Transformative by Design? Subversive Game Design and Player Research

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Abstract
When games are designed to impact their users' thinking beyond the created playful environment itself – *learning* is aimed at. Thereby the question arises, if games are constructive tools to foster transformative learning by challenging players' perspectives. The following paper outlines the case study of a game design experiment that combines state of the art learning research with game design and qualitative research. The game project's goal is exploring how to create subversive game design patterns in order to challenge the players to rethink their expectations and adjust their interpretations. The paper introduces the theoretical basis, the use of design patterns, and the methodology of the player's study.

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Game Design, Player Research, Learning Theory, Transformation, Education and Technology

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H.5.m. Information interfaces and presentation (e.g., HCI): Theory and methods.

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Design, Measurement, Theory.

Transformative Learning*:*
Learning on a transformative level implies the development of novel perspectives on the world, others, and ourselves through the adjustment and revision of old experience patterns. [4]

Recursive Learning:

A circular process of restructuring and adjusting prior experience patterns through experiences of constructive disappointments and confrontations.[6]

Subversive Game Design:
The subversion of common game design elements through conflicting uncommon design patterns that challenge the players' expectations.[5]

Introduction

Are video games constructive tools to research learning processes? What design patterns challenge players to rethink their expectations and prejudgments? These questions were the starting point of a theory-based design project, at the Singapore-MIT GAMBIT Game Lab, that connects state of the art learning research with unconventional and subversive game design. Hereby, a circular form of learning through failure by resolving incorrect expectations – so called *recursive learning* processes – are targeted at. From a theoretical point of view, games appear to be ideal environments for *recursive learning* since learning through failure is at the core of their systems [1,2,3]. Designing a game built on these concepts was *Afterland´s* research challenge (a digital game developed by students at the Singapore-MIT GAMBIT Game Lab in 2010) [7]. Conceived as a project in two phases; the creation of *Afterland* – as a tool to study recursive learning – was the first step and evaluating its impact on the players in 2011 the second one. While the design process of the game has been discussed elsewhere, [5,6] we want to focus on the empirical evaluation in this paper. After introducing the theoretical background and design patterns, our central insights and takeaways will be briefly discussed.

Design for transformation

The aim of designing games to impact the players' learning process is not new, but during the last decade it has reached a new level in the educational and serious game design sphere. While informational or behavioral learning outcomes have been researched widely and interesting results can be found [8], *transformational learning* impacts on players are more or less unexplored. Furthermore, numerous methodological questions arise, when we ask how video games change their players' thinking. In the following game design project, we explored the potentials and limits of designing a video game that fosters the players' rethinking through *subversive game design patterns (in short SGDP)*. Within the concept of *transformative learning*, which is grounded in adult education and in learning theoretical approaches, different trigger moments that foster transformation are discussed [4]. One of these catalysts for transformation consisted in exploring new options through experiences of disorientation and the refutation of old patterns. This circular process of learning through failure can be defined as *recursive learning*. In our design process, we aimed at *recursive learning* processes through subverting common with uncommon design patterns within a single game system [5,6]:

This theory-based design process involved four fundamental steps: (a) developing the theoretical framework, (b) applying the theory to game design, (c) developing a prototype and the final game with a team of students, and (d) evaluating how well the game met the theoretical standards. The two leading questions of this process were:

1. *"How are patterns in games designed to challenge the players' expectations without 'breaking the magic circle' or reducing the players' enjoyment?" (Focus: design)*
2. *"How do players interpret the shift of common design patterns and how do they reflect on the reverse structure of known game paradigms?" (Focus: player experience)*

Figure 1: Empty house

Figure 2: Full house

Figure 3: Avoid your "enemies"

Figure 4: Befriend "enemies"

