

Using gamification and games-based learning to engage students

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My Classroom

- 12 students
- Aged 13-15
- Diagnosed with a mild to moderate intellectual disability
- Numeracy skills vary from counting on to division
- Literacy skills in Grade Prep to 7 range

Reading Recovery levels	Highly Catalog Reading Stages	Grade Level Equivalent	Highly PII Plus Levels	Foundations & Planned Level	License Levels	High Group H/Grav-Hill	
A,B	Emergent	Beginning Kindergarten	Starters 1	A	1	A	
1		Middle K	Starters 2	B**	2	B	
2		End K	3-4 red	C	3	C	
3	Early	Beginning Grade 1	5-6 red/yellow	D	4	D	
4			7-8 yellow	E	5	E	
5			9-10 blue	F	6	F	
6		Middle Grade 1	11-12 blue/green	G	7	G	
7			13-14 green	H	8	H	
8			15-16 orange	I**	9	I	
9	Early Fluent	End Grade 1	17-18 turquoise	J	10	J	
10			19-20 purple	K	11	K	
11		End Grade 2	21 gold	L**	12	L	
12			22 gold	M	13	M	
13			23 silver	N	14	N	
14		Fluent	Grade 3	24 silver	O**	15	O
15				25 emerald	P	16	P
16	Grade 4		26 emerald	Q,R	17	Q	
17			27 ruby	S,T	18	R	
18			28 ruby	S,T	19	S,T	
19	Fluent	Grade 5	29 sapphire	U,V,W	20	U	
20			30 sapphire	X,Y	21	V	
21		Grade 6				22	W
22							23
23	Grade 7					24	
24						25	
25						26	
26						27	
27						28	
28						29	
29						30	
30						31	
31						32	
32						33	

http://title1.spps.org/uploads/text_correlation_chart.pdf

Games and Storytelling

- But not all games are alike – choose games that have a narrative component (e.g. a “Quest”)



http://www.fretshirt.com/media/catalog/product/cache/1/image/465x465/9df78eab33525d08d6e5fb8d2713fe9514e/keep-calm-and-save-the-princess_black.jpg

The Legend of Zelda



<http://i.kinja-img.com/gawker-media/image/upload/uddtluxgjagwtur7x8h7.jpg>

The 'Quest'

THE LEGEND OF ZELDA
MANY YEARS AGO PRINCE DARKNESS GANNON STOLE ONE OF THE TRIFORCE WITH POWER. PRINCESS ZELDA HAD ONE OF THE TRIFORCE WITH WISDOM. SHE DIVIDED IT INTO 8 UNITS TO HIDE IT FROM GANNON BEFORE SHE WAS CAPTURED.
GO FIND THE 8 UNITS LINK TO SAVE HER.

<http://www.controlpadblues.com/wp-content/uploads/2013/03/zeldaintro.jpg>

Teach to the bottom, then extend upwards

First...

- Teach a storytelling unit by first letting students learn a video game
- Over several lessons, as they play the game, teach them about simple narrative elements (character, setting, etc)
- The game creates a context for learning

Teach to the bottom, then extend upwards

- A video game can be used as a context to teach skills (storytelling, spatial awareness, etc)
- Context is important for understanding new concepts
- Context allows the student to relate what is being learnt to something tangible.

Teach to the bottom, then extend upwards

Then...

- Have them write their own stories – starting with repeating what they know about the game
- For those of higher ability, extend their tasks by having them incorporate original ideas and/or make creative changes to the games' story

My unit plan (in brief)

1. Whole Group preview of the game on the IWB
2. Students individually played it
3. Lesson on the characters, setting, and story.
4. Showed YouTube videos about the history
5. Students played the game again
6. Then students played a new map downloaded from zeldaclassic.com

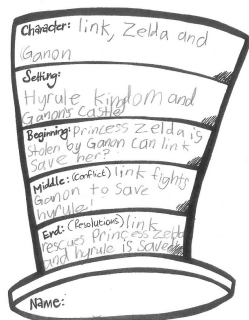
(I chose "A Hero's Story" because it was a bit more linear)

Storytelling Lesson

1. Students learned about story structure (Beginning, Middle, End) – Story Builder
2. And started writing the Zelda story
3. I then did this as a whole group activity showing ways students could add to their story
4. Students try writing their own Zelda story (on paper, then on PowerPoint)

Visual Organisers

Top Hat Story Map!



Redesigning the Game (& the story)

- Then they started creating their own characters (villains & heros), settings (a different villiage, new castles), and weapons & tools
- Students could then write a few sentences describing the new place, person, object
- Game Mashups - put things from two games together as a new game

Numeracy activities

- Map & Spatial awareness
 - (Cardinal Directions)
- “Draw your own Zelda map”



What is GBL?

- Games-Based Learning is using a game to provide context to a learning activity
- GBL uses games’ characteristics like competition, strategy, rewards, and goals to create engagement in the learning process
- Active, “hands-on” learning, that encourages practice and proficiency (Video games, board games, ball/spatial games)

What is a game?

- An activity where decisions result in risks and payoffs
- Immediate feedback on decisions made
- A simulation bounded by rules but with no 'real-world' consequences
- Often where learning the rules develops in stages and with experience
- Some say a game should be voluntary

What is Gamification?

- Using characteristics of a game (rewards, badges, and points) in a non-game setting to:
 - encourage participation and continued engagement
 - demonstrate completion of tasks and progression of skills



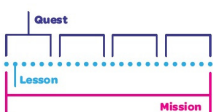
Katie Salen & Quest to Learn School

- A new school designed to use gamification to engage students
- Game language such as Mission, Quests, Boss Levels to structure the teaching
- But when I tried it...


