Educational Games for ELL: State of the Art

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The Plan*

- Brief overview on educational games
- Do’s and Don’ts
  - What makes an effective game?
  - Look at good and bad games
- Implementing games in the classroom
  - DIY: Tools to create mini-games

* Subject to change based on what best suits your needs!
Do You Use Games at Your School?
Video Games In Learning

74% of K-8 teachers use digital games to promote learning. Out of those teachers...

- 45% teach supplemental content through gaming
- 43% use games for local/district mandated curriculum
- 41% use games for state/national mandated standards
- 33% use gaming to assess knowledge of supplemental skills
- 29% conduct standards-based formative assessment through digital games
- 17% conduct standards-based summative assessments through gaming

Find more statistics on video games at bigfishgames.com/blog/stats/

Source: Joan Ganz Cooney Center: http://goo.gl/yY9eP4
The Rise of (Educational) Games
There are A LOT of Educational Games

80,000

* This represents the number of educational apps in the iPad store alone. Does not account for mobile, Android or computer/laptop games.
The Educational Games Market Can Feel Like This…
Or When It Comes to Games for ELL, Like This...
Why You Should Use Games

In the US, 9 out of 10 kids play electronic games.

And they’re playing them a lot!
Why You Should Use Games

Games break down tasks, allow learners to control their navigation of the games, and can adapt to the pace of the learner.

70% of teachers said using educational video games increases student engagement.

60% of teachers say using digital games helps personalize instruction, better assess knowledge and collect helpful information.
Why You Should Use Games

Failure in video games = TRY AGAIN

- Effort
- Success
- Failure
Do Educational Video Games Actually Work?
Yes…

There was almost a 50% increase in correct answers to standardized testing by students who learned by playing an educational game, since they were exposed to information repeatedly in their attempts to increase their score.
But Many “Educational” Games Are Ineffective.

Don’t teach/explain

Players can guess and go on

No research

Not aligned to standards

Education just “dropped in”

Created without educator input
Effective Instruction & Gaming

With a focus on English Language Learners
Taking Effective Strategies for ELL

Developing Conversational Language
Developing Academic Language
Scaffolding
Concrete Materials
Visual Learning
Questioning Strategies
Comprehensible Input
Applying Them to Games

“There is a significant difference between simply representing educational content in a game or building a game like hangman or a one that replicates a popular quiz show and embedding content as an integral part of the game’s fantasy context.” – Glenda Gunther
Embedded In-Game’s DNA
Ensure help is available when needed.

How many pits did he dig? Enter a number  ANSWER

Need help? CLICK THE BUTTON BELOW TO GET A HINT

GIVE ME A HINT
Feedback is timely, specific and learner-controlled.
My mom says she's tired of hearing us complaining and before you go to school, you have to answer this question.

There are 31 days in December. Here is what you did after school on those days you didn't do homework.

\( \frac{6}{31} \) days you played soccer with your friends,
You went shopping \( \frac{7}{31} \) days
You watched TV \( \frac{2}{31} \) days.

What fraction of the days did you do homework?

For an explanation of how to solve this problem, click the EXPLAIN IT button.

What fraction of the days did you do homework?

There are two steps to solving this problem.

First, figure out what fraction of the days you DIDN'T do homework.

Second, subtract that fraction from 1. Another way to write 1 is \( \frac{31}{31} \).
Real-World Applications

Highly effective teachers of disadvantaged students consistently teach specific procedures and facts while students are engaged in hands-on or “real-life” activities.
Working Across Content
Choose how you want to learn

Mom explains homework and the fraction problem.

Don't understand how $1 = \frac{31}{31}$? Watch this video for an explanation.

Tic-tac-toe with birds and snares

Test your knowledge with a Quiz!
Bilingual Options

Cooking with Abuela

Recipes

1. Mexican Fajitas
2. French Toast
3. Cajun Jambalaya
4. Indian Mango Lassi
5. Chinese Lemon Chicken
6. Tropical Fruit Salad
7. Greek Salad

Recipes to print & make at home

Parents & Teachers

Para cocinar esto mi gobierno el jugar en formato Flash. En esta activar el sonido.
Welcome to the Mayan empire. You have landed in the year 800.

How many years is it from the year 800 to get to 2015? 

Hint: You may use the numberline to help you solve this problem.

For an explanation of how to solve this problem, click the EXPLAIN IT button.

Bienvenidos al imperio Maya. Has aterrizado en el año 800.

Cuántos años son de 800 para llegar a 2015? 

Indica: Puedes usar la recta numérica para que te ayude a resolver este problema.

Para una explicación de cómo resolver este problema príncipe el botón que dice “Explica”.
85% immediately played in target language, instead of translating.
Define “Good” Educational Game

• Common Core aligned
• Opportunity to actually learn
• Feedback
• Game testers were engaged
• Good sound
• Good graphics
• There is a “game” element*
Define “Game”

All games share four defining traits:
• Goal
• Rules
• Feedback system
• Voluntary participation
ALL GAMES ARE NOT CREATED EQUAL
Still, while imperfect, recorded histories are powerful - especially this one. Don't touch it while I'm in the principal's office.
Good Education

• Common Core math in-context

• Scaffolding
  • Explanation
  • Guided feedback

• Wrong answers lead to educational resources

• Students can progress at their own pace
Good Game

• Game narrative
• Production level
  • Graphics + Sound
• Challenging game
Good Educational Game

• Educational content integrated within gameplay

• Balance between gameplay and problems
Good for ELL

• Ability to switch easily between English and Spanish
• Written and spoken
• In context
• Culturally relevant
Not Good

• Non-verbal doesn’t teach math terms or any language
• It’s unclear who is winning
• No time to even process wrong answer
• Unclear/incomplete feedback
1st grade standard: Tell and write time in hours and half-hours using analog and digital clocks

What time is it?

