Gamification: Toward a Definition

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Abstract
This paper proposes a working definition of the term *gamification* as the *use of game design elements in non-game contexts*. This definition is related to similar concepts such as serious games, serious gaming, playful interaction, and game-based technologies.

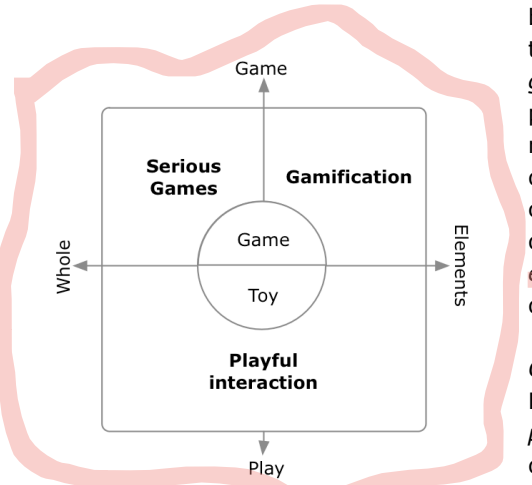
Origins
Gamification as a term originated in the digital media industry. The first documented uses dates back to 2008, but gamification only entered widespread adoption in the second half of 2010, when several industry players and conferences popularized it. It is also—still—a heavily contested term; even its entry into Wikipedia has been contested. Within the video game and digital media industry, discontent with some interpretations have already led designers to coin different terms for their own practice (e.g., gameful design) to distance themselves from recent negative connotations [13].

Until now, there has been hardly any academic attempt at a definition of gamification. Current uses of the word seem to fluctuate between two major ideas. The first is the increasing societal adoption and institutionalization of video games and the influence games and game elements have in shaping our everyday life and interactions. Game designer Jesse Schell summarized this as the trend towards a *Gamepocalypse*, ”when

every second of your life you're actually playing a game in some way" [18]. The second, more specific idea is that—since video games are explicitly designed for entertainment rather than utility—they can demonstrably produce states of desirable experience, and motivate users to remain engaged in an activity with unparalleled intensity and duration. Thus, game design is a valuable approach for making non-game products, services, or applications, more enjoyable, motivating, and/or engaging to use.

Defining *Gamification*

Despite the recent emergence of the word *gamification*, the underlying ideas have been previously explored within the HCI literature, for example as playful interaction design [5,14,19]. Thus, if gamification is to be understood and developed as an *academic* concept, the task is to determine whether the term and current *gamified* applications are significantly different from previous areas of research, and how to situate this in relation to existing fields. We believe that gamification does represent new research possibilities. For the group of phenomena it represents, we propose the following definition: *Gamification is the use of game design elements in non-game contexts.* Let's unpack this definition in detail.



Gamification is the use of elements of game design in non-game contexts. This differentiates it from serious games and design for playful interactions.

Game

Firstly, we are talking about elements of *games*, not of *play*. While games are usually played, play represents a different and broader category than games. We agree with classic definitions in game studies that games are characterized by rules, and competition or strife towards specified, discrete outcomes or goals by human participants [12,15]. This distinction is mirrored in McGonigal's [13] recent coinage of the term *gameful* as a complement to *playful*. In terms of HCI research, this means we distinguish gamification from playful interactions, playful design, or design for playfulness [1,9]. In practice though, we assume that the design of gamified applications will often give rise to playful behaviors and mindsets.

Secondly, although the majority of current gamification examples are digital, limiting it to digital technology would be an unnecessary constraint. Not only are media convergence and ubiquitous computing increasingly voiding a meaningful distinction between digital and non-digital artifacts, but games and game design are transmedial categories themselves [12].

Element

Whereas *serious games* describes the use of complete games for non-entertainment purposes, gamified applications use *elements of* games that do not give rise to entire games. Of course, the boundary between *game* and *artifact with game elements* can often be blurry: Is foursquare a game or a gamified application? Is the purpose of foursquare primarily for entertainment and fun, or for something else? To complicate matters, this boundary is personal, subjective and social: Whether you and your friends *play* or *use* foursquare depends on your (negotiated) perceptions and enactments. The addition of one informal rule by a group of users may turn a gamified application into a complete game. Within game studies, we find increasing acknowledgement that a definition of *game* must go beyond properties of the game artifact to include such situated and socially constructed meanings. For the present purpose, this entails that we should (a) look for *technical* as well as *social* elements of games and (b) interpret the technical elements more

as *affording gameful* interpretations and enactments rather than *being gameful*.

Games are also a composite category. No typical element (e.g., goals, rules) on its own constitutes a game and most can be found outside games as well; only assembled together do they constitute *a game* [12]. Thus, how to determine which design elements belong to the set of *game elements*? A liberal set—any element found in any game—would be boundless. A constrained set —elements that are unique to games—would be too restrictive if not empty. We suggest limiting gamification to the description of elements that are *characteristic to* games. There is still much room for debate over what is characteristic to games.

Non-Game Context
Together with serious games, gamification uses games for *other* purposes than their *normal* expected use for entertainment (asserting that entertainment constitutes the prevalent expected use of games).

