Web-based games to master core skills in introductory college mathematics

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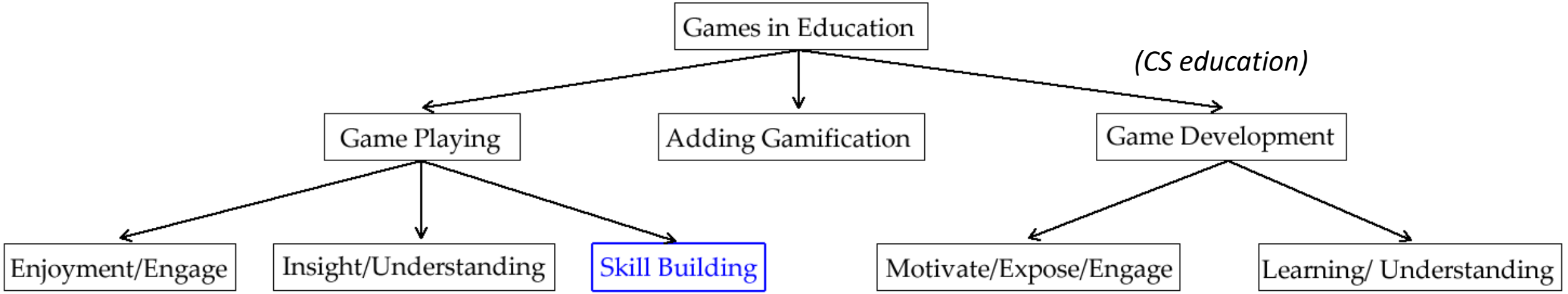
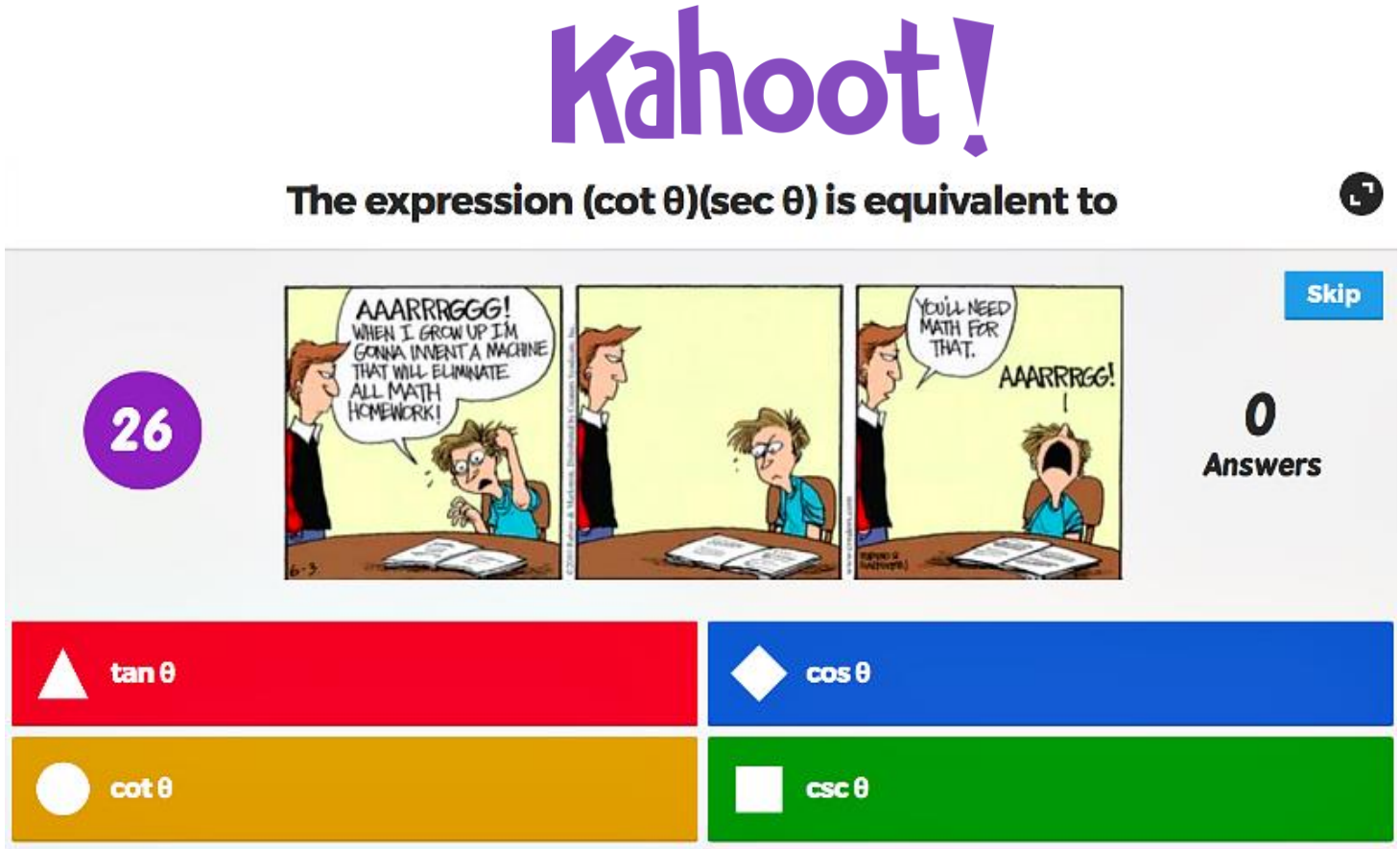
Games in education - taxonomy



