Experiential-Based Learning

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Face-to-Face

Intended Target Population

The primary audience for Basic Chemistry are both freshman and returning students. Most of these students can benefit from Experiential-Based Learning to convert exemplar-learners (surface-learners) to abstraction-learners (deep-thinkers).

Active Learning Technique Explanation/Learning Curve

Experience/Experiential-Based Learning Theory has been developed by Alice & David Kolb, built on the early works of John Dewey, Jean Piaget and Lev Vygofsky (and others). The theory is built on the belief that learning is constructed from the combination of activities and reflection, creating abstraction learners. Constructivism Framework for Learning (developed by Jean Piaget) believes the activities developed are the key to student learning.

Student Learning Outcome Satisfied

- Apply dimensional analysis to solve most problems found in chemistry.
- Analyze conceptual knowledge to develop conclusions regarding the atomic structure.
- Evaluate procedural knowledge to the examining the relationships of stoichiometry.
- Apply metacognitive knowledge to problem-solve chemical reactions.

Student Benefits and Impact

Student Benefits:
- Become abstraction-learners
- Increasing problem-solving techniques
- Develop students critical-thinking techniques

At the beginning of the semester, students are asked to complete a “Growth-Mindset survey”. Within the survey are embedded questions to determine those students with a growth-mindset as well as surface-learners. The students retake the survey at the end of the semester. I look at the changes to the responses and the correlation to changes in the student’s exam grades and academic progress in Basic Chemistry. I currently have data for the 20-questions on Growth-Mindset and 12-questions on Surface-Learners (Exemplar-Learner vs Deep-Thinkers Abstraction-Learner). Unfortunately, the data indicates most of the students did not change their mindset or become abstraction-learners. I have a longitudinal study to track students that move on to General Chemistry, then Organic Chemistry. To determine if they have changed their mindset or learning style.