We recommend not limiting the term gamification to specific usage contexts, purposes, or scenarios, while noting that joy of use, engagement, or more generally improving the user experience currently serve as popular usage contexts. Firstly, there are no clear advantages supporting such a restricted position. Secondly, the murkiness of interpretations surrounding serious games can be directly linked to how authors who initially used the term tied it to specific contexts or purposes (e.g., learning), whereas the class of games satisfying the qualities of serious games has proliferated into all kinds of contexts [17]. Thus—in parallel to Sawyer's taxonomy of serious games—we consider different usage contexts or purposes as potential subcategories. Just as there are training games, newsgames, or health games, there can be training gamification, news gamification, health gamification, and other application areas.

Design
HCI has a long history of repurposing game controllers as input devices. Game engines and authoring tools are also commonly used for non-entertainment purposes, such as scientific visualizations. Within the serious games literature, the term serious gaming is used to describe the (educational) utilization of the broader ecology of technologies and practices of games, including machinima, reviewing games, and others [11]. We consider it most helpful to reserve the term *gamification* for references to *design* elements, not game-based *technologies* or *practices* of the wider game ecology.

When surveying the existing literature on games and gamification, we found that game design elements were often described on varying levels of abstraction. We suggest including all these levels in the definition of gamification. Ordered from concrete to abstract, one may distinguish five levels:

1. *Interface design patterns* such as badges, levels, or leaderboards [7].
2. *Game design patterns* [3] or game mechanics [16].
3. *Design principles or heuristics*: guidelines for approaching a design problem or evaluating a design solution.
4. *Conceptual models of game design units*, such as the MDA framework [10], Malone’s challenge, fantasy, and curiosity [14], or the game design atoms described in Braithwaite and Schreiber [4].

5. *Game design methods*, including game design-specific practices such as playtesting and design processes like playcentric design [8] or value conscious game design [2].

Conclusion

This working definition is necessarily broad in order to cover the variety of gamification examples. Still, we believe it articulates a useful differentiation between gamification, serious games, and playful interaction clarifying discourse and allowing research to move into a detailed study of the defined phenomena.

Citations

[1] Bekker, T., Sturm, J. and Barakova, E. Designing for social interaction through physical play. *Personal and Ubiquitous Computing 14*, 5, 2010, 281-283.

[2] Belman, J., and Flanagan, M. Exploring the Creative Potential of Values Conscious Game Design: Students' Experiences with the VAP Curriculum. *Eludamos 4*, 1 (2010), n.p.

[3] Björk, S. and Holopainen, J. *Patterns in Game Design*. Charles River Media, Boston, MA, 2005.

[4] Brathwaite, B., and Schreiber, I. Challenges for Game Designers. Charles River Media, Boston, Ma, 2008, Chapter 2.

[5] Carroll, J.M. The Adventure of Getting to Know a Computer. *Computer 15, 11* (1982), 49-58.

[6] Chatfield, T. Fun Inc.: Why Gaming Will Dominate the Twenty-First Century. Pegasus, 2005.

[7] Crumlish, C. and Malone, E. Designing Social Interfaces: Principles, Patterns, and Practices for Improving the User Experience. O'Reilly, Sebastopol, 2009.

[8] Fullerton, T. 2008 Game Design Workshop: A Playcentric Approach to Creating Innovative Games. Morgan Kaufmann, Amsterdam.

[9] Gaver, W. W., Bowers, J., Boucher, A., et al. The drift table: designing for ludic engagement. *Proc. CHI EA '04*. ACM Press (2004), 885-900.

[10] Hunicke, R., LeBlanc, M., and Zubek, R. MDA: A Formal Approach to Game Design and Game Research. *Proc. AAAI workshop on Challenges in Game*, AAAI Press (2004), n.p.

[11] Jenkins, H., Camper, B., Chisholm, A., et al. From Serious Games to Serious Gaming. In U. Ritterfeld, M. Cody and P. Vorderer, eds., *Serious Games: Mechanisms and Effects*. Routledge, New York, 2009, 448-468.

[12] Juul, J. Half-real: video games between real rules and fictional worlds. MIT Press, Cambridge, Ma, 2005.

[13] McGonigal, J. We don't need no stinkin' badges: How to re-invent reality without gamification. Presentation at GDC 2011. http://goo.gl/9a6ka.

[14] Malone, T.W. Toward a theory of intrinsically motivating instruction. *Cognitive Science 4* (1981), 333-370.

[15] Salen, K. and Zimmerman, E. Rules of play: Game design fundamentals. MIT Press, Cambridge, Ma, 2004.

[16] Sicart, M. Defining Game Mechanics. *Game Studies 8*, 2 (2008), n.p.

[17] Sawyer, B. and Smith, P. Serious Games Taxonomy. Presentation at GDC 2008. http://goo.gl/OWVzo.

[18] Schell, J. Visions of the Gamepocalypse. Presentation, Long Now Foundation, San Francisco, CA, July 27, 2010.

[19] Carroll, J.M. and Thomas, J.M. FUN. *ACM SIGCHI Bulletin 19*, *3* (1988), 21-24.

[20] Zichermann, G. and Linder, J. Game-Based Marketing: Inspire Customer Loyalty Through Rewards, Challenges, and Contests. Wiley, Hoboken, NJ, 2010.