(Most emphasis)

Quiz games



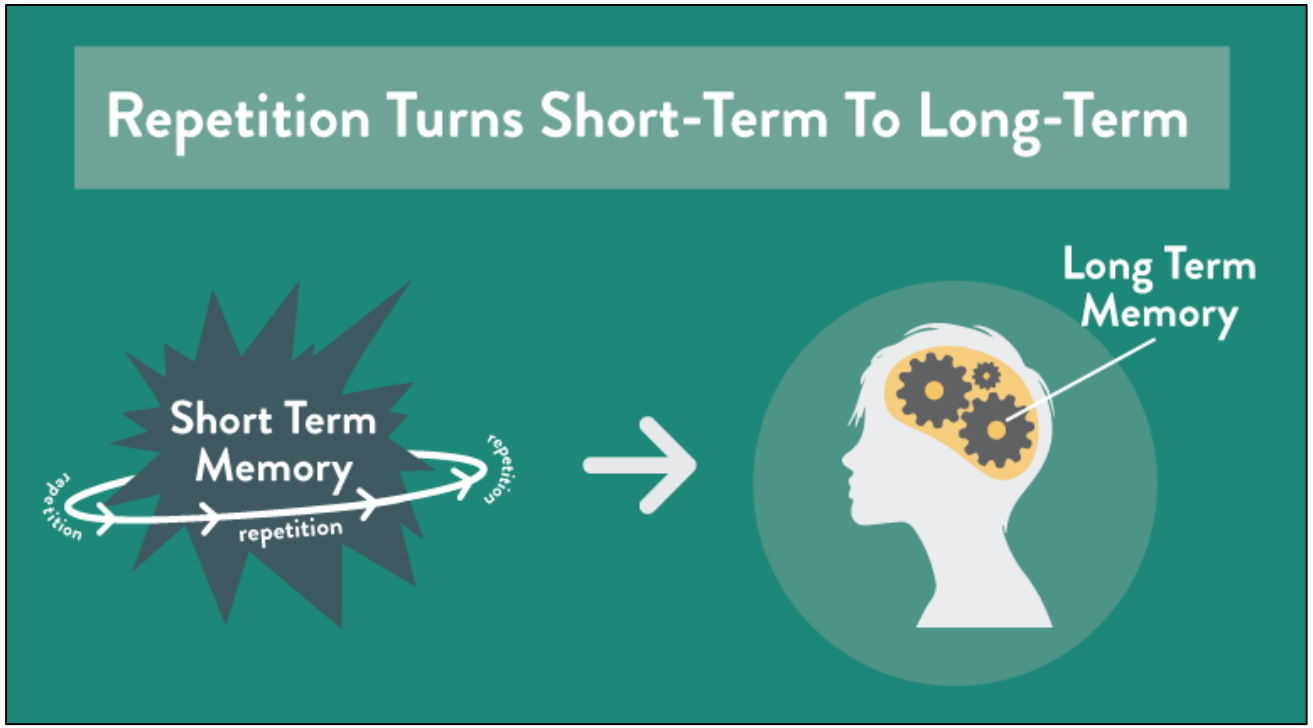
Quiz Climber Rivals

- Aim to make learning fun
- Not focused on skill building

Building skill: short-term to long-term memory

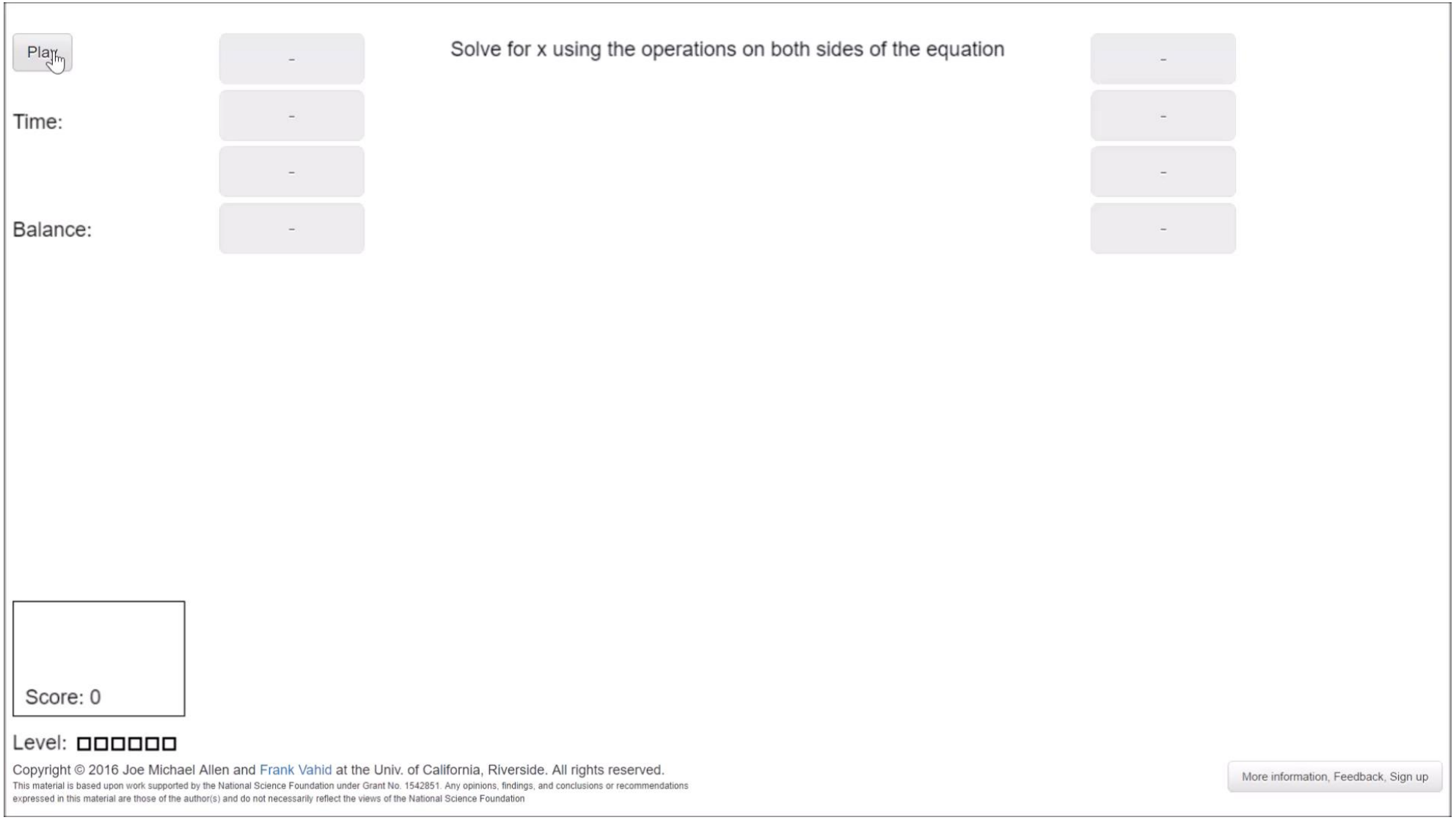
- Two critical learning mechanisms (Sweller):
  - schema acquisition
  - transfer learned procedures to automatic (long-term) memory

- Atkinson & Shifrin
  - Memory model



http://coschedule.com/blog/wp-content/uploads/short-long-memories.png

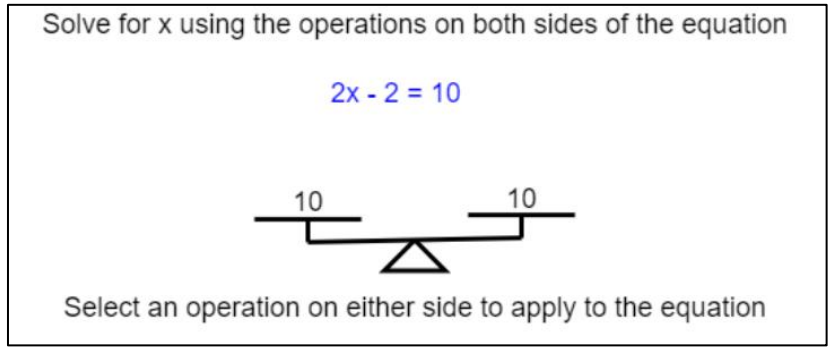
Game - Solve for x

