
The HEXAD Gamification User Types Questionnaire: Background and Development Process

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Abstract

The HEXAD gamification user types are attempting a segmentation of users based on their receptivity to varying gamification strategies. The underlying model is based on research on human motivation, player types, and years of practical design experiences. This model presents the first typology to classify users of gamified systems, enabling clustering them based on intrinsic and extrinsic motivational factors. The HEXAD model is comprised of the following six gamification user types: Socializers, Free Spirits, Achievers, Philanthropists, Players, and Disruptors.

We have developed a questionnaire to assess how a user is represented by the different gamification user types. The following paper will present the development process of the questionnaire. Application venues will be discussed.

Author Keywords

Gamification; User
Segmentation/Classification/Typology; Intrinsic and
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ACM Classification Keywords

H.1.2 User/Machine Systems: Human factor

Introduction

Gamification is the use of game design elements in non-game contexts [2]. It has been a trending topic both in science and industry in the last years, having been studied and adopted as a mean to increase user engagement, activity, and enjoyment of a broad range of applications, such as business, learning, health, ecology, science, and others [11]. Studies so far showed that gamification generally leads to positive results, however, some caveats exist [3]. In some studies, positive results were only partially observed, and Hamari *et al.* attributed this at least in part to confounding factors such as the role of the context being gamified and the qualities of the users [3]. Therefore, more research is still needed to better understand how users are motivated by each gamification mechanism, and to better inform designers of gamified systems.

The goal of the work presented here is to develop an instrument which can be used to assess a user's perceptibility to different gamification strategies and help researchers and practitioners in designing tailored gamified systems. The underlying model of the developed questionnaire is the HEXAD gamification user type model developed by Marczewski [4, 5], a first user type classification model for designing gamified systems. Following, we will introduce this model and its underlying base concepts, explain our motivation in developing a measurement instrument to capture the different gamification user types, discuss the development process of our questionnaire and the planned validation procedure, and discuss possible application venues.

HEXAD Gamification User Type Model

The HEXAD gamification user type model was developed by Andrzej Marczewski in 2013 [4, 5]. Its

foundation is rooted in theories on intrinsic and extrinsic motivation, most strongly working with Deci and Ryan's approach to intrinsic motivation [9], which defines the three core intrinsic motivators as competence/mastery, autonomy, and relatedness, and Pink's drive theory [8] which suggests purpose as additional motivator. Although not used as a direct source during the construction of the model, it is also worth mentioning Sheldon *et al.*'s 10 candidate psychological needs [10], many of which are reflected in the developed user types. Further, the HEXAD model builds on already existing player type models, specifically on Bartle's Player Types [1] and the BrainHex model [6]. Following, the six gamification user types comprising the HEXAD model will be introduced and the way they relate to and differ from each other will be discussed:

Socializer: The *socializers* are motivated by relatedness and are looking to create social connections and a sense of being part of a group within the system.

Free Spirit: The *free spirits* are motivated by autonomy, agency, and self-expression. This group likes to explore, dislikes restrictions, embarks on their own journey, or likes to create;

Achiever: The *achievers* are motivated by the ultimate goal of mastery, of overcoming challenging obstacles, of completing every possible task, learning new skills, of reaching 100%.

Philanthropist: The *philanthropists* are motivated by a sense of a purpose, meaning, and altruism.

These four categories form the *intrinsic user types*, relating to the previously discussed motivation factors: relatedness, autonomy, mastery, and purpose, respectively referring to the types introduced above. The remaining two user types show different motivations:

Player: The *players* are motivated by extrinsic rewards, which they gain through a variety of strategies. This group has no need for additional motivation besides extrinsic rewards.

Disruptor: The *disruptors* feel a need to disrupt the gamified system in some way, by acting directly on the system or by influencing other users. This may be to the benefit of the system and other users, or just for their own personal enjoyment.

