What is Candy Crush?
Candy Crush is a game created by King Digital Entertainment that was reported to have over 100 million daily active users at the end of 2013. They move through one level after another, advancing only when they succeed.

What Can We Learn from It?
The game evidences design features that encourage engagement and persistence; these can be applied to teaching and learning.

Retention in online courses is perceived as a growing challenge by administrators, and Ohio has changed the way it calculates subsidies to state institutions by focusing on completion rather than enrollment. Incorporation of some elements of game design may increase student engagement and therefore completion rates.

Candy Crush appears to have at least four separate design features: structural; social; cognitive; and emotional.

Structural Features
1. **Cross-platform design** (different devices, different browsers) allows ubiquitous use; instructions should make it clear what activities are not recommended.
2. **Chunking** into multiple levels of discrete units allows participants to easily achieve milestones and measure progress.
3. **Clear, measurable objectives** shared at the beginning of an activity make expectations for performance clear and unambiguous.
4. **Sharing information in multiple modalities**, e.g., visual, reading, auditory, kinesthetic) reinforces the delivery of content.

Social Features
1. **Success can be broadcast**, although privacy must be respected.
2. **Friends can help friends** via peer review, group work, sharing resources.
3. **Friendly competition** can encourage success.

5. **Hints and shuffles** can encourage participants to keep moving when they’re stuck.
6. **Bonuses** recognize exceptional performance.
7. **Immediate and detailed feedback** is offered on performance.
8. **Levels are scaffolded** so difficulty increases as participants move through content; not all skills are required at every level.
9. **Success involves some element of chance**, and may therefore encourage persistence.
10. **Participants have limitless opportunities** to succeed and can therefore try again if they fail.
11. **Participants have some control** over their environment; some autonomy can enhance outcomes.
12. **Waiting periods** are built in; the enforced “rest” results in distributed practice which aids in learning retention.
13. **Alternative activities** are available when waiting which allow further rehearsal of skills.
14. **Formative assessment** encourages modification of design based on participant experience.

What is Candy Crush?
Candy Crush is a game created by King Digital Entertainment that was reported to have over 100 million daily active users at the end of 2013. They move through one level after another, advancing only when they succeed.
Cognitive Features

1. Complexity stimulates authentic problem-solving:
   - Avoiding consequences
   - Assuming multiple perspectives
   - Discovering patterns
   - Varying strategies based on context
   - Remaining aware of resources

2. Requiring innovation in small iterations allows participants to balance frustration with growth.

3. Tasks require both power and finesse, allowing focus on broad as well as specific skills.


Emotional Features

1. Happy affirmations and tough love encourage success; release of dopamine can result in better performance.

2. Choices make participants feel active and enhance motivation.

3. Intermittent rewards encourage persistence, a lesson learned with Skinner boxes and evidenced in the behavior of gamblers.

4. Surprises that motivate continued exploration can be incorporated as assessment or content bonus items.

5. Investment of time or money can encourage continuing to completion; reminding participants of their investment and successes in-progress.

6. Achieving success can relieve stress, so include activities that are easy to achieve among those that are difficult.

Game on!

If game-players can spend millions of hours and millions of dollars playing a game...

...how can we motivate them to focus their time on educational activities instead?

Enable learners to experience a sense of “flow” (Nakamura & Csikszentmihalyi, 2002) in which they:

- are focused
- feel in control
- are intrinsically rewarded by their activity

A state of flow is facilitated with:

- challenges that “stretch” skills
- clear goals
- immediate feedback

Good course design challenges learners without causing a degree of frustration that can lead to withdrawal or failure. Learners need to be aware of pre-requisites and resources available to help them succeed. It also helps to provide choices and create opportunities for authentic problem-solving.

How Do You Get Training?

- Quality Matters in Online Course Design (http://www.uakron.edu/it/instructional_services/dds/qm/)
- Tech talk Tuesday series (see http://www.uakron.edu/it/instructional_services/dds/training.dot)
- APPQMR (announced periodically through Email Digest)

Where Can You Learn More?

For more information about the services and technologies offered by DDS, visit: http://www.uakron.edu/it/instructional_services/dds/