DESIGN STRATEGIES OF GAMIFIED EDUCATIONAL SYSTEMS – HOW TO INCREASE CHANCE TO CREATE ENGAGING LEARNING ARTIFACTS

Michal Jakubowski
Kozminski University
mjakubowski@kozminski.edu.pl

ABSTRACT

In the paper, Author will describe the outcomes of his interviews with a focus on how certain game elements are chosen and compiled into working gamification systems. Most popular elements which can be found in current gamified platforms and literature reviews are leaderboards, points, badges, and levels. It seems that designers are using it over and over again as it would be the only possibility when one thinks about boosting engagement. What is the reason that designers won't take advantage of other combinations of game design elements? How they are guiding the creative process of game design construction in the gamification design process? The following paper will try to deliver answers basing on data gathered during the research.

INTRODUCTION

Gamification is being used as an engagement tool in modern educational software design. Either it is e-learning in classic education systems (Barna, Fodor 2017) or new channels of how one is gathering knowledge or skills (Flores 2015). Common ground for most of the gamified solutions are the same game elements that are used often in very different contexts. Looking from user experience perspective (Hsu, Mu-Chen 2017) it should be constructed user-wise, with respect to hers needs and ways of using technology. That idea influenced the research project described in the paper.

Following article will summarize research project about the strategical perspective of gamification system design focusing on mechanics of knowledge transfer. The target group of the research was 15 experienced gamification designers with at least 2 finished and implemented projects in the past. Basing on cross-analysis of multiple case study that will gather the design perspective of corporate gamification systems the expected result will be set of best working design guidelines in a business area. Guidelines will be corrected by end-user perspective and will state open perspectives for future development.

GAMFICATION AND LEARNING

Gamification emerged from a conviction that the way how video games are engaging its users can be transferred into increasing motivation to do completely other activities, without the context of the play. Roots of gamification were always in software design, video games are some kind of software category overall. Although some states that gamification can operate in a non-computerized instance and there is nothing wrong with that. You can model an engagement system that will be based on cork table and write down the progress of the players, but it can be exhausting in a long term. Especially if you want to include bigger groups in planned activities.

Hamari positions gamification in the field of hedonistic-utilitarian information systems (Hamari, Kovisto, 2015). Within such systems, each interaction that takes place is by definition seen as awakening pleasant feelings. Birth of that systems can be connected to the mutual interest of software developers (software like office application) and video games developers. Software developers appreciated the effectiveness of modeling engaging user experience in games. Game developers on the other hand use knowledge about building the correct architecture of information and deliver features according to recipients expectations (Ferrara, 2012).

One of the reasons why gamification is treated as the negative phenomenon is too shallow design perspective that uses constantly the same game mechanics (Bogost, 2014). Current state of art of gamification research in enterprise area are confirming that revelations (Cardador, M. Teresa et al. 2016, Hamari, J. et al. 2014, Rapp, A., et al. 2016, Robson, K., et al. 2016). Unfortunately, none of the reviewed research papers takes account designer perspective nor knowledge or skill of their gamification designs. The way of how next iterations of gamification systems will be created have crucial meaning not only for that area but also for the quality of its influence inside organizations.

Using gamification in learning software has two views. First states that using any kind of game during learning activities is enough to say that this is gamified learning. Second sticks to gamification definition and states that only use of game elements to enhance the motivation of participants can be viewed as gamification. The author follows latter one and one of the best examples of such is a language learning app called Duolingo. It was created to learn vocabulary and grammar in short sessions. The scaffolding of user journey throughout next levels of mastery is based on constant feedback and repetition. Main game elements implemented in the systems are rewards, level system, badges and leaderboard (Huynh, Zuo 2016). Those elements are repeating in most gamification systems. Duolingo uses it right, but there is a huge chance that such a set of game elements can be boring over time. After user learns how the app works and how it supports their language learning there is nothing new in later phases that could keep her if things start to be boring. In Authors opinion that is the biggest problem of every gamified solution that has no strategical development included in its design.

PROJECT DESCRIPTION

Scientific problem of that project is the design strategies of gamification systems. Basing on cross-analysis of multiple case study that will gather the design perspective of gamification systems the expected result will be set of best working design guidelines. Guidelines will be corrected by end-user perspective and will state open perspectives for future development. The initial study will involve a thorough examination of circumstances for building well-functioning gamification system for employee engagement improvement and management. Results will come from the literature review of research domains and gamification design guidelines described by respondents.

Main findings from the literature review were positioned around two works. Raftopoulus (2016) analyzed what are the effective approaches to enterprise gamification and what can be potential tools that assist such gamification. Having scope on the corporate environment doesn't mean it can't be related to learning. One of the enterprise activities where employees are gamified is in-house learning (about the company, product, skills). An outcome of her study presented a framework based on more than 300 gamification artifacts and their design.

