

Pedagogical Practices—Gaming or Game-Based Learning

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Game-based learning (GBL) is an active learning approach that motivates learners through competition and challenge. Through scoring points and working toward winning, students become invested in working through the learning content or the subject matter being “taught.” Students either compete against each other or against computer-managed scenarios, often students together in teams to win the game. Like any type of game, the game-based learning approach often incorporates elements of fantasy that students typically engage in through a storyline.

Instructors can either incorporate commercially provided education games or they can create their own games. The most important criteria to consider in selecting or creating games for use in learning course content is to make sure that learning the material is essential to scoring and winning.

Use of Gaming

Some of the ways this teaching approach is used to engage students include:

- Scaffolding concepts leading to application of information to more advanced situations and applications
- Simulating real-world experiences with low-stakes or no-stakes failure
- Providing opportunity to explore content from a new point of view by taking on a character role

Additionally, Penn State provides services for the exploration and integration of gaming through the Educational Gaming Commons at <http://gaming.psu.edu/>.

Penn State’s Educational Gaming Commons is a group devoted to the exploration of games as a tool to improve teaching, learning and research through:

- Working with faculty to design custom [educational games](#) for classroom use.
- Helping faculty leverage commercial, off-the-shelf games to improve learning
- Bringing game-like elements to the classroom, allowing instructors to leverage some of what makes games compelling without the need for a full on game.
- Managing a state-of-the-art [gaming lab](#) that allows our faculty to leverage games in their classrooms, without the need to support it themselves

- Expanding the boundaries of educational gaming research with our own research initiative, designed to assess the validity of our efforts and inform future practice
- Investigating advances in games, technologies, or game-like practices to stay in touch with a rapidly evolving field.

Technology Use

The following list of technologies that can be used to create your own games is made available by Anastasia Salter (2011).

- [BuddyPress](#): The foundation of a social class site, BuddyPress builds on the WordPress system so that it acts more like Facebook or Ning.
- [CubePoints](#) with [CubePoints BuddyPress Integration](#): Makes use of information that is already available in the system. Who is checking the site regularly? Replying to questions on the forum? Adding links to interesting new content? Rewards users with points for all these actions and can keep a leader board with ranks unlocked.
- [Achievements](#): Lets you set rewards for particular actions. These can be automated, like a reward for posting a certain number of times to a class forum, or triggered by you.
- [BuddyPress Rate Forum Posts](#): The ability to rate posts acts as an extension of peer review and a check on excessive but meaningless contribution. The voting system also asks as a way to encourage students to be their own community moderators.
- [BuddyPress Links](#): If you have a class that involves a lot of current content, this is one way to build a space for the sharing of links to relevant material.

Assessment

VJ Shute (2012. p. 46) offers the following seven core elements of well-designed games:

- Interactive problem solving: Games require ongoing interaction between the player and the game, which usually involves the requirement to solve a series of problems or quests.
- Specific goals/rules: Games have rules to follow and goals to attain which help the player focus on what to do and when. Goals in games may be implicit or explicit.

- Adaptive challenges: Good games balance difficulty levels to match players' abilities. The best games and instruction hover at the boundary of a student's ability.
- Control: A good game should allow or encourage a player's influence over game play, the game environment, and the learning experience.
- Ongoing feedback: Good games should provide timely information to players about their performance. Feedback can be explicit or implicit, and as research has indicated, has positive effects on learning.
- Uncertainty evokes suspense and player engagement. If a game "telegraphs" its outcome, or can be seen as predictable, it will lose its appeal.
- Sensory stimuli refer to the combination of graphics, sounds, and/or storyline used to excite the senses, which do not require "professional" graphics or sound to be compelling.

Impact

Using gaming in instruction can impact learning through:

- Making learning fun
- Allowing for freedom and choice, choosing actions, and experiencing the consequences of those actions
- Creating deeper learning—learn not only the facts, but also the important, underlying hows and whys
- Applying abstract principles in new and unexpected situations
- Motivating your students to learn outside the classroom
- Providing immediate reward—as soon as the learning goal is accomplished, the student receives points, levels up, or receives descriptive feedback.
- Providing immediate feedback in response to student mistakes
- Providing social interaction around learning through bragging of success and discussing tips to avoid failure
- Promoting individualized learning by tailoring the learning pace to each student
- Transferring learning to real-world environment
- Reinforcing teamwork and collaboration

Things to Consider

For successful implementation of gaming, you should consider the following strategies:

- Avoid trying to force gaming on content or learning that is not well suited for this approach.
- Use the ideas of games to approach content in a new way.
- Use games that are meaningfully content-driven.
- Use games that provide continuous challenge.
- Use games that contain an interesting storyline.
- Use games that are flexible enough that students can accomplish each goal through different mechanisms or approaches.
- Use games that combine fun and realism.

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