

First International Workshop on Data-Driven Gamification Design (DDGD2017)

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1 Introduction

Three editions of the GamifIR¹ workshop have shown that a better theoretical underpinning of gamification design is necessary to advance the state of the art. This was primarily motivated by Sebastian Deterding's keynote[1] and accepted papers at the last GamifIR[2] in 2016. This workshop aims to find AI and data-driven opportunities for building up and developing gamification design theory. It took place on 20 September 2017 in conjunction with the Mindtrek 2017 conference in Tampere, Finland [3]. Six full papers were selected by the programme committee from a total of eight submissions.

2 Workshop Goals

The call for papers solicited submissions of position papers as well as novel research papers addressing problems related to data-driven gamification design including topics such as:

- Gamified systems that exploit data mining, machine learning and AI techniques.
- Insights on game design elements built upon empirical data that can expand the catalog available

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¹GamifIR Workshops: <http://gamifir.com/>

to gamification designers and practitioners.

- Personalized gamified systems that exploit physiological, psychological, environmental, emotional and social data to provide tailored game elements to users with different characteristics.
- Domain-dependent gamified services and applications addressed to contexts like health, learning, workplace, security, crowdsourcing, and so on.
- Field evaluations of gamified systems in specific contexts of use, and new techniques to envision, design and assess gamification design techniques.
- Theoretical reflections and ethical considerations on the future of gamification enabled by the increasing availability of data.

Each submitted paper has been peer-reviewed by three members of the programme committee consisting of experts drawn from different communities guaranteeing a mix of industrial and academic backgrounds. Accepted papers include:

- Robin Brouwer and Kieran Conboy. A Theoretical Perspective on the Inner workings of Gamification in the Workplace.
- Md Sanaul Haque, Timo Jämsä and Maarit Kangas. A Theory-Driven System Model to Promote Physical Activity in the Working Environment with a Persuasive and Gamified Application.

- Sami Hyrynsalmi, Kai Kimppa, Jani Koskinen, Jouni Smed and Sonja Hyrynsalmi. The Shades of Grey: Datenherrschaft in Data-Driven Gamification.
- Michael Meder, Till Plumbaum and Sahin Al-bayrak. A Primer on Data Driven Gamification Design.
- Marigo Raftopoulos. Data-Driven Gamification Design: An Enterprise Systems Perspective from the Front Line.
- Dorina Rajanen and Mikko Rajanen. Personalized Gamification: A Model for Play Data Profiling.

3 Workshop Activities

After a brief welcome and introductory recap of the last three GamifIR workshops we started the presentation and discussion session. During and after the paper presentations we discussed different aspects of player types. For instance, we talked about how goals drive motivation and different user types have different goals. But there exist not only ten or 20 different types of goals, there are millions of goals and needs to be assigned to different types of player and user groups. It is also important to consider already existing incentives and rewards when interpreting behavior driven by gamification because there could always exist side effects by motivation outside the gamification application like bonus system in workplace environments. Thus, the environment or the context is very important for analysis.

Another aspect we discussed was that an application or system creates affordances. The gamified system facilitates need or goal fulfillment, but without the user having a congruent goal or need the system is not motivating, only through a combination of actual need and facilitated fulfillment of that need can motivation arise. Robin Brouwer underlined that he disbelieves in a basic set of game design elements that always works. Instead, you always need to design something in line with the context in which the game elements are placed. In order to optimize this interplay between context and design elements you need a designer for at least the initial design!

Furthermore, we had a discussion on the necessity of pre-development insights about intended users for the gamification design or if it is possible to assign a set of game design elements based on users behavior data maybe after a short machine learning phase. This resulted in a discussion about how to detect engagement drop-offs by specific player or user types to create affordances to re-engage them. Maybe different phases

of user engagement and user experience exists and it would be very interesting to know how much exist and whether we could detect them automatically?

4 Conclusion

We concluded that time or timing is very important for successful gamified systems but it is hard to detect and implement the right user journey or user phases and behavior sections: Do the right at the right time! It is not clear if we need player types as a gamification design starting point or not. We had different opinions and long discussions about this. Another approach could be to just ask the user about her contexts and goals (inside the application) and later target on different types and moods. We agreed that we need user feedback for evaluation of different machine learning approaches. This could be general ratings by the users or deduced ratings on the gamified application.

However, to be able to classify the findings in data-driven gamification design we need to develop objective measures of success, like the level of gameful experience (emotion, immersion, well-being, etc.), to evaluate data-driven gamification design. Data-Driven Gamification Design should provide more insights on the different actual behavior patterns of different player types maybe without knowing or naming the types. Beyond that it would be interesting to compare actual behavior of different user types to theoretically intended behavior of self-assigned types e.g. within a player type tests. Another important dimension additionally to the player type dimension might be the behavior change on different time phases.

For another workshop on DDGD we would expect submission on research result about data-driven generated player types, adapting challenge level, different user phase detection and first insight on adapting a gamification design automatically.

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References

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