Both of those later user types focus on the game itself instead of the fulfillment of intrinsic needs such as like the feeling of social connectedness or mastery within the game. The *players* find their motivation within the game setup and rewards they can gain by playing. The *disruptors* find their motivation in the rejection of said setup and in endeavors to change it.

Marczewski already relates specific gamification strategies as appropriate for the various types represented in the model [4, 5]: He sees *socializers* as specifically responsive to game mechanisms such as guilds/teams, social networks, social comparisons, and competitions, *free spirits* to explorative tasks, nonlinear gameplay, Easter eggs, unlockable/rare content, creativity tools and customization, *achievers* to challenges, certificates, learning, quests, levels/progression and boss battles, and *philanthropists* to collection and trading, gifting or the possibility to share knowledge. Further, Marczewski suggests that *players* are particularly well motivated by Points/Experience Points (XP), physical rewards/prizes, leaderboard/ladders, badges, virtual economies or lotteries /games of chance, and *disruptors* by innovation platforms, voting mechanisms, development tools, anonymity and anarchic gameplay. Mechanisms such as the ones listed above can be implemented to cater to specific user types but at the same time applications can be designed to take advantage of the strengths of different user types. To give an example, an application for innovation may take advantage of the philanthropists' intrinsic motivation to help by designing mechanics that will allow them to drive the use of the application and the submission of new ideas, and to help motivate other user types to work together with them to further benefit [5].

Strongly related types that tend to overlap are: The *player* and the *achiever* who both like to win and tend to be self-centered, but differ in *players* focusing on extrinsic rewards while for the *achiever* the reward is represented by a feeling of mastery; the *socializer* and the *philanthropist* who are both types strongly oriented towards other players whose motivation is anchored in the interaction with others, but they differ in that the *socializer's* reward lies in the interaction itself while the *philanthropist's* reward lies in the reward his interaction partner finds in the interaction; the *free spirit* and the *disruptor* who are both creative, like to do things their own way, value independence, and also tend to be self-centered, but differ in that the *free spirit* has no desire to change the status quo and only wants to find his/her way within the given boundaries, while the *disruptor* has a desire to change the system (and enjoys the power that comes with being able to do so).

The contribution of this model is that it provides a base for clustering and segmenting users based on individual differences and preferences in the interaction with gamified systems. It should, however, be mentioned at this point that the presented gamification user types are not exclusive. Users might display a central type indicating a specific motivation driving their actions most strongly, or might be represented evenly by different types, but in most cases they will be best portrayed by a profile rather than a single gamification user type.

Questionnaire Development

We started the development of the instrument with an expert workshop to generate a pool of items for each of the different gamification user types. A group of 6 experts with either an expertise in scale development or in-game mechanisms was introduced to Marczewski's HEXAD gamification user types framework through detailed material explaining each of the different types

and the game mechanisms they are likely to respond to. Subsequently, each participant was asked to develop a list of items which would describe each of the types. Once this task was completed, the developed items were pooled successively for each type and discussed. As part of these discussions the types were sketched out in broader terms, defining characteristics were reviewed, in some cases less obvious ones were identified, and if necessary the created item pools were extended to cover missing aspects of the respective types.

As the second step of the questionnaire development, the list of created items for each type was reviewed, cleaned of items that seemed misleading, too broad, too context-dependent, or were redundant, and a rating form was created for the remaining list of items (altogether 74). This form was sent out for an expert rating to the group of experts involved in the workshop as well as to the creator of the HEXAD framework A. Marczewski and 2 experts in the cross field of HCI and games (G. F. Tondello and R. R. Wehbe), with short descriptions of each user type and how they differed from each other as reminders. The experts were asked to judge each item in terms of how well it represents its gamification user type (along a 6-point scale ranging from "very bad" to "very good") and to comment in a designated field if any potential problems were observed (e.g. an item differentiating insufficiently between closely related types). A scale with even numbers was chosen to encourage clearer results concerning item quality through forced positive or negative ratings. Further, everyone was invited to mention any aspects of player types they observed as not sufficiently covered.