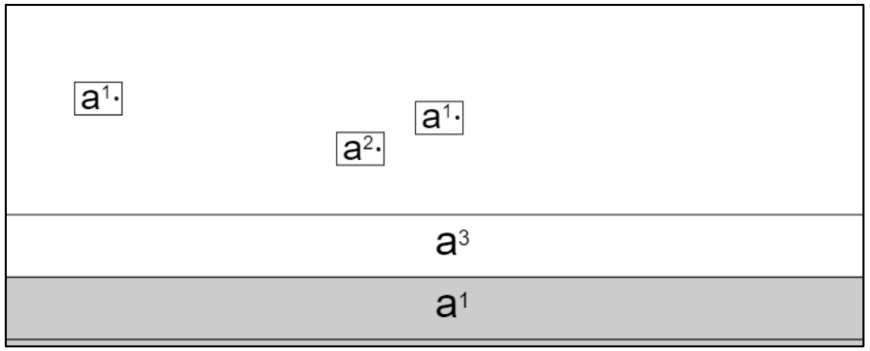


Game - Combining terms with exponents

Summary - math games to build skill

- Practice moves to long-term memory, frees working-memory for new concepts
- Built Solve-for-x, and Combine-terms-with-exponents games which are inherent to the subject matter





- Not a replacement, but a supplement - provides additional opportunities
- Plan to build dozens more for college-level Math and CS – any suggestions?
  - Email: jalle010@ucr.edu

References

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