

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

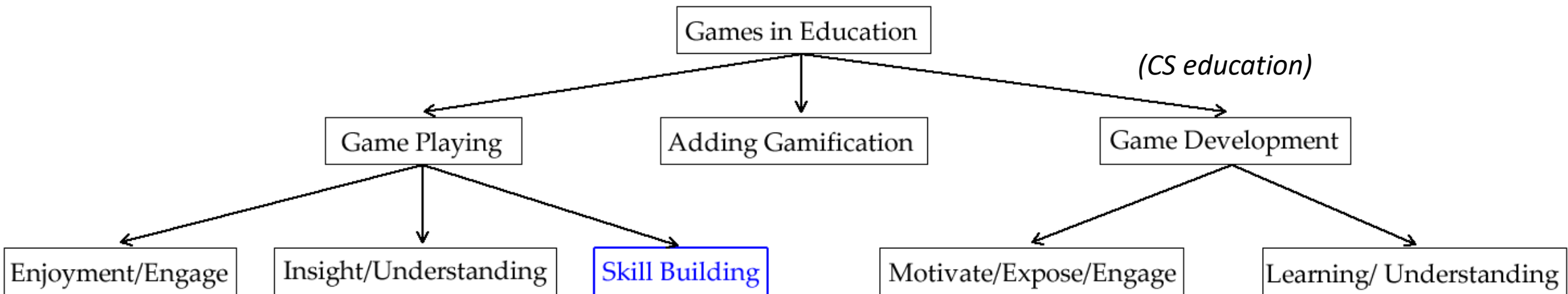
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Funding from the U.S. National Science Foundation (grant #1542851) and the U.S. Dept.
of Education (GAANN fellowship)

Games in education - taxonomy




(Most emphasis)



Quiz games

Kahoot!

The expression $(\cot \theta)(\sec \theta)$ is equivalent to



26



Skip

0
Answers



$\tan \theta$



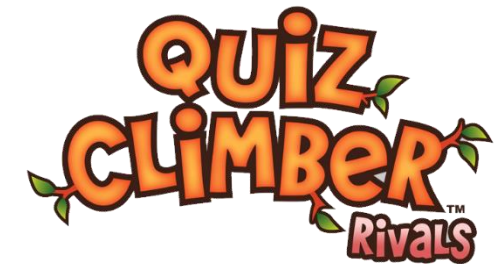
$\cos \theta$



$\cot \theta$



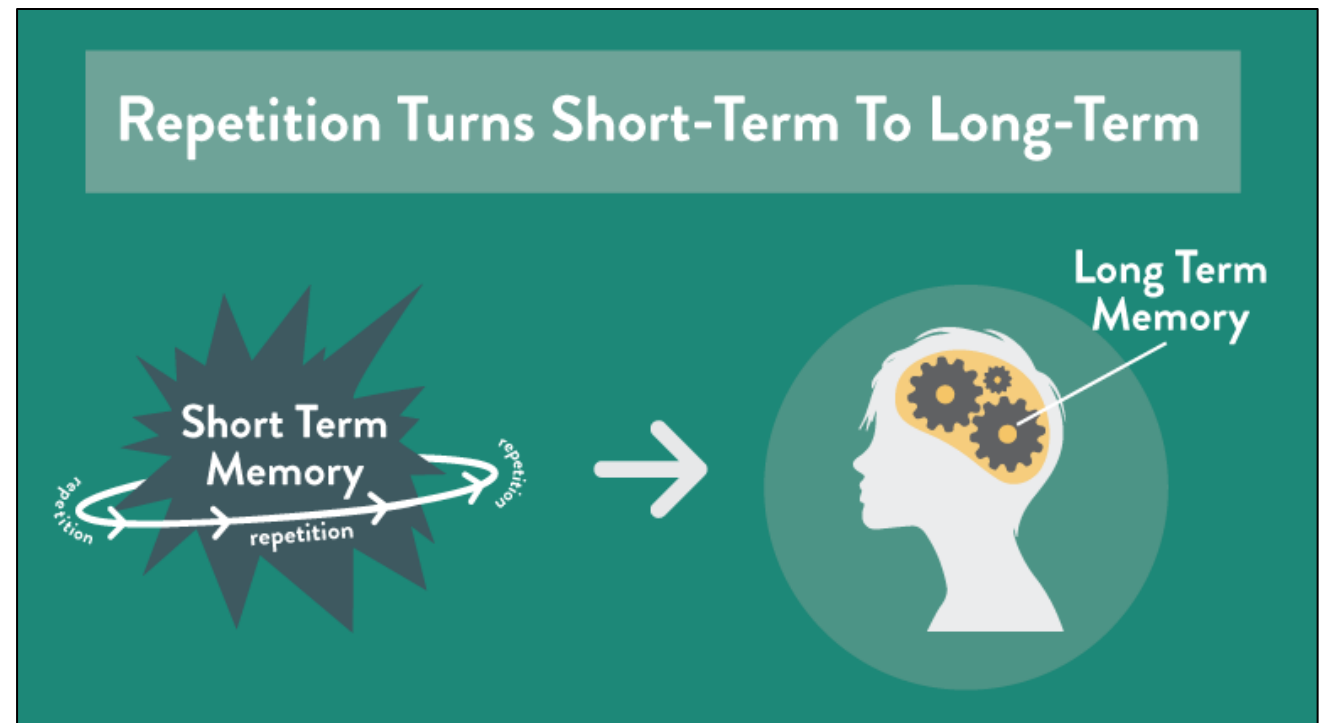
$\csc \theta$



- 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

Play 

Solve for x using the operations on both sides of the equation

Time: -

Balance: -

Score: 0

Level:

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Game - Combining terms with exponents

Start tutorial

Skip tutorial

Exponent multiplication game

$a^1 \cdot a^1$


Feedback

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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

Solve for x using the operations on both sides of the equation

$$2x - 2 = 10$$


Select an operation on either side to apply to the equation

a^1		a^1
	a^2	
a^3		
a^1		

- 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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