

Persuasive Game Design: A model and its definitions.

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Abstract

The following position paper proposes a general theoretical model for persuasive game design. This model combines existing theories on persuasive technology, serious gaming, and gamification. The model is based on user experience, gamification design, and transfer effects.

Author Keywords

Persuasive Gaming; Gamification; Transfer; Game World; Real World.

ACM Classification Keywords

K.8.0 [Personal Computing]: Games; J.4 [Social and Behavioral Sciences]: Psychology, Sociology.

Introduction

The past decennia showed a large interest in the design, application, and theory of games. However, although nice overviews of game theory has been written (c.f. [13]), unified models of persuasive game design, the design of games aimed at behavioral change, are scarce. This paper describes a *Persuasive Game Design Model* based on three central concepts related to persuasive gaming: gamification process (c.f. [4]), game worlds [7] and behavioral change design (c.f. [10]). See Figure 1 for a schematized overview. Due to the scope of this extended abstract, the model and its definitions are only briefly presented.

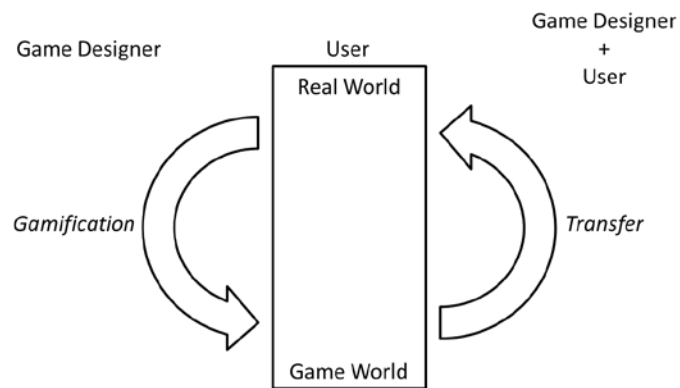


Fig. 1. Persuasive Game Design Model.

Real world and Game world

Persuasive Game Design:

Game design aiming to create a user experienced game world to change the user behaviour in the real world.

Users experience the real world, but when they are playing a game the experience of the real world is changed into a game world experience. This change is never complete, but remains a mixture of both worlds. Game worlds and the real world are at the (unreachable) ends of a continuum. Some game experiences (e.g. soccer) are closer to the real world experiences than others (e.g. World of Warcraft) and

some real world experiences (e.g. stock exchange) are closer to a game world experience than others (e.g. waiting for the elevator).

An individual is driven by the same motivational needs in real world and game worlds: the need for *autonomy*, *competence* and *social relatedness* [12] govern his behaviour. But whereas the individual has to actively search for need fulfilment in the real world, game worlds are explicitly designed to fulfil these needs, resulting in a game world typical immersive and satisfying experience [11]. Moreover, a game world is experienced as a protective world [1], where his actions have less serious consequences than in the real world. Encouraged by such protective framing the user enjoys immersion in the game world on a perceptual (e.g. presence), cognitive (game rule compliance), action (game behaviour), emotional (enjoy the wide array of game emotions), and social level (social player relationships). The two experiential qualities, *immersive* and *enjoyable*, are dominant in a game world.

However, immersion and enjoyment are not exclusive for game world experiences. They may also occur whilst composing music or when one is watching a screenplay. So what differentiates a game world different from other 'flow'-like experiences? We would propose to describe these differences from a symptom-based view in the line of Goodman's definition of the aesthetic experience: : "A symptom is neither a necessary nor a sufficient condition for, but merely tends in conjunction with other such symptoms to be present in, aesthetic experience" [6, p.252]. The symptoms of a game experience are the presence of one or more game elements.

Game-elements and Gamification

Gamification:

Design of game-elements applied on real-world attributes to create a user experienced game-world.

Game-elements are the motivational elements typical for game-design. Often the elements are rule-based - constituting the boundaries between the game world and the real world (c.f. [8]). Typical elements are challenge, phantasy, competition, and exploration. Experiencing these elements gives rise to a diverse and long set of specific game experiences [9]. These elements also appear in the real world, but to elicit user experienced game worlds, game designers can design them by processes like selection, addition, combination, enhancing or foregrounding. The designed game-elements do need some material to be applied upon (e.g. a competition on *something*). This 'material' is derived from the *real world context* and consists of attributes such as objects, social relationships, actions, attitudes, user motivations or experiences. Note that persuasive games are not restricted to the digital medium but its form is dependent on game-elements, the gamified real-world context, and the aimed transfer effect (e.g. [14]).

Persuasive Gaming and Transfer

Transfer:

Effect of user experienced game world on forming, altering, or reinforcing user-compliance, -behaviour, or -attitude, in the real world.

Games can change behaviour in the game world and in the real world. The enjoyable and immersive game world can help, motivate, or persuade users to behave in ways they experience as difficult in the real world (c.f. games for social, physical, and mental healthcare – e.g. [2]). The designer can intend to change this behavior as in Fogg's [5] definition of persuasive technology: "interactive computing systems designed to change people's attitudes and behaviors". Or the persuasion might be the effect of the game rhetorics as in Bogost's [3] definition of persuasive games: "videogames that mount procedural rhetorics effectively".

Gamification and transfer are separate processes however: gamification does not imply transfer. We therefore represented these processes separately in our model. Transfer of the game world onto the real world can occur on different levels: the player's compliance, behaviour or attitudes may be formed, changed or reinforced [10]. Transfer effects can be directed when the original *to be changed* user-behavioural or -motivational aspects are gamified and take part in the game world (as gamified real-world attributes). In the gameworld these behavioural/ motivational aspects can be changed towards the target behaviour. When the target behaviour is realized in the gameworld, the transfer from the gameworld to the real world can be designed by the persuasive game designer. This transfer design is often neglected. Three main design methods can be applied to make this transfer as transgression from the game world to the real world: (1) Sudden change, in which there is no transgression. The game world experience functions as a prime for the behaviour in the real world; (2) Gradual change, in which the game world dissolves gradually into the real

world and vice versa. The game world may (a) finally vanish into the real world (dissolve) or (b) parts of the game world may remain present in the real world; and (3) Adaptive change, when the level of transgression from the game world into the real world is dependent from the actual user's behavioural change in the real world. Given the behavioural goals of persuasive games it is essential that the transfer effect of the game world is tested in effect studies (c.f. evaluations, N=1 studies, control studies, RCTs). Effect studies can focus on the game design as a whole or on the effect of individual game-elements generating generic knowledge for persuasive game design.

Defining Games: When are games?

Following the central position of the user experience in the game worlds and the real world, the classification of a game primarily depends on its use and only secondary on the game product. For example, a game product like a baseball bat can be used as entertainment game (baseball), as a persuasive game (increase social relations), or as a non-game (weapon). At the same time, a non-game object like pavement tiles can be used as non-game (to walk), as game (to avoid the tile crossings) or as (rather dull) persuasive game (not to walk on the street). So ultimately, the decision if something (a product, rule system, or activity) is a game is dependent on its use. The question of *What is a game?* could therefore be changed into *"When is a game experienced as game?"* or shorter *When is a game?* (c.f. Goodman's *When is art?* question [6]). This question is positively answered by the user experience of an game world including the presence of game-elements symptoms. Persuasive

games additionally include aimed behavioural transfer effects.

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