PLEX as Input and Evaluation Tool in Persuasive Game Design: Pilot Study

Marierose M.M. van Dooren* m.m.m.vandooren@tudelft.nl
Renske Spijkerman† renske.spijkerman@brijder.nl
Richard H.M. Goossens‡ r.h.m.goossens@tudelft.nl

Vincent M. Hendriks§ vincent.hendriks@brijder.nl

Valentijn T. Visch¶ v.t.visch@tudelft.nl

ABSTRACT
One of the main objectives in game design is to create game experiences that enhance the motivation to start and continue to play the game. To gain insight into which game experiences can be evolved by the game, designers have been using PLEX cards in the user input phase or in the product evaluation phase of the design process. However, to our knowledge, no research has been conducted to check if the PLEX gathered design input experiences matches the experiences that are evolved by the game in the final design. This study checks if such a use of PLEX is possible in a game design procedure for youngsters in treatment for drug addiction. Youngsters firstly selected their preferred PLEX experiences. Secondly, a game designer created a prototype based on the user’s motivating experiences and a prototype based on the user’s least motivating experiences. Thirdly, other youngsters from the addiction clinic evaluated both prototypes by selecting the PLEX cards that matched their game experiences best. Results suggested that motivating PLEX experiences resulted in a better tailored prototype. However, PLEX experiences derived in the user input phase could not be matched one-on-one to the ones in the evaluation phase. This can problematize the usage of PLEX as a general tool for experience-based game design.

Author Keywords
Design method; gamification; PLEX; paper prototyping; youth addiction care

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INTRODUCTION
This pilot study is part of a larger project on implementation guidelines for persuasive game design in youth addiction care: how to align the design to the user and how to implement it to the user context. Persuasive Game Design aims to create a user experienced game world to change the user behavior in the real world [4].

In order to adjust the user experience by game design, it is necessary to align users’ game-related experiential preferences. In order to verify if the design of a game is matched to the user’s preferences, it is important to use one tool that generates and evaluates the input from users. The playful experiences (PLEX) framework [2] is one example of such a tool. It consists of 22 PLEX cards and has two proposed design techniques for the user research input phase: a ‘brainstorming’- and a ‘scenario’ technique [1]. Also, PLEX cards have been used without these techniques in the evaluation phase [3], but not in both phases together.

Currently, it is not clear yet whether one specific tool can be used for verification in the design process by applying it in both the user research input- and evaluation phase. In this study, PLEX experiences were used as a tool to map game experiences in both phases.

METHODS
This study consisted of three phases: user research input phase, design phase and evaluation phase. In the user research input phase it was studied which PLEX cards motivated and which PLEX cards did not motivate addicted youngsters to continue playing a game for a longer period of time. Youngsters (N=7), in treatment at Mistral addiction clinic, participated in this phase and differed in age and comorbid problems. Mistral is part of Brijder, an addiction-care organization in the Netherlands. It is an open clinic that provides group treatment for approximately 14 youngsters who have stopped using substances. The participants received the PLEX cards, which presented motivating game experiences, and were asked to divide the cards into ‘motivating’ or ‘not motivating’ cards. In the design phase, a professional external game designer was asked to design two prototype games: one aiming to elicit the most motivating PLEX experiences and another to elicit the least motivating PLEX experiences. In the evaluation phase another group of youngsters (N=5) in treatment at Mistral, evaluated both prototypes on the presence of PLEX experiences.
RESULTS
In the user research input phase, the most motivating experiences were “competition” and “thrill” and the least motivating ones were “nurture” and “suffering”. The most motivating experiences resulted in the paper prototype “Evolution Battle”, where 10 organisms on cards, e.g., human and ranked from 1 to 10, battled for a survival of the fittest. The game was played in rounds of 10 seconds. The first round was started with betting one coin. In each round, a player could raise his/her bet, swap the organism or pass. After a pass the other player had one round to swap, raise or also pass. In the end, the cards with the organisms were compared. The fittest: the player that had the card with the highest number, received all the bets placed (see Figure 1).

The paper prototype based on the least motivating experiences, resulted in “Falling Angels”. Angels fell from the sky onto a world filled with platforms. The platforms contained all kinds of danger which made the angels suffer. Angels had to be guided safely towards heaven. Players could protect the angels with help from the “hands of God” represented by three symbols, i.e. a fist, an open hand and a pointing finger (see Figure 1).

To evaluate the game experiences of the paper prototypes, five youngsters played and rated both prototypes by means of PLEX. In line with expectations, our results showed that the prototype based on the most motivating PLEX experiences was preferred by four out of five participants. However, other experiences than those derived from the user research input phase were also reported. Furthermore, in the Falling Angels prototype, participants experienced other PLEX more strongly than the ones from the user research input phase (see Table 1).

DISCUSSION
Our preliminary findings suggest that using motivating PLEX experiences for game design resulted in a better tailored prototype, since the prototype based on the most motivating PLEX experiences was preferred by a majority of the participants. However, the PLEX experiences derived in the user research input phase did not correspond one-on-one with the experiences reported in the evaluation phase, problematizing the application of PLEX as a general design tool for experience-based game design.

A possible explanation could be that the PLEX experiences may be multiple interpretable and can show overlap [3]. Furthermore, a game designer may interpret the PLEX experiences differently in comparison to naïve users of the game. Finally, designers might base their choices in the design process not solely on information about game experiences derived from the user research input phase.

More research is needed to draw more in depth conclusions on PLEX as a possible tool in both phases and to verify if the two prototypes differ significantly on motivation.

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