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# Designing Gamification: Creating Gameful and Playful Experiences

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**Abstract**

In recent years, gamification – the use of game design elements in non-game contexts – has seen rapid adoption in the software industry, as well as a growing body of research on its uses and effects. However, little is known about the effective *design* of such gameful systems, including whether their evaluation requires special approaches. This workshop therefore convenes researchers and industry practitioners to identify current practices, challenges, and open research questions in the design of gameful systems.

**Keywords**

Gamification; gameful design; playful design; game design; design methods; design research

**ACM Classification Keywords**

H.5.m [Information Interfaces and Presentation (e.g., HCI)]: Miscellaneous; H.5.2 [User Interfaces]: Evaluation/Methodology, User-Centered Design; H.5.3 [group and Organization Interfaces]: Evaluation/Methodology; K.8.0 [Personal Computing]: Games

**Introduction**

Gameful design or gamification refers to the design of hardware and software in non-game contexts using

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design elements from games [2]. This is usually intended to create gameful and playful user experiences, motivate desired user behaviors, and generally, increase joy of use.

At CHI 2010, we organized the first academic workshop (to our knowledge) on gamification, taking stock of the then-existing research as well as pertinent traditions that might inform the study of gamification [3]. The workshop was met with immense interest and successfully convened researchers and practitioners from diverse fields in discussion.

Following the continued ascent of gamification in the commercial sector, researchers in human-computer interaction (HCI) and game studies have since begun to study the effectiveness of gameful systems, as well as more complex questions involved in their use and adoption across domains like health informatics, e-learning, computer-supported collaborative work, persuasive technology for pro-environmental behavior, participatory science, to name but a few. Further work has looked into the conceptualization and evaluation of game user experiences in general [4,13]. However, little attention has been paid to the designing of gameful systems – not only a precondition for any prototype-based research on gameful systems, but also a pressing issue for any industry application. This year, we will therefore continue and focus the discussion on the practices, methods, challenges, and open questions of gameful system design.

### **Background**

At first glance, the design of gameful systems faces challenges comparable to the design of serious games: Both have to deliver on instrumental and experiential

goals at the same time, whereas traditional instrumental design disciplines (e.g., business application design, instructional design) can focus on instrumental outcomes, and experiential design disciplines (e.g., game design, interactive art) on affording a desired experience. Gameful systems add another innate tension: Not only do they pursue a double goal (like serious games) – the designed system itself has a hybrid nature, being neither ‘pure’ functional software nor a ‘full-fledged’ game.

Thus, while there are tested, formalized and institutionalized methods for designing functional software (software engineering, user experience design) and games (game design), and serious game design is starting to be formalized and studied as well [1,6,8,11,14], there are currently no established, let alone empirically tested methods for the design of gameful systems.

Open questions abound: Are we to ‘add’ game design to traditional user experience design processes? And if so, how? Are we to ‘extend’ (serious) game design with a view to supporting functional task completion? Or are there other ways? Can design methods, processes, patterns, or lenses be atomistically lifted from one design discipline and incorporated into another? Or does the difference (and presumed experiential ‘value-add’) of game design lie more with a set of tacit values, concerns, perspectives and practical understandings – a practice, “epistemic frame” [12] and connected community of practice [10] designers are more socialized into than explicitly schooled in? In light of all this, how are design teams of gameful systems to be staffed and organized? Is there a difference between designing a gameful system from scratch and ‘adding’ a

'game layer' to an existing system? Is one preferable to the other – under which conditions? Do gameful systems require evaluation methods and criteria different from (serious) games in general?

Industry practitioners have published various materials on the design of gameful systems [5,7,9,15]. Yet these tend to remain at the level of rather incomplete and abstract step-by-step guidelines that do not cover the full circle (from formative user research through synthesis, ideation, prototyping, design and usability testing) of user experience design or game design; they are visibly devised to provide a first impression, but not to guide actual design. They also exclusively focus on the 'adding' of a 'game layer' to existing systems – little is said about designing a new gameful system from scratch. Indeed, such 'forced' add-on designs have been the main object of criticism among traditional (serious) game design professionals. Most importantly, current industry practitioners do not document the rationale behind the processes they suggest, nor is any data on their actual empirical effectiveness (and complications) available.

### Workshop Goals

In light of the situation outlined, we see a significant opportunity in combining the practical experience accumulated by industry practitioners and researchers who have deployed gameful prototypes with the conceptual and methodological apparatus of design research in HCI and game studies, in order to establish a baseline and starting point for the systematic study and development of *design methods* for gameful systems.

