

A Study on a Gamification-Based Interactive Game Art Form

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Abstract. This paper investigates and analyzes the mechanism of interactive game arts, and works on an interactive game art form. Currently, work on gamification and its utilization are actively in progress. As gamification is a communication technique that leads users to active participation and behavior for a given purpose by applying game mechanisms to non-game fields, the trend in interactive art works is also to provide fun and continuity by applying game mechanisms. Works in which computer game mechanisms are applied to interactive arts are ones which audiences respond to in real time and enjoy like computer games. This study summarizes interactive game art mechanisms based on gamification and proposes a form. It can be used in the production of interactive game art works, which increasingly attract interest.

Keywords: Gamification, Game ART, Interactive ART.

1 Introduction

Currently, the trend is that artists use game mechanisms in various ways and apply them to their art works to attempt at gamification [1]. The reason why artists use game mechanisms is that they want to lead audiences to have virtual experiences for instant immersion and enable them to appreciate art works with ease and fun as if they enjoy games [2], [3].

The reason why such gamification of interactive art works is used is that games are representative interactive media, which have been familiarized in people's life and culture [4].

Thus, this paper defines those art works that are gamified by applying game mechanisms to interactive arts as interactive game art works, and investigate and analyzes new forms of such works to examine their characteristics.

For this purpose, Section 1, the introduction, explains the backgrounds of the study and the organization of the paper. Section 2, Related Works, clarifies the definition of gamification and interactive game art mechanisms based on gamification. Based on what is discussed in Section 2, Section 3 summarizes cases of application and interactive game art mechanisms. Section 4 concludes the paper and makes some suggestions for future research.

2 Related works

Subjection 2.1 clarifies the definition of gamification, a theory that applies game mechanisms to non-game areas. Subsection 2.2 investigates interactive game art composition that is gamified by applying game mechanisms.

2.1 Gamification

In order to define the concept of gamification in this subsection, I consulted some glossaries and examined a few concepts defined by specialized survey agencies. Wikipedia defines gamification as the use of game thinking and game mechanics in non-game contexts to engage users in solving problems [4]. Naver's English dictionary accounts for gamification as the use of game-related concepts in websites and application that are unrelated with game in order to engage users in activities that are intended by enterprises [5]. According to materials from Gartner, a specialized survey agency, it is defined as various trends in which game mechanisms are applied to non-gage areas to enhance users' motivations or have influence on their behavior [6], and SERI defines it as a phenomenon that leverages users' spontaneous engagement and positive behavior by using the operative principles, interactions, and structures of games [7].

That is to say, we can define gamification as a communication technique that leads users to positive engagement and behavior for a given purpose by applying game mechanics to non-game areas. Also, from the perspective of interactive art works, it can be regarded as the use of game mechanisms for leading audiences to react in real time and readily engage themselves interestingly in works like computer games for empathy and sharing.

2.2 Composition of a Gamification-Based Interactive Game Art

A gamification-based interactive game art work motivates users to spontaneously and continuously enjoy and interact with it by applying game mechanics and elements [8], [9].

Such gamification mechanics are composed as in Figure 1, and interactive game arts in general have cases where all the mechanics are borrowed and where only some of them are. 3 EEG measurement of game user when a game plays

In chapter 3 describes about EEG measurement process, explains about measurement target and hardware spec, also organized about acquired measurement result.

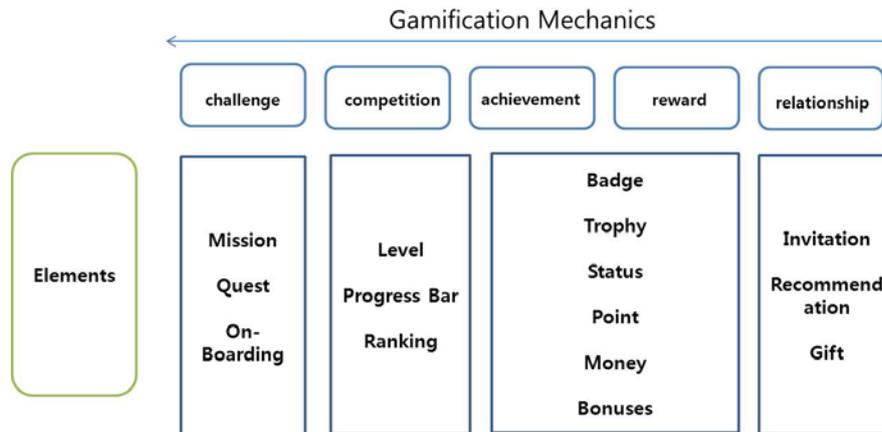


Fig. 1. Elements of a Gamification-Based Interaction Game

3 Gamification-Based Interaction Game Art Form

Section 3 analyzes the Woodland Wiggle case. Woodland Wiggle is an interactive game art work by Chris O Shea, a technology creative designer, in which psychological and exercise therapies can be done in parallel for young patients. It is developed with C++, and the Open Framework of the Xbox Kinect camera is used for it. Figure 2 shows a Woodland Wiggle work at the Children’s Ward of the Royal London Hospital in the U.K., which is a game art created by interactive media art technologies and stories. We can see young children seeing it with interest [10].



Fig. 2. Interactive Game Art at the Royal London Hospital.

The analysis of the work in Figure 2 classifies elements that can lead users to interact and be motivated by applying game mechanics to the interactive art work as in Table 1 with each step distinguished.

Table 1. Types and feature of Brain wave

Divisions	Interactions	Motivations
Story interaction	Spaces, and structures	Fun, experiences, adventures, and challenges
Gamer interaction	Users seeing works	Competitions, exchanges
Activity interaction	Work appreciation activities	States, feedback, rewards

From the analysis of cases in which gamification is applied to interactive game arts in terms of Section 2, Related Works, and Section 3, Cases of Works, we can tell that game mechanics like challenges, competitions, achievements, rewards, and relationships are frequently used.

Such interactive game arts are more interesting than the existing art works, and we can identify that audiences spend more time appreciating works and there are further exhibition cases. Also, in terms of the analysis, case analyses and interaction mechanisms of gamification-based interactive game arts have been drawn.

4 Conclusion

Interactive arts are being evolved in different art expression forms as the existing works encounter technologies to be reproduced and integrated by new media.

In this paper, we can identify the characteristics of works and analyze the development from interactive arts to interactive game arts in terms of new media. The contents of the analysis in this paper can be used as design data for reference in interactive game art production. Based on the results of the analysis in this paper, future research should design and realize interactive game arts in which audiences can be more immersed.

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