It's More Than Just "Flipping" the Class!

Using Technology Intelligently to Enhance Teaching & Ignite Learning

with Damon Givehand, Cengage Learning | Digital Educator

NISOD

CENGAGE Learning™
How many unique squares?
How many jelly beans in your life...? video

• You can find this by doing a YouTube search
• Here’s a URL for it https://www.youtube.com/watch?v=BOksW_NabEk
Intelligent Tech Use

- Accelerate Learning Timeline
- Provide Optimal Student Support
- Prolong Meaningful Student Engagement
PUZZLE #1

7H15 M3554G3 53RV35 7O PROV3 H0W 0UR M1ND5 C4N D0 4M4Z1NG 7H1NG5! 1MPR3551V3 7H1NG5! 1N 7H3 B3G1NN1NG 17 W45 H4RD BU7 N0W, ON 7H15 LIN3, Y0UR M1ND 1S R34D1NG 17 4U70M471C4LLY W17H 0U7 3V3N 7H1NK1NG 4B0U7 17, B3 PROUD!

7H3 M1ND I5 4 73RR1BL3 7H1NG 7O W4573! 😊
“The only thing about a man that is a man . . . is his mind. Everything else you can find in a pig or a horse.”

– Archibald MacLeish
FOUR Questions

1. How can modern digital tools be intelligently applied to promote active learning?
2. How can modern digital tools be intelligently applied to increase teacher productivity?
3. What online resources or apps exist for math instructors? (please give website or app name and brief description)
4. What strategies have proven to work well with engaging math students and helping them develop into competent, proficient learners?
How can modern digital tools be intelligently applied to promote active learning?

Visualize ++
(pre-class learning ++
(videos, etc.) ++
Videos to show relevance? ++
Assessment to check understanding ++
Can adjust content to best meet needs ++
Make it personal to each learner ++
Team work outside of class ? +
Easily accessible in mobile tech
Immediate feedback
How can modern digital tools be intelligently applied to increase teacher productivity?

- What are considered 'modern' digital tools?
- Graphing calculators: see graphs right away
  - Change variables
  - Impact on different parts of equation
- Understanding student behavior
- Refine student process in real-time
- Videos as additional teaching tools
- It takes assignable and gradable homework
- See student performance in real-time to adjust class focus
- Graded homework
- Assessment of placement of students
- Continual usage semester to semester
  Saves time
What online resources or apps exist for instructors in your discipline? (please give website or app name and brief description)

- YouTube
- Web work
- Google
- Homework Software
- MATLAB (R)
- Excel (ms)
- My MathLab
- Wolfram Alpha
- Blackboard (LMS)
- Presentation apps/software, i.e. Prezi, iMovie
- TEC
- Connect
- Diagnostics
- ALEKS
- Lecture Tools
- Top Hat
- Mathematica
- Maple
- Accuplacer
- XYZ Math Compass
- Kaltura
- Azo3**
- Camtasia
- Webassign
- Desmos
- Haiku
- Jing
- Photo math
- Dropbox
- Google Docs
What strategies have proven to work well with engaging math students and helping them develop into competent, proficient learners?

<table>
<thead>
<tr>
<th>Rating</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>++</td>
<td>Active learning and interesting</td>
</tr>
<tr>
<td>++</td>
<td>Make content relevant to students</td>
</tr>
<tr>
<td>++</td>
<td>Use technology w/feedback</td>
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<tr>
<td>?+</td>
<td>Meaningful assessment</td>
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<tr>
<td>++</td>
<td>Making Connections</td>
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<tr>
<td>++</td>
<td>Materials customized to course</td>
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<tr>
<td>+</td>
<td>Group work</td>
</tr>
<tr>
<td>+</td>
<td>Pair-to-share (Peer learning)</td>
</tr>
<tr>
<td>+</td>
<td>Reflective review of own work</td>
</tr>
</tbody>
</table>
3 Types of Interaction Important for Learning AND Engagement

Learner-Content

Learner-Instructor

Learner-Learner

Think of something challenging that you learned and got good at...

- Think about the process you went through to get better and better.

- Why was it so difficult at first?
- What was/is the most crucial phase of the learning process?
PROCESS

Initial exposure experience

Subsequent exposure, experience, and practice

Frequent/Repeated often, uninterrupted, intense, long periods

NOT THAT GOOD

GETTING BETTER

GETTING MUCH BETTER
This little card is a quick way to help you see that it’s time first the for something do you anytime often awkward and a little difficult. Don’t be something learning when yourself on tough too new. Always allow yourself time to digest the re-read you if that notice even You’ll experience this several times, it gets easier doesn’t it?
90 more seconds of questions

What strategies DO you use to...

1. initiate learning sooner with students?
2. maximize in-class time to allow for collaborative, higher order thinking activities?
3. keep students actively and continuously engaged with subject matter longer?
INTELLIGENT USE OF TECH ALLOWS US...

**BEFORE CLASS**
- Recordings, individualized, foundational exercises, convenient, preparatory

**DURING CLASS**
- Interactive, collaborative, social, knowledge discovery & construction

**AFTER CLASS**
- Online discussion boards, prolonged engagement
1. moves the LEARNING TIMELINE ➔ “forward” (sooner)

2. provides OPTIMAL LEARNER SUPPORT when it matters most (HOT)

3. increases “CONDUCTIVITY” (of mind)
What is your feeling about “pre-class” recordings...?
during class

- Jigsaw
- Changing Charts
- Think-Pair-Share
- Index Card Questions
- Quick Encounters & Exchanges
- Small & Whole Group Discussion
- Poll Questions
- etc...
GROWING LEARNERS
Active Learning is the KEY

1. Higher Order Thinking (H.O.T)
2. Collaborative (peer support)
3. Active learning/participation for knowledge discovery and construction
4. Instructor support when it counts!
“We never educate directly, but indirectly by means of the environment.”

FOR A FAIR SELECTION EVERYBODY HAS TO TAKE THE SAME EXAM! PLEASE CLIMB THAT TREE
WH47 1F YOU W3R3 G1V3N 4 PROBL3M L1K3
4ND C0UR53 4 0F B3G1NN1NG 7H3 47 7H15
W3R3 70LD 70 50LV3 17? H0W W0ULD 7H15
5H3D5 3X3RC153 7H15 ,533 ?F33L Y0U M4K3
L1GH7 0N 4N 1M0R74N7 P01N7 70
57RUGGL1NG W17H 35P3C14LLY ,R3M3MB3R
57UD3N75. G1V3 7H3M CH4LL3NG35 1N
C4N 7H3Y 50 CHUNKS 0B741N4BL3 ,5M4LL
B3G1N 70 BU1LD C0NF1D3NC3.