Principles on Gaming

By Karen Boucher

Jim Gee's 13 key principles on gaming

Gee describes the principles used by game designers to engage learners and keep them focused and learning. These principles apply to teaching in general as well as video games. They are divided into three main categories and are described briefly below. (James Paul Gee, 2004)

Empower Learners

Students have to want to learn!

- **Agent principle:** Learners must feel like what they do matters.
- **Customization:** Trying out different things and becoming a new type of learner.
- **Identity:** Take on different roles in gaming
- **Manipulation:** "Engage the body and mind with learning".

Problem Based Learning
We need to be able to solve problems.

- **Well-ordered problems:** Problems need to be well designed with solutions that work well
- **Pleasantly frustrating:** Challenges allow the learner to reach a state of FLOW.
- **The Cycle of Expertise:** Face a challenge, practice, gain knowledge, reach mastery and repeat with a new challenge.
- **Information:** Receive information as it is needed, not before. Teaches perseverance and improves critical thinking abilities.
- **Fish Tank:** Add variables in slowly
- **Sand Box:** Opportunity to explore and try new things with low risks
- **Skills as strategies:** Focus on accomplishing a goal

Deep Understanding
We need to be able to create understanding that can last a lifetime.

- **System Thinking:** People learn skills, strategies, and ideas best when they see how they fit into an overall larger system to which they give meaning.

- **Meaning as Action:** Words and concepts have their deepest meanings when they are clearly tied to action in the world.

Customization

Customization allows learners to solve problems in different ways, customize at different levels and think in different strategies. (Gee, 2013)

➜ **Students need to have opportunity to try new learning styles.**

➜ **Lessons can be adapted to meet the needs of individual learners.**

➜ **Personalized learning provides choice and a safe place to try new things.**

Why customization is important?

"BC's new curriculum helps students learn by exploring their interests and passions. Personalized learning is the heart of the new curriculum. (BC Curriculum, 2018)

In a primary classroom, the children are immersed with building foundational skills in literacy and math as well the core competencies. "Core competencies are sets of intellectual, personal, and social and emotional proficiencies that all students need to develop in order to engage in deep learning and life-long learning." (BC Curriculum) A teacher must continually challenge the students to grow their brain (growth mindset) and then provide a multitude of opportunities to demonstrate their growth with each skill.

One example of this is inquiry based learning which allows students to choose a topic of interest that matters to them. Students can collaborate with peers and research something they are passionate about, participate in "hands on" activities, use technology, self assess and reflect on learning to continually keep the curiosity spark alive!

Inquiry based animal projects from Kindergarten.

Tip

Customization or personalization of learning keeps the student engaged and motivated.

Sandboxes

"Sandboxes are good for learning: if learners are put into a situation that feels like the real thing, but with risks and dangers mitigated, they can learn well and still feel a sense of authenticity and accomplishment." (Gee, 2004)

➔ **Explore with technology without being ranked**

➔ **Provide learners time to play**

How does sandboxes reflect my experience as an educator?

I teach literacy skills such as sight words in small groups using a game based approach. The students learn to read and write their individual words in a safe setting, have fun and entice each other to learn new words . Students use various websites to explore and practice literacy and math skills such as Starfall, ABC.ya., and Cool Math Games. They are motivated to score points and reach the next level. We also use Mathletics with animated tutorials, audio support, engaging games and rewards which are adapted to meet the needs of the individual. Students are thrilled to be able to continue to practice at home as well.
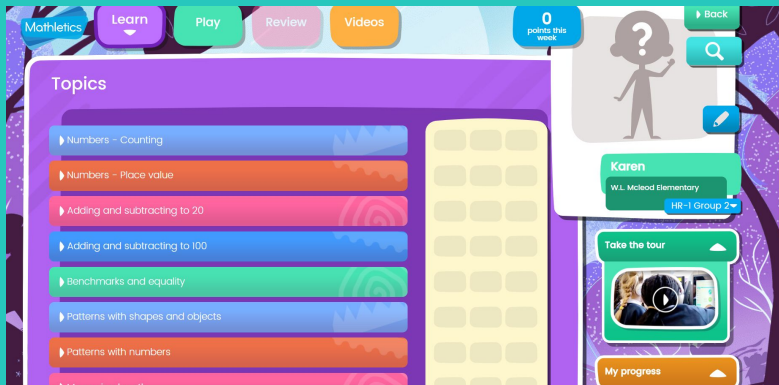
Skills as strategies

To get good at anything you have to master some basic skills and that means practice and practice. (Gee, 2004)

➔ **Practice must be meaningful**

➔ **Students must feel they are accomplishing a goal.**

Step by step strategies in my own learning.

As James Paul Gee stated, to get good at anything you have to master some basic skills and see that they are meaningful. Since starting OLTD in September 2017, I have an increasing knowledge of the benefits of using more technology in the classroom. Rather than just using it to reinforce skills already taught in the classroom, I have been exposed to the wealth of ways to show learning via audio, text, video and use a variety of educational apps.   I am now passing my experiences on to my students. They are motivated to use apps such as "Show Me" and create pic collages rather than draw their pictures or use a whiteboard. They are loving the alternative ways they can demonstrate their learning as opposed to the "paper product" in the past. They are constantly asking me to take pictures of their creations, record them reading and demonstrating an activity and then send the video home to their parents.

