NMSU) Cooperative Extension Service faculty, the New Mexico Legislature, and a public middle school's teachers and students. As part of the agreement between NMSU and the Las Vegas City Schools, NMSU provides a faculty member and a STEM/4-H agent who are responsible for designing, developing, and delivering educational programs. The school district supplies land, an 1800-square-foot greenhouse, and a wet lab to be added in the coming years. The goal of this model is to help prepare young people for careers in the sciences, particularly for minority students who are underrepresented in the sciences.

Educational programming objectives include improving student skills that allow them to undertake scientific research projects, and experiments; increasing scientific understanding of agriculture and natural resource problems; and enhancing overall student achievement. Programming efforts are designed to meet current challenges in public education and prepare students for a complex future while providing a learning environment that allows them to develop critical thinking abilities they will need to deal with these complexities.

The decision to locate the MMSAEEC in Las Vegas, New Mexico was influenced by several factors. The area has a rich farming and ranching heritage, the middle school is located in the Gallinas River valley, and the school district has water rights for the site. From an educational perspective, young people of middle school age are beginning to gain an appreciation for life-long learning. However, Las Vegas has many economic challenges that have left the community underserved, creating risk that local students are academically left behind. School district data reflect these challenges, as 89% of Memorial Middle School's 446 students are Hispanic, 66% are economically disadvantaged, and 27% have special needs.

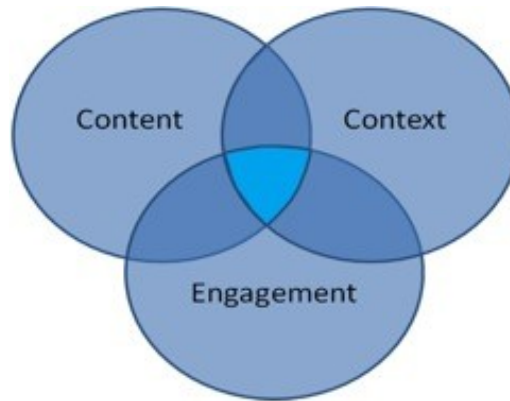
Youth Education and Development at MMSAEEC

Learning theory has been explored by numerous authors (Bloom, 1956; Dale, 1969; Bandura, 1977; Kolb, 1984) to better understand cognitive development and steps in the learning process. Based on these theoretical underpinnings, youth development organizations have developed youth education models to enhance the youth learning process and develop skills to help youth lead productive lives (Fitzpatrick, Gagne, Jones, Loble, & Phelps, 2005; 4-H, 2009; Iowa State University, 2009; USDA CSREES, 2009). Youth education and development is enhanced by participatory learning and experiential education through carefully planned and high quality programming efforts that provide context to content through hands-on learning projects (Bourdeau, 2004; Skelton & Dormody, 2009).

Operating from these theories, MMSAEEC provides youth engagement learning opportunities through project-based learning. MMSAEEC seeks to deliver programs high in content, context, and engagement (Figure 1). Content is guided by grade-specific New Mexico public education standards and benchmarks. However, content is influenced by Science, Technology, Engineering, and Mathematics (STEM) curriculum; 4-H Science, Engineering, and Technology (4-H SET) curriculum; and cross-curricular teaching opportunities with teachers through the core disciplines. Context is guided by the mission of the center to deliver programs in agriculture and natural resources, specifically agroecology, ecological monitoring, and restoration, and emerging issues in agriculture and natural resources. Content and context are enhanced through the engagement of students using a traditional classroom setting, labs, a greenhouse, the campus

landscape, and educational sites located in the diverse Rocky Mountain/Great Plains ecotone.

Figure 1.
MMSAEEC Program Delivery Model: An Integration of Content, Context, and Engagement



MMSAEEC as an Extension Model

The MMSAEEC model adheres to the Extension philosophy of practicing scholarship, engagement, and becoming more productively involved in community and mission of providing useful and practical information relating to agriculture (Seevers, Graham, & Conklin, 2007). The Extension approach of transferring technology and knowledge-based functional education, as applied to the formal education system, benefits the center in a variety of ways. The center develops programming to meet student needs, develop skills, and enhance learning. The center collaborates with area resource agencies, non-profits, and the local university; develops educational partnerships with agencies, non-profits, organizations, and institutions involved in area agricultural and natural resources; and establishes networks with diverse groups that serve productive agricultural and natural resource interests in the community, that in turn provide support to the center.

To better understand the model's impacts, efforts to test relevance and workability of the center are underway so that new knowledge is timely, sound and workable with all of its different dimensions. While the center is engaged in both formal and nonformal education, the center is involved in the community primarily through formal education. Opportunities in nonformal education have grown due to expanded facilities, resources and expertise, in combination with continuing legislative funding and grants.

The center is engaged in extending knowledge-based information and in affecting the skills and practice of many young learners involved in discovering new knowledge. This new model of Extension is not only intriguing but also worthy of continued inquiry.

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