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Learning by Doing

The guiding principle of designing educational opportunities for youth should reflect both the philosophy of "learning by doing" and focus on content that is based on proven facts (research based). "Learning by doing" is active, hands-on and engaging for students. The goal of this teaching approach is for learners to construct mental models that allow for 'higher-order' performance such as applied problem solving and transfer of information and skills (Churchill, 2003). Essentially, developing lessons plans should focus more on "making, producing, practicing, and observing" exercises rather than teacher directed lecture. How do educators develop such an approach? Here are a few quick tips:

1. **Enable Students To Work Together**: Collaborative learning is a method of teaching and learning in which students explore a significant question or create a meaningful project together as a small group. An example of a collaborative activity is challenging a small group of students to generate a list of skills that are needed to be a successful leader or asking the small group to identify what they think is the best way to generate funds for class project. When facilitating quality collaborative experiences, two things can occur. First, collaborative environments allow students to share their own experiences that in turn translate into teachable moments for others. Students transition from learner to teacher within these small groups. Small group collaborations allow students to learn how to utilize and collectively benefit from the strengths of individual group members. Secondly, students begin to master the skills of group work. Team work, group communication, compromise, and listening are all enhanced by the experience.

2. **Self Directed Group Exploration:** In today's world of internet and multi-media tools, getting fast information and tons of it is easy. Long gone are the days of library card catalogs and copying encyclopedia and journal pages for research projects. With the stroke of a few keys, tons of information is loaded onto the computer screen. The challenge for students, with assistance from educators, becomes wading through information overload to identify what is fact and what is fiction. Promoting self directed investigation and research impels students to rely on the evidence instead of upon authority (text, teacher, parent) (**Haury and Rillero, 1994**). Most students live in an authoritarian world with little or no opportunity to practice decision-making because nearly everyone tells students what to do and when to do it (**Haury and Rillero, 1994**). Learning how to navigate through information for the purpose of a group activity will enhance competencies in fact finding and independence. For example, educators may challenge students in a small group to explore what type of pet rabbit is best suited for a cold climate environment or what is the best design for a rocket. Students will begin to learn how to answer their own questions using valid research tools.

3. **Sharing results and products of the activity based experience**: A key component to a successful "learning by doing" approach is providing the opportunity for students to share their results of the experience and self evaluate their performance as a group. After allowing students to summarize their experience or share the knowledge they acquired from an activity it's valuable to ask the question "if you could do the activity over, what would you differently?" or "what improvements would you make?" These types of reflective questions allow students to self-identity improvements and enhance visionary thinking. Educators can also use this sharing period to help students link what they have learned to other life experiences. For example, educators may ask "how is working in this group similar to being a teammate on a sports team?" or "what were some effective ways you communicated with your group that can be used when you are serving on student council?" Lastly, the sharing period of activity based learning is important because it communicates the small group experiences to the larger learning group.

References
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