Second work by Morschheuser (et al. 2017) again tries to set a framework for proper gamification design. With the use of design science authors conceptualized and then build artifact of the gamification design process. Based on literature review, desk research and most important – in-depth interviews with gamification designers, they prepared a comprehensive method of gamification.

Both sources have a rather limited view on what are the game elements that should be used in gamification systems. Raftopoulus mentions key mechanics and core gameplay groups as design elements, but there are no guidelines of how to connect elements of those groups into working and engaging system that will answer the problem. Second work brings ideation toolbox which is a guide of best practices about combining game elements in gamification design.

METHODOLOGY

Research methodology in the following project is positioned in interpretative-symbolic paradigm (Konecki, 2000). Qualitative methods can be sufficient to explain a phenomenon that appears in reality. The research will be constructed upon a grounded theory which assumes that research area can be understood best by engaged in actors (Glaser, 1992). Research hypothesis will emerge during the collection of research evidence. There is also an assumption that some elements or areas, that were not stated at first, will appear somewhere during the research and will have important meaning for research problem.

That methodology results from a relatively fresh area which is gamification. Because of its characteristic of long-term influence on implementing subjects (Herger, 2014) and a small number of long-enough implementations, state of art of gamification in employee engagement management is still open for new findings. Qualitative methods that explore research area have better application in the following project than explanative ones. As for now - broadest knowledge of the research area still lies in hands of practitioners and using their experience this research project will deliver new and structured information.

Research method will be an exploratory case study (Yin, 1991) in form of group case analysis. A juxtaposition of a couple cases will help with the deeper understanding of research problem. To strengthen qualitative results I will use questionnaire method with employees who took part in gamification activities. That group perspective will help with the supplement of knowledge and experience of the designer by adding conclusions which they could overlook.

The research was structured as design science research. Gasparski (1988) distinguish design science subdisciplines like design phenomenology (background, taxonomy, technology); design praxeology (analysis of design activities and organization) and design philosophy (axiology, epistemology, and pedagogy of design). Here Author will analyze how the design is processed, so the praxeology of that action is in the main focus of the research. When it comes to design methodology then it will be covered different types of design activities and its analysis, description of design tasks and procedures which Gasparski titles as a pragmatic design methodology.

Research group:

- 15 gamification designers

Research tools:

- IDI script,
- Observation diary,
- Data from designers (design documents, guidelines, frameworks)

IDI script was divided into three parts: questions about gamification, questions about design, and questions about game design. Then each chapter of the interview was covered with a couple of question starting from general topics and finishing with specific ones. Each of the interviews has followed the same script, but characteristics of IDI allowed Author to sometimes ask additional questions if something emerged during the talk.

RESULTS AND DISCUSSION

Following results are just partial data from interview analysis. Those results present how gamification designers are matching game elements into working systems.

Analysis of game design knowledge of gamification designers has emerged two main code categories, which are related to

TABLE 1
GAMIFICATION DESIGN STRATEGIES

CATEGORY/Code	Meaning	Guideline/Comment
KNOWLEDGE / gameplay	This code contains everything that relates knowledge of the designers with their gameplay experience of various genres (video games, board games, etc.)	– inspiration from boardgames as a slow-paced form of play which can be an interesting layer of main gamified activities; – mobile games design can inspire on engagement system design in terms of feedback loops (positive and negative).
KNOWLEDGE / theory	Everything about expending game design theoretical knowledge, sources of materials, ways of learning	– books about advanced game design (Adams, Dormans 2012); – case studies and postmortems from game designers perspective (e.g. Gamasutra.com blogs).
KNOWLEDGE / trends	Designers opinions about nowadays trends in video game design and its influence on gamification design	– it is tempting to transfer such trends that are gathering huge numbers of users, but it is very difficult to cover it in gamification project budget; – trends are very important to follow and if not now, then in some time it can bring some competitive advantage in gamification systems market.
IDEATION / brainstorm	Ways of conducting a brainstorm in the gamification design process	– during brainstorm designers can immerse in many different games and look for various game mechanics that would be useful to solve gamification problem. Brainstorming without limiting themselves they can find out some connections that are not obvious at first.
IDEATION / tools	Which tools can be used to recognize, select and combine game elements into working gamification system	– gamification canvas; – Customer journey map; – experience map; – user persona; – user stories.
IDEATION / process	How does the process of game elements combination into working gamification system	– reverse engineering of functioning games and gamification systems to find out what is the best combination of game elements for certain purpose; – intuition based on game design knowledge; – designing accordingly to what are the gamification goals and

the gamification design process as a whole. The arrangement of guidelines and comments within those codes have two outcomes:

1. The essence of using game elements in motivating to certain behaviors
2. New knowledge in gamification theory about design strategies

It must be noted that the results presented in the following paper are only partial outcomes of the whole project. Final outcomes of the whole project will be available in 2019. Although Author wanted to share that section of research because of its significance to whole gamification field.

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