Case Study: Afterland

To tackle these research questions we created a game called *Afterland.* The game is a side-scrolling 2D platformer that immerses the player in a world out of time. You play as a reclusive forest-dweller with a penchant for collecting. One day, in his wanderings, he discovers an ancient parchment that he can barely decipher, a remnant of the past. Inspired by his discovery, he seeks to fill his house with the fascinating artifacts that have captured his imagination. Now, you are challenged to collect these objects and escape from the attacks of the evil creatures of the forest. [7]

After applying the theoretical concept of *recursive learning* to game design, we developed a *Subversive Game Design Catalogue* that outlined subversive element in different existing games. We realized that "common patterns" in games are often common video game conventions. First of all, "collecting" is one of the most common patterns in video games, with a long history of encouraging compulsive behavior in many different types of players, from casual to seasoned, and across all sorts of genres. We therefore decided that "collecting" would be one of the main common patterns we wanted to subvert. Additionally we felt that "enemies" – in-game characters who traditionally exist only to attack you – were another widely common pattern that could be subverted effectively, and in logical tandem with collecting. Consequently, the two core subversive game design patterns in *Afterland* are:

SGDP 1: The unquestioned routine of collection

- *Common Patter* (Figure 1): Find the objects hidden in the environment and bring them back to your house – each object brings you one point.
- *Twist*: All intractable objects are broken and appear to be trash; Your house gets messy and unpleasant.
- *Uncommon Pattern* (Figure 2): Clean your house from the collected broken objects; Realize this game was never about collecting items.

SGDP 2: Your enemy might be your friend:

- *Common Patter (Figure 3):* When the "evil" creatures look at you, your "health bar" goes down.
- *Twist:* The "health bar" is not referencing your health, it is tracking your "anxiety" of others.
- *Uncommon Patter (Figure 4*): The "evil" creatures are actually your friends. Find them and bring them to your home that – hopefully is cleaned (SGDP 1).

Player Evaluation

In the next stage, we conducted a case study using a method-mix to evaluate the experiences players had while playing *Afterland*. The main questions of the evaluation were: (a) how the players were making sense of the game's "story" and if they (b) realized the twists. Furthermore, we wanted to learn if they (c) were experiencing a *recursive learning* process and if the (d) game challenged them to think about their expectations in general on a transformational level.

Method:

After assessing different methods in use for player evaluation we focused our approach on the design patterns and on qualitative approaches. We merged semi-structured interviews, which were based on the different subversive patters of the game (SGDP 1-2), with screen recordings and visual examples of the subversions. In addition, we combined group

interviews, two-player "talk out loud protocols" and single interviews. Therefore, 4 group interviews (ages 10-12, 14-17, 25-30) and 40 single interviews (age from 15-55) were conducted in 2011.

Results:

- Most players understood the first twist SGDP 1.
- Yet, only a minority cleaned their home after realizing the messiness of the house.
- Just those players who accidently "died" realized the second twist SGDP 2
- Only half of the players were able to overcome their expectations and developed new strategies.
- Experienced players did not question their expectations and focused on "winning".
- The play literacy highly affected the recursive learning impact.
- Only 1 out of 10 players reported transformative learning experiences through playing *Afterland*.

Discussion

From a methodological point of view, the mixed-method approach of combining screen recordings, "speak out loud protocols" and semi-structured interviews was useful to evaluate the learning experiences of *Afterland's* players. We would argue that recursive learning can be fostered through subversive game design patterns. Nevertheless, the evaluation also showed that the recursive learning process stays restricted to the playful environment. Only a small number of players were able to transfer the in-game learning experience to real-life context. The evaluation also showed that differences in playing skills have a great impact on the learning outcome. Experienced players found it harder to question common patterns while inexperience players often died accidently and therefore readjusted their strategies. Moreover, the methods appeared insufficient to tackle transformative changes of player perspectives beyond the game. Hence, a long-term study and a clearer focus on specific topics would be necessary. Additionally, a pre-test conducting the players' expectations about a specific topic is necessary to allow comparisons. It can be argued that further empirical methods to evaluate transformative learning impacts through games are needed. There is a lack of knowledge in serious game design on how players experience effective design patterns on a transformative learning level.

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