With most students, solving real world problems makes the skill practice meaningful. During math centers, students learn about money by creating a store and pretending they are actually grocery shopping. The "real experience" creates a deeper understanding of money concepts and also purchasing products that have the best value for their money.

Important Game-Based Definitions

Gamification

"**Gamification** is the use of game design and mechanics to enhance non-game contexts by increasing participation, engagement, loyalty and competition. These methods can include points, leaderboards, direct competitions and stickers or badges." (Suzanne Holloway)

Gamification can be used in the classroom by **eliminating "grades"**. Students generally receive a "final letter grade" for success in completing assignments and tests at the end of a course. One professor, Lee Sheldon, gamified his course by implementing an experience points system. Students progress towards levels of mastery like games rather than be disheartened by a poor mark on a test or assignment. It allows the educator to align levels with skills and highlight the inherent value of education. (Holloway, n.d.)
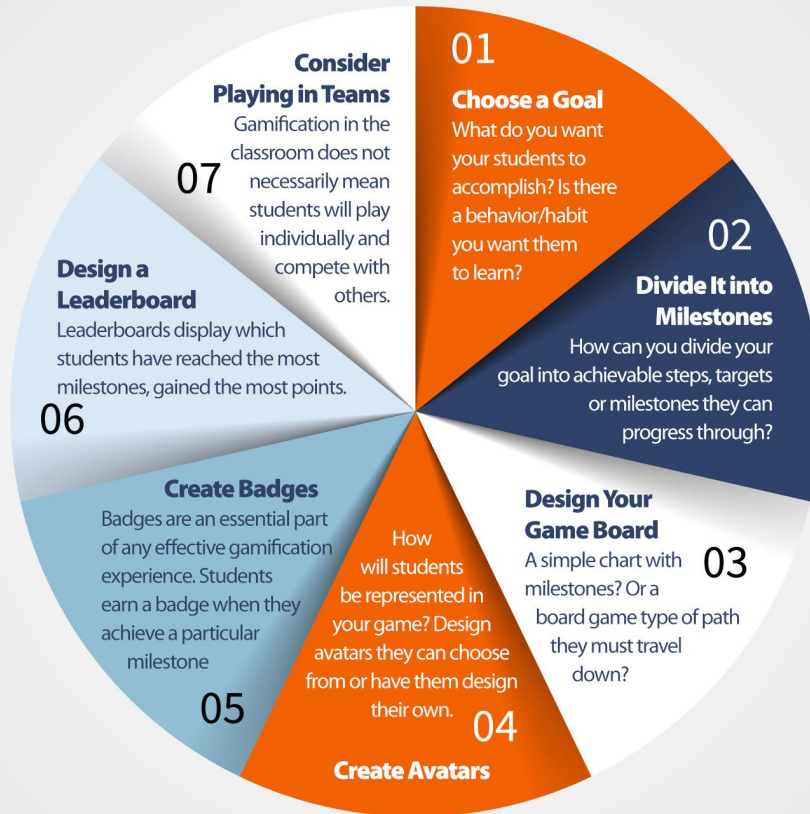
Students can be awarded with **badges** or stickers to track progress and encourage perseverance.

Integrating games provides **instant feedback** and small rewards that motivate students to keep going and **compete** with other students in the class.

Class wide reward systems can be used to achieve something as a team like a class party.

Here is an infographic that describes how to gamify in an ESL classroom. These steps can be used in a primary classroom too. A whole class goal might be as simple as lining up quietly and keeping track of the progress with each transition throughout the day on a big chart for all to see. I think students would support one another to achieve a goal.

HOW TO **GAMIFY** YOUR ESL CLASSROOM

01 Choose a Goal
What do you want your students to accomplish? Is there a behavior/habit you want them to learn?

02 Divide It into Milestones
How can you divide your goal into achievable steps, targets or milestones they can progress through?

03 Design Your Game Board
A simple chart with milestones? Or a board game type of path they must travel down?

04 Create Avatars
How will students be represented in your game? Design avatars they can choose from or have them design their own.

05 Create Badges
Badges are an essential part of any effective gamification experience. Students earn a badge when they achieve a particular milestone

06 Design a Leaderboard
Leaderboards display which students have reached the most milestones, gained the most points.

07 Consider Playing in Teams
Gamification in the classroom does not necessarily mean students will play individually and compete with others.