Once all rating forms were returned the ratings were analyzed on base of mean and range and the items with the best ratings were selected for a first 30-item version of the questionnaire (Appendix). Therefore, after following a systematic approach to questionnaire design involving an expert workshop to generate items

based on an available framework and a subsequent expert validation process to evaluate and rate items based on their face validity, we now have a questionnaire available with which the validation process can be continued.

Discussion and Outlook

As next step of the development process, a pilot study is planned during which data will be collected with a convenience sample of students from the University of Waterloo, ON, Canada. Next to the HEXAD gamification user type questionnaire we will also include questionnaires on related concepts (such as social desirability and internal/external motivation to test construct validity) and appropriate measures of content validity (such as questions concerning preferred board and/or video games). The collected data will be used for a first evaluation of the validity and reliability of the created questionnaire and of the items it contains. More extended studies are in planning.

Various application venues of this questionnaire suggest themselves: it could be used during the design phase of a gamified system to help add game mechanics that will motivate all kinds of players; it could be employed to enable a personalized presentation of incentives to motivate each user individually to play; it could be used to gather an understanding of which gamification user types are particularly present in a specific expected user group and design a product accordingly; it could be used to evaluate adoption and use cases of an implemented system to better understand the user experience and refine the design.

As concluding remark we would like to point out the value of the HEXAD gamification user types again, which allows designing tailored and personalized gamified systems, which are more effective than "one size fits all"-approaches [7].

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The HEXAD Gamification User Types Questionnaire: Background and Development Process - Appendix

HEXAD Gamification User Types Questionnaire

Recommended scale: 7-point Likert scale from 1 = "strongly disagree" to 7 = "strongly agree".

To calculate how representative each user type is for a user, the user type scores for all items relating to the same type are to be added up with the maximum score per type being 35 (100%).

Nr.	User type	Item
1	<i>Socializer</i>	Interacting with others is important to me.
2	<i>Philanthropist</i>	It makes me happy if I am able to help others.
3	<i>Free Spirit</i>	It is important to me to follow my own path.
4	<i>Socializer</i>	I like being part of a team.
5	<i>Disruptor</i>	I like to provoke.
6	<i>Achiever</i>	I am very ambitious.
7	<i>Player</i>	I like competitions where a prize can be won.
8	<i>Socializer</i>	It is important to me to feel like I am part of a community.
9	<i>Free Spirit</i>	I often let my curiosity guide me.
10	<i>Philanthropist</i>	I feel good taking on the role of a mentor.
11	<i>Disruptor</i>	I like to question the status quo.
12	<i>Socializer</i>	It is more fun to be with others than by myself.
13	<i>Player</i>	Rewards are a great way to motivate me.
14	<i>Free Spirit</i>	I like to try new things.
15	<i>Achiever</i>	I like defeating obstacles.
16	<i>Player</i>	I look out for my own interests.
17	<i>Philanthropist</i>	I like helping others to orient themselves in new situations.
18	<i>Disruptor</i>	I see myself as a rebel.
19	<i>Socializer</i>	I enjoy group activities.
20	<i>Achiever</i>	It is important to me to always carry out my tasks completely.
21	<i>Free Spirit</i>	I prefer setting my own goals.
22	<i>Disruptor</i>	I dislike following rules.
23	<i>Philanthropist</i>	I like sharing my knowledge.
24	<i>Achiever</i>	It is difficult for me to let go of a problem before I have found a solution.
25	<i>Player</i>	Return of investment is important to me.
26	<i>Free Spirit</i>	Being independent is important to me.
27	<i>Achiever</i>	I like mastering difficult tasks.
28	<i>Philanthropist</i>	The well-being of others is important to me.
29	<i>Disruptor</i>	I like to take changing things into my own hands.
30	<i>Player</i>	If the reward is sufficient I will put in the effort.

The user type column is provided for reference only and is not meant to be included into the questionnaire presented to users.