

Student-centered Teaching through Experiential Learning and its Assessment

Experiential learning is defined as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (Kolb, 1984). Research shows that students are better able to effectively apply principles when instruction is combined with experiential learning. To better prepare the students of agriculture for future, faculty must teach skills that tackle complex situations, and experiential learning is one of the best ways to teach such skills. Moreover, students also demand more experience based projects as observed through course feedbacks.

Often experiential learning is incorrectly equated with *only* hands-on or the "do it" part of the process ignoring the other equally important components of the learning cycle. The current experiential learning project was designed in such a way as to ensure that students actually participate in all the four stages of the Kolb's Experiential Learning model as described below. Additionally, several assessment tools were designed to evaluate the effectiveness of each step of the experiential learning model, which further added to uniqueness and strength of this project.

According to this model, in order to gain genuine knowledge from a learning experience, the students must go through the following **4 steps**:

1. **"Do It"**: actively involve in doing something (**Concrete Experience**);
2. **"What"**: reflect on what happened; what were the results (**Reflective Observation**).
3. **"So What"**: analyze what do these results imply; how do they influence the outcome (**Abstract Conceptualization**); and
4. **"Now What"**: problem solve and decide what they will do differently next time based on ideas gained from the experience (**Active Experimentation**).

The Experiential Learning Project: A comprehensive Cover Crop and Vegetable Management Project was introduced in a junior level crop production course incorporating all the four steps of the experiential learning model and its assessment through various tools. The students worked in pairs and managed 13 different cover crops and 6 vegetable crops throughout the semester. They were actively involved in planting, weeding, caring for, and harvesting their crops (**Step 1: "Do It"**). During the project, students recorded crop growth and soil quality parameters (**Step 2: "What"**), reflected on their observations of their own crop plots as well as those of others, and synthesized concepts (**Step 3: "So What"**). Students also documented issues they faced, how they addressed those issues, what decisions they made in their efforts to grow the best possible crop, and what they would do differently if they grew the same crop again (**Step 4: "Now What"**).

The Assessment: Assessment of any new teaching method is critical to ensure that students' learning objectives are met. A number of exercises were developed to evaluate impact of this project on student learning of conceptual and applied knowledge as well as critical thinking and problem solving. The quizzes included i) Students' pre- and post-self-assessment of conceptual knowledge, ii) Instructor assessment of conceptual knowledge, iii) instructor assessment of applied knowledge, and iv) instructor assessment of application. In addition, students recorded what they believed were the most important lessons they learned from this project, including commentary on how the project reinforced the concepts learned in the classroom. Results indicated that the experiential learning project improved both the conceptual knowledge of the students and their ability to synthesize and apply the concepts learned.

Reference:

Kolb, David A. 1984. *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall, Inc., Englewood Cliffs, N.J

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