

Mathematics and Experiential Learning: Are they compatible?

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Despite cool stuff we just heard...

We still teach in many classrooms the way we have since before we had computers.

- Internet
- MOOCS

Experiential Learning

Learning through experiences

Driving

Playing Tennis

Jeopardy

Experiential Learning

- Carver (1996) - model
 - active learning
 - assimilation of an experience
 - 5 steps (tiered like bloom's taxonomy)
 - experience
 - share
 - process
 - generalize
 - apply

Teacher-centered learning

- Teacher's are front and center
- Books and assignments are additional material (not focus)
- Transfer of knowledge
- Multiple learning types can't be supported

Benefits / Disadvantages?

Teacher-centered learning

- Disadvantages
 - passive students
 - teachers are redundant
 - focus: knowledge not skill (Wagner & McCombs, 1995)
- Advantages
 - easily standardized

Learning Centered Teaching

- students are guided to knowledge and learning
 - process of change - Gehart, 2011
- multiple studies support this learning model.
- knowledge is constructed not provided
- backward course design (Daugherty, 2006)
- teaching methods
 - discussion, peer learning, practice, demonstration

Problems with LCT

- students may miss learning topics
 - students may not know what they need to learn
- learning that occurs is hard to measure (assessment)
- standardized learning is difficult

The great math debate

- school-wide
- students work in teams
- teams create questions
- teams answer other teams questions
- teams grade other teams responses to their questions

Problems with this approach?

- safe?
- effective?
- how can we improve it?

How it was adapted

- de-emphasize the competition
- opportunity for multiple roles
- not public but within a classroom
- augmented typically classroom activities

Observations

- what type of problem do we have today
(not how is this gonna help me)
- students bring questions that are good debate material
- because this fosters discussion and social discourse
(it can continue and does outside of class.)
- students become responsible for their education
(meta-cognitive awareness - which has been linked to learning)

Conclusion

So is it really a problem of teaching models? What do you think?

<https://www.youtube.com/watch?v=1mUDw0sRZV0>

John Green - Paper Town Academy