

What's the difference between gamification, serious games, educational games, and game-based learning?

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There is sometimes considerable discussion about how various terms are used, both within and between disciplines. In some cases, there appears to be little agreement over the meaning of some terms within a community. Consensus regarding what we mean when we use various terms is essential if we are to make progress.

The use of games and gamification in learning contexts, while still not commonplace, has become broadly accepted. A search for 'digital games in education' in Google scholar turned up nearly 30,000 hits of papers published in 2020 alone. Just the same, many are still confused when it comes to distinguishing between serious games, educational games, game-based learning, and gamification.

This table helps to clear up some of that confusion. The first version was posted on the author's blog in 2015, where it has been cited frequently. It compares each of the main terms used when describing the use of games and game elements for learning on a variety of criteria.

Game

There is enough ambiguity about the definition of 'game', that entire volumes have been written on the subject (Huizinga, 1950; Sutton-Smith, 1997). For our purposes, we can define 'game' as having the following properties:

- Interactive.
- Has rules.
- Has one or more goals.

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Distinctions between Types of Teaching & Learning using Games						
© K.Becker 2021	Game	Serious Game	Game for Learning (G4L)	Game-Based Learning (GBL)	Game-Based Pedagogy (GBP)	Gamification
Basic Definition	This term includes BOTH Serious Games AND Games for Learning	A game <i>designed</i> for purposes other than or in addition to pure entertainment.	A game <i>designed</i> specifically with some learning goals in mind.	The process and practice of <i>learning</i> using games. [From the <i>learner's</i> point of view]	The process and practice of <i>teaching</i> using games. [From the <i>teacher's</i> point of view]	The use of game elements in a non-game context.
Purpose	Can be for any purpose.	Change in behaviour, attitude, health, understanding, knowledge.	Normally connected with some educational goals.	Not a game - this is an approach to learning.	Not a game - this is an approach to teaching.	Often used to drive motivation, but can also be used to make something more playful and game like.
Primary Driver (why used)	Can be either play or rewards (or both).	To get the message of the game.	To learn something.	To improve learning. To increase learning effectiveness. <i>*Note GBP & GPL are related, but not the same.</i>	To improve teaching practice & effectiveness. <i>*Note GBP & GPL are related. They are like two sides of a single coin.</i>	Depending on how it's implemented, it can tap into extrinsic or intrinsic rewards (or both)
Key Question	Is it fun?	Is the message being received?	Is it effective?	Am I learning what I am supposed / need to be learning?	Is it effective?	Business: Does it improve profits? Education: Is it effective?
Focus	Player Experience (<i>how</i>)	Content / Message (<i>what</i>)	Content / Message (<i>what</i>)	Learning Objectives (<i>what & how</i>)	Learning Objectives (<i>what & how</i>)	User Experience (<i>how</i>)
Budgets	Next to nothing to 100's of millions.	Next to nothing to 100's of thousands.	Next to nothing to 100's of thousands.	Usually part of an institutional budget. Largely irrelevant to the user.	Usually part of an institutional budget. Largely irrelevant to the user.	Next to nothing to 10's of thousands.
Business Model	User Pays	Producer Pays	Varies	Institution Pays	Institution Pays	Producer Pays
Concept Catalyst	Core Amusement.	Message.	Performance or Knowledge Gap	Game is the lesson or is used as a part of the lesson.	Game is the lesson or is used as a part of the lesson.	When used in learning it usually impacts HOW things are taught and administered rather than WHAT is taught.
Fidelity	Self-consistent, otherwise irrelevant	Faithfulness to message essential	Faithfulness to message essential	Faithfulness to message essential	Faithfulness to message essential	Not Applicable. If a narrative exists, it need have nothing to do with what's being gamified.

- Has a quantifiable measure of progress (or success).
- Has a recognizable ending.

Strict adherence to these criteria is less important than that there be general agreement. For example, the popular SIMs franchise (Wright, 2000) has often been described as a digital dollhouse. It has all of the above properties *except* a recognizable end, and given that the goals are largely player constructions, it could be argued that it is a simulation, but not, technically, a game. Calling it a game is sufficient.

Serious Game

Serious games comprise a subset of games. These are games designed specifically for purposes other than or in addition to pure entertainment (Sawyer, 2003). Serious games include games for health (from surgical trainers to pain management games and beyond), games for

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change (games featuring social justice issues), advergames (games for advertising), political games, and several others. Serious games also include Games for Learning. They are referred to in this way here, as educational game tends to be too narrow. Educational game typically implies a game used in a formal educational setting, whereas games for learning can include professional development and informal learning as well. While some entertainment games are often used as educational games, such as Sid Meyer's Civilization, it is the designed intent that classifies a game as serious. Games like Civilization is a game used for serious purposes.

Digital Game Based Learning (DGBL)

Sometimes simply referred to as Game-Based Learning, DGBL involves learning of some knowledge, skills, attitudes that happens with the deliberate use of digital games. This could involve learning by playing games, but it can also involve learning through building games. Specifically, DGBL is the theory of how learning happens with the use of (primarily digital) games. Game based learning draws on a variety of other learning theories to explain how people learn with games. GBL does not require a game specifically designed for educational purposes – it is the use of games in a learning context. Sometimes just playing the game is intrinsically rewarding is true of any GOOD game. Educational and other serious games rarely have the kinds of budgets that AAA games do, so they are not necessarily expensive. Good design is always hard and that applies to learning as well as all kinds of learning that involve games or game elements. Creating good learning is hard. Adding a game or game elements makes it harder still.

Digital Game Pedagogy (DGP)

As pedagogy is about the study, and theory of teaching, digital game pedagogy is about the study and theory of teaching with games. It is a term not commonly used, but it is meant to highlight the distinction between *learning from* games and *teaching with* games. The two terms are closely related but are effectively opposite sides of the same coin – one from the perspective of the learner and the other from the perspective of the teacher.

Gamification

Gamification is the use of game design elements in non-game contexts (Deterding, 2010). It is not necessarily about learning at all and can be used in any context. Examples include

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companies that offer points, reward systems, badges, and other incentive-based techniques, usually with the intent of increasing brand association and loyalty. In education it often involves attempts to wrap a game narrative around a course, topic, or project. It could also include multiple paths to the end, choices in what work is submitted for grading, criterion-based rather than time-based assessment, and a decidedly learner-centered approach.

Summary

All of these terms are closely related so it is no surprise there is confusion. This table presents one approach to distinguishing between them.

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