Evaluation of Video Game Interfaces

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Abstract. The interface is an essential part of every video game. However, research in the understanding of the modern game player’s preferences is lacking. This paper reports the preliminary findings from the evaluation of a computer game user interfaces that determines specific user preferences.

Keywords: User Interface Evaluation, Video Game Design, End User Preferences.

1 Introduction

The game interface is an essential part of every video game. Regardless of how artistic, useable or functional the interface is, it remains the primary conduit of interaction for the game player. It is essential for game developers to understand the common problems associated with game interfaces as well as the analytical techniques used to solve them. However, little research has been carried out to understand the end user preferences. Game developers use personal preferences and creative programming techniques and tools to develop games with the hopes of successful market penetration. It is the purpose of this study to evaluate the interface of a video game to gain an understanding of the end user.

2 Background

Research has indicated that the following four methods of evaluation techniques are most commonly applied [1, 9, 10].

1. Cognitive Walk-through technique is a process that measures the usability of an interface by using a Cognitive Learning Model to evaluate the ease at which an interface can be learned.

2. Heuristic Evaluation technique involves employing use-ability experts to inspect interfaces. They use predefined criteria to evaluate the problems with the interface. This was found to be the most effective evaluation technique but it relies on the availability of an expert.
3. Pluralistic Evaluation technique is a process by which developers, users and experts do a walkthrough of the interface together. The advantage is that in this process is the diverse perspective involved in evaluation.

4. Formal Usability Inspections are a process where Human Factors Experts use a Cognitive Model of Task to evaluate interfaces. The advantage of this process is that the experts can do a walk-through more efficiently.

The literature has indicated that heuristic evaluation method are the most effective alternative to empirical testing. This technique is better at finding a larger percentage of design flaws in an interface, although its effectiveness relied heavily on the quality of the experts available [1, 7, 8, 9, 10]. The advantage of heuristics and reliance on experts was also found to be true in a study that compared cognitive walk-through and heuristic evaluation techniques using system designers and experts [7]. When comparing these two methods performed by experts, heuristics had a clear advantage, however, when using only designers to perform the evaluations both methods preformed equally.

Over the last two decades, other researchers have recognized the need to expand and modify heuristic evaluation approaches for video game interfaces. Modifying and creating new heuristic approaches had already been done in other cases. For instance, in one non game related study, the author examines enhanced heuristic evaluation techniques [10]. Heuristics criteria were combined and then analyzed for effectiveness. After comparing the results the most effective heuristics were noted. In another study, researchers [6] introduced Heuristic Evaluation for Playability (HEP), a heuristic evaluation created specifically for the evaluation of game-play. According to the findings, HEP was “reviewed by several playability experts and game designers.” A comparative study of the HEP method and end user observation revealed specific problems that could only be found through observation.

In a study about customizing evaluations for video games, Pinelle, et. al. divided video games into six different genres: Role-playing, Sports, Shooter, Puzzle, Strategy, Adventure [4]. Then they took twelve common use-ability problems found in 108 different reviews (eighteen for each type of video game genre) and mapped their occurrences to each genre. The common occurrences of usability problems for each genre were shown in radial charts. After finding problems common to specific genre, they discuss the implications that those problems could have on evaluation techniques.

In another study, researchers developed ten criteria for evaluating video game interface problems [5]. Initially five video game players with experience analyzing interfaces were recruited to evaluate a specific game using Heuristic evaluation criteria developed from their previous research. After evaluating the game by playing and using the given criteria the problems evaluators reported were recorded. The evaluators used a severity scale to classify the problems found. There was a significant overlap in reported problems but some evaluators found unique problems. This study did not take in account the engagement or fun factor of the game.

Research on video game interface evaluation suggests that a different type of evaluating criteria must be developed for evaluating interfaces in games. Our study