A **Mission** is a longer unit lasting a trimester or semester (10-15 weeks) that poses a complex problem for students to solve.

A **Quest** is a challenge-based sub-unit within a Mission that lasts 2-5 weeks. Multiple Quests make up one Mission. Students do a performance assessment at the end of each Quest.

A **lesson** is one period of instruction. Many lessons make up one Quest.



<http://www.instituteofplay.org/>




Lee Sheldon's Grading Procedure: You will begin on the first day of class as a Level One avatar. Level Twelve is the highest level you can achieve.

Level	XP*	Letter Grade
Level Twelve	1860	A
Level Eleven	1800	A-
Level Ten	1740	B+
Level Nine	1660	B
Level Eight	1600	B-
Level Seven	1540	C+
Level Six	1460	C
Level Five	1400	C-
Level Four	1340	D+
Level Three	1260	D
Level Two	1200	D-
Level One	0	F

Gamification for Zelda

Current Game	Your Game
Map: Village of Hyrule	Draw a new map on A3 paper - 25 XP Draw a new map on A3 paper with a partner so both of your maps connect - 75 XP Come up with a new name for this land - 10 XP Write four sentences about this new land, describing it to someone - 50 XP
Villain: Gannon	Draw a new villain and give him or her a name - 25 XP Write up four sentences about this villain and how to defeat him or her - 50 XP Write up eight sentences about this villain's story and why he or she is mean - 100 XP
Purpose: Collect the Triforce and rescue Zelda	Draw a new object to collect - 10 XP Write six sentences explaining how to defeat the villain and rescue Zelda - 75 XP

“Why do I need to do this?”



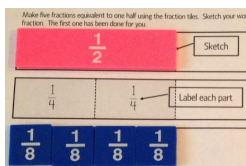
Learning needs to be intrinsically motivated

- How? Provide a wide range of possibilities.
- During iPad time, I now say "Choose a Math app" or "Choose an English" app
- On computer time, I now say "Would you like to do Khan Academy or Study Ladder?"
- This is how to make tasks "voluntary" and thus more like a game

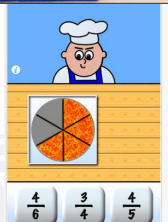
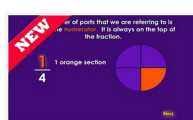
Find a game that compliments your lesson and the curriculum.

Teaching Fractions

- Allow students to practise fractions on:
 - traditional worksheets
 - an iPad app (Pizza Fractions)
 - with concrete materials
 - Website Games



Fractions



<http://interactivesites.weebly.com/fractions.html>

History and Exploration

- I need to create a Unit of Work on Exploration in 18th-20th centuries.
- "Around the World in 80 Days"
- Set in 1872 ("Imagine traveling around the world and you can't use a plane...")
- "What cities would you visit?"

Around the World in 80 Days



Ludology & Narrative

Two ways of looking at games:

- Games as a set of rules – Ludology
- Games as a story – Narrative

In education – I argue that you can bridge these two concepts together by focusing on 'Quest' games

A well designed game (and lesson) can trigger dopamine release

Dopamine

- Not necessarily a pleasure hormone
- Not necessarily a learning chemical
- Latest research shows it's a: 'wanting' chemical

Thus:

"dopamine is about wanting and motivation"
(Lewis-Evans, 2013a)

Dopamine

- Makes us seek out rewards
- Uncertain rewards produce more dopamine
- Often, more dopamine released in anticipation of a reward, not in receiving the reward itself. (Lewis-Evans 2013b)
- Brain isn't interested if you are happy—it just wants to keep you alive

Dopamine

- As with anything, you build up a tolerance over time
- So a child, used to high levels of dopamine from video games, will go through 'withdrawal' at school.

Today's students

- Today's students are better at:
 - 'twitch speed'
 - Parallel Processing
 - making connections between random information, but not as good as sequencing information

Prensky (2005)

Creative Commons Kids

- Primary kids of today were born after the:
 - Internet
 - iPod
 - xBox
- They are now producers as well as consumers
- They show creativity through YouTube channels, remixing/mashups/song covers, product reviews and instructional videos

Wellbeing

- The increased ability to communicate and share (SMS, FaceBook, in-game messaging) has its pros and cons
- A child's wellbeing is much more dependent on their responses from social media than a decade ago
- These technologies are very beneficial for students with disabilities, but I recommend...

The need for an avatar

- An alternate identity
- Sense of self is protected by their avatar. "Link died" not the student.
- Avatars create a 'safer' environment to make mistakes
- In traditional education: "mistakes are punished" (Sheldon, 2012)
- My students have online avatars (helps with cybersafety as well!)

Games and Avatars for wellbeing



Putting it all together

- For literacy learning, chose games that have a rich story: 'Quest' games
- Let students learn about the game (ideally by playing it)
- Make sure you explain unfamiliar terms/vocabulary
- If possible, use it to teach other concepts (math, science, history)

Putting it all together

- But the game is only a context
- You are not teaching the game, you are teaching curriculum
- Everything comes back to the lesson topic
- Find games that compliment your lesson.
- Create safe opportunities for children to fail (which is how we learn) through games and avatars.

Technology and video games have changed children's lives

- The students coming into the classrooms today are different than 10 years ago
- Students' brains may be wired differently as a result of playing video games growing up
- It is up to us, the school, to change

References

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