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Innovation for Agricultural Training and Education

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The U.S. Government's Global Hunger & Food Security Initiative

Project-Based Learning for Student Engagement

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What is project-based learning?

A dynamic approach and teaching method in which students gain knowledge and skills by working independently and/or in groups to investigate and respond to real world problems. PBL creates a hands-on, student-centered environment where the teacher supervises and guides without explicitly offering students the information.

Why is it a good practice?

PBL offers students the opportunity to learn and experience at the same time. It is appropriate for learners who come from different backgrounds and who may learn at different paces, because PBL allows learning to be expressed in a number of ways. When students perceive the work as being personally meaningful, the tendency is to commit to doing well. After completing a project, students understand content more deeply, remember what they have learnt and retain knowledge longer than with other methods of traditional instruction.

Project-based learning can be especially effective in agricultural education and training, as field-based experiences offer many hands-on learning opportunities. PBL also provides opportunities for projects go beyond the classroom and benefit communities. The community surrounding a school can become an educational resource and students can share knowledge and skills learned through a public display of completed projects. Additionally, projects can be inexpensive and relevant to a variety of other curricular objectives such as math, nutrition, science, history and geography.

School Gardens as PBL

The Namasagali Primary School in the Kamuli District of Uganda, is using an innovative kitchen vegetable garden as a site for PBL. It serves the dual purpose of teaching and combatting malnutrition. Students learn the importance of growing their own foods, working cooperatively and solving real world, everyday problems. Through this initiative there has been improvement in attendance, student performance as well as student well being. Project-based learning activities include pest management, simple irrigation systems and best management practices in agriculture.

Ideas for adoption

- Choose project topics relevant to curriculum outcomes based upon agricultural needs of the community
- Keep groups small (3-5 students per group); this can help students feel more connected and engaged
- Create a simply reward system (for example, recognition from village elder)

Project-based learning and its use in developing countries is a relevant tool that supports pedagogy in the curriculum; that is, the thinking and learning associated with teaching, and the methodical process of bringing learning to life. Selected projects can easily integrate agriculture into learning, by using projects that promote agricultural literacy and using agriculture to teach concepts related to other subjects. PBL has a unique advantage of being cross-curricular, as it offers the opportunity to use common themes across subjects such as

math, science and agriculture to be taught jointly rather than separately. This can help students understand and draw on similarities between various subjects.

Since student involvement is essential to meaningful learning, the relevance of information sharing and student engagement necessitates rigorous and deliberate planning among government, policy makers and educators. Projects can be focused on student learning goals and extended across all grade levels. When schools lack quality resources and teaching materials needed to achieve optimum student engagement and performance, flexible alternatives are needed in ensuring students' overall success and preparedness. Project-based learning can be an exciting, practical, and useful tool in stimulating learning outcomes.

Senegalese 4-H students working on their project--a community vegetable garden. Photo credit: Ozzie Abaye

Projects include students in constructive investigation; namely, students examining, studying, searching, and gathering factual information to answer questions. For example, determining what recycled items work best for creating simple irrigation systems, or constructing collecting mechanisms for water storage. Investigation may be decision-making, problem-finding, problem-solving, discovery and transformation, and construction of knowledge. Since project-based learning incorporates real-life challenges, projects can be student-driven and realistic, and mixed level students can work together. Groups of mixed abilities provide benefits to all, as mutual respect, support and tolerance are developed between students. Additionally, the classroom reflects the social community that students will be exposed to as they progress through the education system or the world outside school. Each student will have an assigned task, allowing him/her to contribute to the project, and in that setting will be treated equally.

Project-based learning can help students at all levels, and from varied backgrounds build and develop skills. This approach most certainly can aid in enhancing the ability to problem solve, thinking critically, as well as communicating and socializing.

Further reading:
Effects of project-based learning on student performance in secondary school agriculture
Practical ideas for better project-based learning in the classroom
Education and training: Project-based learning
Review of Project-based learning research

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