Whereas the last workshop focused on understanding gamification, this workshop will foreground the design of gameful systems. The main workshop goal is thus to bring together HCI and game researchers with industry practitioners to take stock of existing design approaches to gameful systems, identify specific challenges, lessons learned and best practices, and from there, extrapolate the most important open questions for research.

### Workshop Questions

- What approaches, concepts, tools, and methods are currently used in creating gameful systems?
- What specific challenges, issues and pitfalls have emerged in their design? What workarounds have been established to deal with these?
- What empirical evidence exists on the effectiveness and efficiency of currently employed approaches?
- What unexplored opportunities might (game and user experience) design research hold to inform and evaluate gameful design?
- To what extent can design elements of one design practice be isolated and transplanted into another?
- What are the current best practices for a gameful system design process and what useful methods can be borrowed from game design?
- What are the most important open research questions regarding the design of gameful systems, and how might they be approached?

### Participants and Expected Interest

Exploring the current state of designing gameful systems is of immediate interest for all researchers that already have deployed, are deploying, or planning to deploy gameful prototypes – be it in e-learning, computer-supported collaborative work, persuasive

technology, health informatics, user-generated content and community management, or other fields. For gamification practitioners and game designers interested in moving into this field, the benefit of such stocktaking is equally apparent. In addition, it presents interesting conceptual questions for (game) design researchers in general, like the analytic and practical decomposability and transferability of a design practice. Serious game designers and researchers are faced with issues similar to those explored in the workshop. In recruiting participants, we will pay special attention to include researchers with practical experience in designing gameful prototypes, seasoned practitioners from the gamification field, and equal shares of researchers working on user experience/interaction design and game design.

### References

- [1] Annetta, L. The "I's" have it: A framework for serious educational game design. *Review of General Psychology* 14, 2 (2010), 105–112.
- [2] Deterding, S., Dixon, D., Khaled, R., and Nacke, L. From game design elements to gamefulness: defining "gamification". *Proc. MindTrek '11*, ACM Press (2011), 9-15
- [3] Deterding, S., Sicart, M., Nacke, L., O'Hara, K., and Dixon, D. Gamification: Using game-design elements in nongaming contexts. *Proc. CHI EA '11*, ACM Press (2011), 2425-2428
- [4] Drachen, A., Nacke, L., Seif El-Nasr, M., Desurvire, H., Bernhaupt, R., Isbister, K., and Calvi, L. FDG Player Experience and Game User Research Workshop. *FDG'12*, Raleigh, NC.
- [5] Dignan, A. *Game Frame: Using Games as a Strategy for Success*. Free Press, New York et al., 2011
- [6] Echeverría, A., Barrios, E., Nussbaum, M., Améstica, M., and Leclerc, S., The atomic intrinsic integration approach: A structured methodology for the design of games for the conceptual understanding of physics, *Computers & Education* 59, 2 (2012), 806-816
- [7] Ferrara, J. *Playful Design. Creating Game Experiences in Everyday Interfaces*. Rosenfeld Media, New York, 2012
- [8] Khaled R., and Ingram, G. Tales from the front lines of a large-scale serious game project. *Proc. CHI'12*, ACM Press (2012), 69-78
- [9] Kim, A. J., *Gamification Workshop: Designing the Player Journey*. <http://goo.gl/BWYP1>, 2011
- [10] Lave J. and Wenger, E. *Situated Learning. Legitimate peripheral participation*, University of Cambridge Press, Cambridge, 1991
- [11] Ritterfeld, U., Cody, M., and Vorderer, P., *Serious Games: Mechanisms and Effects*. Routledge, London, 2009.
- [12] Shaffer, D. W., Epistemic frames for epistemic games. *Comput. Educ.* 46, 3 (2006), 223-234.
- [13] Seif El-Nasr, M., Desurvire, H., Nacke, L., Drachen, A. Calvi, L., Isbister, K., and Bernhaupt, R. Game user research. *Proc. CHI EA'12*, ACM Press (2012), 2679-2682
- [14] Winn, B. The design, play, and experience framework. In *Handbook of Research on Effective Electronic Gaming in Education*. IGI Global Publication, Hershey, Philadelphia, 2008, 1010-1024.
- [15] Zichermann, G. and Cunningham, C. *Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps*. O'Reilly, Sebastopol, 2011