Busy Teacher.org

Retrieved from: https://busyteacher.org/uploads/posts/2014-08/1408988030_gamify-your-classroom.jpg

Potential benefits of successful gamification in the classroom from Wikipedia

- giving students ownership of their learning
- opportunities for identity work through taking on alternate selves
- freedom to fail and try again without negative repercussions
- chances to increase fun and joy in the classroom
- opportunities for differentiated instruction
- making learning visible
- providing a manageable set of subtasks and tasks
- inspiring students to discover intrinsic motivators for learning
- motivating students with dyslexia with low levels of motivation

Retrieved from https://en.wikipedia.org/wiki/Gamification_of_learning

Game Based Learning

"**Game based learning** (GBL) is a type of game play that has defined learning outcomes. It is designed to balance subject matter with gameplay and the ability of the players to retain and apply said subject matter to the real world. Effective game based applications can draw the student to work toward a goal, choosing actions and experiencing consequences along the way." (EdTechReview, 2013)

Students need effective, interactive experiences that motivate them and actively engage them in the learning process. GBL can draw a person into a virtual environment that looks and feels familiar and relevant. Trybus, J. (2009)

EXAMPLE OF GAME BASED LEARNING
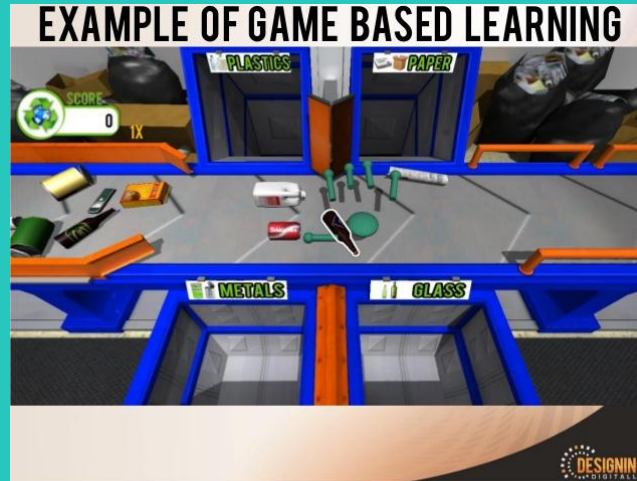
Why use game based learning?

- It is cost effective
- low physical risk/liability
- Students can re-enact a set of circumstances multiple times and explore the different consequences
- Virtual learning experiences not available in real life
- Highly engaging
- Learning can be tailored to individual student
- Immediate feedback
- Student can transfer learning to the real world environment

Thoughts to consider before choosing games:

Intervention: Is the game going to be used as an intervention to support a learner?

Enrichment: Do we want a game that presents material through a different media?

Reinforcement: Will the game be used by the entire class to reinforce core content already presented?

Serious Game

Serious games are precisely videogames whose purpose is to train more than to entertain. (gamelearn June 17, 2015)

Serious games can be used for three purposes:
- Edutainment: educational games
- Advergaming: games to promote a new brand or product
- Simulation: training games in education, defense, medicine, scientific exploration, emergency management, city planning, engineering and politics

Simulation

The Cambridge dictionary describes simulation as a model of a real activity, created for training purposes or to solve a problem. Likewise, simulation in video games is games designed to simulate real world activities for various purposes such as training, analysis, or prediction. There are usually no defined goals in the game, with the player allowed to control a character freely. (ie. war games, business games and role play simulation) (Wikipedia 2018)

Simulation games can be used for
- Construction and management where players build communities or projects with limited resources
- Life simulation, players can revolve around simulation in an ecosystem
- Sports, playing games emphasizing playing the sport and developing strategies
- Medical simulations where the player is a surgeon
- Flight simulators for training pilots as well as space flight simulators and combat pilots
- Racing and train simulator games

Commercial Off the Shelf Games (COTS)

Webopedia describes commercial off the shelf games as software or hardware products that are ready-made and available for sale to the general public. They are not necessarily designed for use in the classroom. However, the games can be used to problem solve and create higher order thinking skills.

Richard Sandford (2006) reported the many strengths of COTS games and their ability to promote collaboration, foster engagement and motivation, and to develop students' thinking skills, yet also detail the difficulties teachers face in incorporating complex, time-consuming and technically sophisticated games into short lesson times on equipment not intended for use with commercial games. He also pointed out the need for teachers to become familiar with the games first.

I have no experience using commercial video games in the classroom nor do I know any teachers that use COTS.   We use non digital commercial games like Snakes and Ladders, Trouble, Scrabble and Candyland during our literacy and math stations to practice skills.

What kids are saying about gamification and gaming!

Learning my sight words while playing games with a partner is really fun.

(Tristen)

I love my quiet time listening to stories on the ipad. It helps me learn to read too.

(Kimberly)

Using mathletics is rewarding. I aim for 100% and like that I can use it at home too.

(Reid)

Resources

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Picture Resources:

Slide 1: http://pixabay.com
Slide 5: http://pixabay.com
Slide 6: Boucher photos
Slide 8: screenshots
Slide 10: http://pixabay.com
Slide 11: http://pixabay.com/
Slide 13: https://busyteacher.org/uploads/posts/2014-08/1408988030_gamify-your-classroom.jpg
Slide 15: Retrieved from:
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Slide 19: http://pixabay.com/
Slide 20: Boucher photos