

Topic: The Most Effective Digital Learning Methods

- We live in a world with countless resources
- Which of these resources are the best/optimal for learning?
- Are there any techniques which are not effective?

Ideas

- Very little comparative work has been done on digital learning methods
- Most work indicates that digital learning methods like gamification are dramatically better
- No research on college students, mostly younger students

Research Method / Process

- Literature Review
 - *Make it Stick*
 - Hypothesis : Easier ≠ Better
- Design a research experiment to test the efficacy of digital learning methods on college students (this had some problems)
- Survey of Professors

Findings / Conclusions / Next Steps

- On Average more interactive learning methods yielded better results
- Methods which required less initial input time (short video lectures) did really well
- Live Lectures are a mixed bag
- Needs more thorough and rigorous research
 - (project is designed)
- Paper detailing process and results forthcoming

A Potential Research Study

- Find a large sample size of similarly aged/experienced participants in a particular discipline (may or may not be STEM related)
- Take a survey regarding demographic information
- Divide this large sample size into different groups based on learning methods
 - Digital Textbooks
 - Live Lectures
 - Game Based Learning (GBLs)
 - Short Recorded Video Lectures
 - etc.
- Teach the same material through the different learning methods
- Quiz students after learning the material (immediately and 1 week after)
- Analysis on Data

Some Simple Results

Number of Classes Surveyed: 36

Total Number of Students : 3327

Average Weighted on a Per Student Basis: 85.48

Average Weighted on a Per Class Basis: 85.32

Type of Learning Method	On Average (Per Class)	On Average (weighted by Student)	Primary Method of Instruction (Per Class)	Primary Method of Instruction (Weighted by Student)
Interactive Activities (Quizzes, Games)	84.93	86.56	87.70	85.07
Short Videos	84.4	86.20	86.12	83.24

Live Lecture Results

Type of Learning Method	On Average (Per Class)	On Average (weighted by Student)
Live Lectures Not a Method of Instruction	84.4	73.74
Live Lectures as a Secondary Method	87	91.38461538