Methodics of Game Evaluation Based on Implicit Feedback

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Game software is a relatively new medium, but is has already proven its significance by occupying a major share in the profits of the entertainment industry. But aside from being a delight to play, games such as GWAPs and serious games, can be also used to substitute the conscious effort and attention of users with an activity, that the users will do on their own. These games show in effect, one of the core characteristics of all games: they essentially sugar-coat a problem solving activity into an authentic game experience.

Game experience is the subjective manner, in which the player perceives and playfully interacts with a game. It is the goal of every game - whatever its purpose may be, to create a game experience, and to capture (and keep) the interest of its players.

Game experience makes use of basic cognitive skills such as modeling, focus, imagination and empathy. One of the aspects of game experience is immersion, which is the degree, to which the player is invested in playing of the game. As such, if a game aims to reach its goals, it is essential to achieve as high a level of immersion as possible. There are three increasing levels of immersion - engagement, engrossment, and total immersion[1]. The first level, engagement, highly depends on the players own game preferences, and also on the players ability to successfully learning the controls of the game.

It is apparent, that the concept or learnability from the area of evaluation of user interfaces applies to games, just like it does with any kind of application. Games do communicate with players through a game interface. However, there are also some aspects to learning to use an application, which are characteristic to games. In games, players have to get to grips not only with the elements of the user interface itself, but also gradually learn the inner workings of the game mechanics behind it, without breaking the growing level of immersion. This is why a study of the learnability of a game interface in connection to the game immersion appears to be of importance.

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For the purpose of creation of the intended gaming experience, the ability to evaluate the interface learnability and the gaming immersion is highly valuable. However, because of the subjective character of user experience, both require feedback from the players to fully grasp.

The limitations of explicit feedback come from the difficulty of executing a detailed observation of the player's mental state without disturbing it. Hence, the importance of implicit feedback, which is based on the recognition of the user's mental state in regards to their natural behavior. Some of the information about the direct usage of the game application can be collected directly by monitoring the input devices, such as frequency of mouse clicks or the movements of the cursor. One of the other means of gathering interesting implicit feedback is through eye tracking.

Mapping of the eye movements to cognitive functions shows promise[2], even for the evaluation of games. Some of the possible approaches using eye tracking, are the identification of the fitting and disturbing elements of gameplay, the game passages which are the most and the least immersive, or recognition of the states of presence and gameflow with the player.

Our goal is to use the methodological approach in our research, to design a set of reusable principles which can be used for game evaluation based on eye tracking information. Then, we plan to apply these principles to several games with different user groups and different kinds of game play, to verify the results of our method.

References

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