One Game Design to Rule Them All – Players as Game Designers: End-User Development in Open Source Game Development Context

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Abstract

End-user development has blurred the distinction between end-users and designers. Open Source Software (OSS) development has made it possible to form communities that design, adapt and develop software solutions for their own use. This paper addresses the role of the game design to guide the end-user development in open source software development context through two OSS projects developing a game.

Keywords

Players; Game Design; Open Source Software; End-User Development

Introduction

This paper addresses the role of the game design to guide the end-user development in open source software development context.

End-User Development

Most end users are not any more users in the traditional sense (consuming passively a ready-made software product) nor they are software professionals (paid to develop software for end user use). Some of these modern end users may have certain skills in software development, but they may not be particularly interested in software as such. Their interest may be in developing or adapting existing software to solve problems that they have to deal with [2]. These developments have led to the fundamental shift from consumer cultures to cultures of participation, where all people are provided with the means to participate actively in personally meaningful activities [3]. As a result of this shift the users that innovate can now develop exactly what they want, rather than relying on manufacturers of software to act as their imperfect agents [12]. End-user development provides foundations for this fundamental transformation, because it explores and supports new approaches for the design, adoption, appropriation, adaptation, evolution, and

sharing of artifacts by all participating stakeholders [3]. It also takes into account that cultures of participation are not influenced by only technology, but they are the result of incremental shifts in human behavior and social organizations [3]. End-user development (EUD) is focused on the challenge of allowing users of software systems – not primarily interested in the software itself – to modify, extend, evolve and create new versions of systems that fit their needs [3]. Many of the distinctions between designers and users are becoming blurred in the digital world and to some extent, we are all now designers [1].

However, the users of modern software will soon notice that the behavior of given software cannot be changed or meaningfully extended without a substantial reprogramming effort requiring skills and expertise often beyond the individual users [3]. This problem can however be addressed by a community effort, where the community at large has a greater sense of ownership and thereby is more willing, motivated and skilled to put an effort into fixing errors. This issue has been emerging in open source software communities and has led to the famous observation that all bugs are shallow, given that there are enough eyeballs [11].

Open Source Software

The term "open source software" (OSS) refers to software for which source code is freely available for everyone to read and modify. The fundamental idea of OSS is to enable software to evolve outside of commercial company restrictions through the participation of technically oriented contributors and users in the community [11]. Software communities that can be compared to modern open source software communities have existed for a long time before the coining of term "open source software" [5].

OSS development is usually organized as a loose community that is kept together by strong common values and ideas, the work being kept together and directed by one or many individual developers [6]. This community is often depicted with an onion model where different layers in onion represent the level of involvement and power within that particular OSS community. The core-developers who have commit rights from the hard core of the onion. In the next onion layer are the developers who have read and write access to the source code repository, but who have to seek approval from the core-developers to perform any major modifications of the software. The contributors, who are external developers and users who send bug reports or minor bug fixes, form the next onion layer. These contributors can access the source code but they cannot upload their modified source code directly to the source code repository of the project but have to send the modifications to the core-developers or developers for approval. The outmost layer belongs to non-technical end-users, who do not participate actively in the development, but who use the software and may participate in the community. Different OSS projects and communities design and develop different kinds of software solutions, from internet browsers to media portals, from 3D content creation systems to games.

Game Design

Game design is the art of applying design, technology, rules and aesthetics to create a computer, console or physical game to facilitate interaction between player and other players or computer for playful, educational, recreational, or simulation purposes. Game design creates goals, rules and challenges that produce desirable interactions among the players of the game. In the broadest sense the game design refers to the central idea behind a game. In smaller games the game design encompasses how the player plays the game. In large immersive games, the game design also encompasses the central theme or the point of the game, as well as the main storyline and plot. The plot and level of challenge are important factors for players considering buying a game [7]. Important questions in game design are: *What are the fundamental rules of this game?* and *What makes this game fun and challenging?*

Empirical Setting

The following sections will present the empirical results of cases (these cases have been presented in more detail in [4, 8, 9, 10]), focusing especially on the findings related to game design and end-user development.

Case A

Case A developed a game targeted at non-technical end-users without any interest or skills in programming. The project had about 15 listed developers and a relatively small user base of about 1000 users. In the game a droid crew of a galactic space freighter has turned against the humans and a droid has been

beamed abroad the freighter to regain control of the situation. The game is a remake of Commodore 64 classic from 1985.

Game design revolves in this case around the design rules and elements of fun and challenge from the original game. End-user development could be seen as limited from the game design point of view because the goal is to remake the original game. However, to accommodate the player design ideas, the project has launched a parallel OSS project developing a game which can evolve beyond the limits of the original game.

Case B

Case B again developed a game targeted at non-technical end-users without any interest or skills in programming. The project had 20 listed active developers with commit rights to the code repository. The user population was active including a forum with over 1000 active users and 50000 posts. The importance of good UI supporting gameplay, reducing the unnecessary tedium from the gameplay and the support for new players was raised as the main design goals in the development manifesto of the game.

Game design was in this case open for new innovations, additions and adjustments. The development manifesto set the guidelines form the end-user development, making it possible to bring new and fresh ideas but at the same time keeping the core values, ideas and design elements intact and therefore keeping the very essence of the game identity even though there has been many radical changes during the lifetime of the game.

Concluding discussion

The end-user development, open source development and game design can be combined in cases where the developed OSS game has either a previous game or a strong development manifesto guiding the design, adaptation and development of rules, elements of fun and challenges.

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