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?

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

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

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

<table>
<thead>
<tr>
<th>Type of Learning Method</th>
<th>On Average (Per Class)</th>
<th>On Average (weighted by Student)</th>
<th>Primary Method of Instruction (Per Class)</th>
<th>Primary Method of Instruction (Weighted by Student)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Activities (Quizzes, Games)</td>
<td>84.93</td>
<td>86.56</td>
<td>87.70</td>
<td>85.07</td>
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<td>Short Videos</td>
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<td>86.20</td>
<td>86.12</td>
<td>83.24</td>
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<tr>
<td>Type of Learning Method</td>
<td>On Average (Per Class)</td>
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<tr>
<td>Live Lectures Not a Method of Instruction</td>
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<td>Live Lectures as a Secondary Method</td>
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<td>91.38461538</td>
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