A. It’s two o’clock.
B. It’s ten o’clock.
C. It’s nine o’clock.
D. It’s twelve o’clock.
Public Service Announcement
Good

Varying levels of difficulty.
Good

Written AND spoken.
Feedback (sound) given when right AND wrong.
Pretty Good
How many porcupines in a deinonychus?
Pretty Good

Game for teaching idioms.
Opportunity to ask for hint.
Provides feedback with explanation – whether player is correct or incorrect.
New Featured ESL Game

Audio Word Match!

With Audio Word Match you can "Hear" and "See" the words in this fun memory style game! To start having fun and learning, just pick a game below and start playing!
Not so good

• Pretty much electronic flash cards
Feedback is not specific.
Good Education ✔

Good Game?

• Common Core aligned
• Direct instruction in English.
• Good graphics
• Has offline version that can be downloaded.
Good for Learning English

Explanation is both written AND spoken.

Spanish voice version available
Text is still in English

May be helpful for student to play Spanish version, then English, easier to understand English words in context
MORE TO KEEP IN MIND
Avoid “Drill-and-Kill”
Look for Intelligence

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<tr>
<th>South America</th>
<th>Europe</th>
<th>North America</th>
<th>Africa</th>
<th>Australia</th>
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**Africa**

What is Africa’s largest mountain?

*Your answer:*

kiliomonjaro

*Correct answers:*

Kiliomonjaro, Mount Kiliimanjaro, Mt Kiliimanjaro, Mt Kiliimanjaro

**South America**

What is the capital of Chile?

*Your answer:*

santiago

*Correct answer:*

Santiago
What’s the Value Here?
Integrating Games Into Your Curriculum
DIY Mini-Games

Create an Image Quiz
This is the favorite type of quiz to start with. Just upload an image, place blue dots for questions. Easy as pie. Go create!

Create a Matching Quiz
This is a really simple but addictive type of quiz. Match the items in the columns with each other. Go create!

Skeletal System

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<th>Guesses Left</th>
<th>Correct</th>
<th>Wrong</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>11</td>
<td>10</td>
</tr>
</tbody>
</table>

Humerus 42% 1:09.8
DIY Mini-Games

**Match The Memory**

**Play (Free!)**
Play a fun, free memory matching game in your web browser (on any platform, including Mac, Linux, iOS and Android).

**Create (Free!)**
Make a custom memory game for free using your own pictures, videos, events and links.

**Why Match The Memory?**
This year, skip the boring old holiday letter. Instead, let your loved ones find out what you've been up to by sending them a personalized Match The Memory game.
Your photos, words, and other content, combined with our unique gameplay, will create a customized and fun experience that children, parents and grandparents will want to play again and again.

**Get Started Quickly**

Correct, 7 (seven) is sakowin.
There is no one size fits all approach.
Implementing Games Into Your Classroom

- Flipped lessons
- PBL
- Small group instruction stations
- Differentiated focus lessons
- Substitute
- Reteach time
- Reward
- Practice section of a lesson
- Intervention block
- Extended learning day
- Remediation
- Snow/rainy day
Institutional Barriers to Implementation
Institutional Barriers to Implementation

Teacher Perspective
• Teacher-friendly
  • “How does this make my life easier?”
  • “How is this aligned with standards?”
• PD
• Teacher Experience
• Automatic feedback on progress
• Automatic identification of struggles/need to intervene
Institutional Barriers to Implementation

Administrator Perspective

- What is the district’s philosophy?
- Available hardware
- District-approved software ONLY
- Impact on bandwidth
- Cost
- Time to implementation
- Priority areas
  - Single focus vs. Multi-focus
Technical Barriers to Implementation

- Wrong hardware
- Wrong software
- Bandwidth limitation
  - Streaming
- Administrator access to install
- Firewall
No, there is NOT an app for that

Because of the processing power required, iPad and other tablet games tend to be simpler – in graphics, in design.

This is also true of Chromebooks.
Parting Wisdom

NEVER plan a lesson using a game you haven’t tested in that school

• Test in the school before you plan to use in your classroom.
• Have a back-up plan – even if you have tested.
QUESTIONS?
Good Games Cited

Aztech – 7 Generation Games – [http://www.7generationgames.com/aztech](http://www.7generationgames.com/aztech)


Forgotten Trail – 7 Generation Games – [http://sandbox.7generationgames.com/forgotten_trail.html](http://sandbox.7generationgames.com/forgotten_trail.html)


Dinosaur Train “How Big Are You?” – PBS – [http://www-tc.pbskids.org/dinosaurtrain/media/swfs/howBig.swf](http://www-tc.pbskids.org/dinosaurtrain/media/swfs/howBig.swf)

Additional Resources Cited

Hurray for Arrays – Math Active –
http://www.asset.asu.edu/new/mathactive/index.html
⇒ Features a number of multi-lingual resources

PBS Learning Media (California) – http://ca.pbslearningmedia.org/

PBS Kids – http://pbskids.org

Create Your Own Educational Mini-Games

Purpose Games – http://www.purposegames.com/

Match The Memory – http://matchthememory.com