Simple Game Design Document Focused on Gameplay Features

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ABSTRACT

This paper aims a model of game design document (GDD) as a tool for indie games development teams and small projects. The features of the proposed Game Design Document were identified from researches and analysis about software engineering, game design and the game development environment by indie teams. The features proposed to the model of GDD were then used to make an analysis and an evaluation of the different documentation about games found on the internet. Assuming that large amounts of documentation do not properly adequate to the reality of indie games development and small projects, a model of GDD was created and matured on multiple steps of this work. The proposed model is simple, uses only a few texts and focus on the overall game so that the GDD is seen as a source of a set of goals to be achieved by the game and do not describe how to get these goals. The result is a smaller and simpler to understand game design document, with many figures in order to avoid tiresome reading, while keeping it in accordance with the real features of this article's target audience. Now we are working to validate this model with some small teams, by asking some game developers to read a proposed GDD, then play the game developed by the game designer. Finally, the target game developer fills a form about the read proposed GDD and the gameplay experience expected by them.

Keywords: game design, indie game, game development, software engineering.

1 INTRODUCTION

Over the years the games industry is rising, using new technologies and reaching new target audiences. In the scenario of the games development, sometimes professionals from several areas work in the same product with large and exhaustive documentation. This reality it is not a good solution for indie teams and small projects that often change. It creates many documents to a product that changes a lot and that has decisions that will be confirmed after tests with users makes hard the process of update the documentation. When people play games, they have an experience [6], and this experience is called gameplay. Gameplay is the feature of digital games that make it different others software. A software for a supermarket for example can be made to manage inventory but, for games the gameplay not can be made directly. Game design is the act of deciding what a game should be. That's it. On the surface, it sounds too simple [6], however, is not too simple because the game designer has to find a means to use the game interactions to give a good experience to a player.

Influenced by Short game design document (SGDD) [3] and the work of Almeida and Silva [1] this work proposes a template of a game design document to an indie game developer team. The model proposed has some contents that have to be filled based on what the game designer wants to gameplay, and the information on document are composed by little texts and many figures. The model was matured firstly in a research about game design and software engineering, then a list of characteristics was created to evaluate ten game design documents found on internet, and finally was proposed the template. According with Almeida and Silva [1] "the GDD has been the standard documentation artifact since the earlier steps of the games creation profession", they still claim that with a time, these documentations was replaced by others approaches. This work shows an evaluation of ten GDDs and proposes a model focused on indie game development team environment, the next step of future work is to validate the proposed template.

The next items in this work show the steps that influenced the evolution the proposed template. At item 2 can see a short discussion about game design and software engineering with some important points to think about similar traits in software engineering and game design and the what has in software engineering that seem no helpful to game design. The proposed game design document model was born after this discussion. The item 3 talk about two related works where was found important features and discussions that was used to evaluate the proposed template. Then the item 4 has an introduction to the game design tool features and the indie game development environment. Finally, it is proposed a lens to see the GDD how a document to describe experiences and that it will be a goals source. The subtopic 4.1 explains about some selected traits to makes a game design document most adapted to the target audience of this work and show a review of the evaluation of ten game design documents found on internet. The item 4.2 it is about the proposed template, how the descriptions on GDD should be and shows a table of contents to guide game designer when writing a game design document. The item 5 is the last and there is described about conclusions and future works.

2 GAME DESIGN AND SOFTWARE ENGINEERING

Game design is the area that focus on experience that the game gives the player. On their book, Salen and Zimmerman [5] claim that game designers define rules and structures to create an experience for players (gameplay). Digital games are software with many special features that makes inappropriate the conventional software engineering. According to Salen and Zimmerman [5], the gameplay cannot be calculated, have to be lived.

On his book, Sommerville [8] says that the software is specified from the services and restrictions about the operation and development of system. Sommerville [8] also state that a software is validated when confirmed that it is according with its specification. About games, the specifications have to offer a good experience to player and these experiences will be validated just on gameplay tests, which makes a game design focused on gameplay tests important.

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One important trait of game development is that they are developed in one iterative method, according to Salen and Zimmerman [5], designers learn more when create and test their creations. It is known that "games always have to be developed using a serial of prototypes"* [8] and that the interactive design according to Salen and Zimmerman [5] is a method in which the decisions are confirmed based on experience of play a game during the development. In the 90s the trend to take players to test the game during development has started, now with the beta tests it has the opportunity to talk with fans and, if used in the right way can be a powerful tool [7]. Users publish most feedback per day in the category Games (median 31.24), followed by Social Networking (median 8.82) and Utilities (median 8.75) [4].

In game development the main document used is the GDD. This document does not have a default model and at many times it is not used by the teams of game developers. Unlike other software in which the features can be described so the developers know how to work, in games "gameplay is also recognized as the key to player retention" [2], and it is known that the gameplay cannot be described in such a way that developers understand what to do. The game designer must describe how the game has to be to offer a good gameplay, then the game has to be tested to confirm it. These game development traits modify many game pieces in each iteration of development. So, the more the GDD has about a game, the more this document have to be upgraded after the iterations of development process.

3 RELATED WORK

At first it was enough to know the game mechanics and how to player interacts with the game. Over time more things have been added and in the 90's with the new video games, appeared the 3D games, characters with facial expressions and complex songs in games [7]. Explain all these things to the developer team that will develop the game in a way that provides a good gameplay is a challenge to game designers. Many works focus on game design process and game development to help the teams to develop a game.

In their work, Motta and Trigueiro [3] show the short game design document (SGDD) as a text tool to describe small games. The SGDD can be used in situations such as game jams, prototype for tests, game development classes and small projects as an advergames and casual games. The SGDD describes the game using user stories with rules, interactions, victory conditions, defeat conditions and contains a list of assets to be used in the game. The short game design document offers a tool to describe the game with little documentation for cases where development has to happen quickly.

In their work Almeida and Silva [1] identified some requirements for game design tools, such ones that contain a process that can be changed easily, has a lightweight documentation and that uses the visual language. The game designers need useful tools to document how the game is so that the team can read this documentation and "execute" the game in their mind. According to Almeida and Silva [1], unlike other developers, the game designers are less served in terms of tools.

4 PROPOSAL OF GAME DESIGN DOCUMENT (GDD)

The game designer documents the game using the GDD that according Motta and Trigueiro [3] these documents result in a big document with many text, images and graphics. In many cases the GDD is used to describe the game details and have to be upgraded many times increasing the difficulty of development. It is important that the game designer transfers the game details to the team, however, with the large amount of elements of games, the wide variety of kind of games and personalities of players, the majority of game design documents are generic [3].

According to Almeida and Silva [1] "the main objective of the GDD is to communicate the designer's vision to the development team". It is known that this documentation is not standardized, and often results in many texts that are not read by the development team and that are difficult to stay updated. The development of games AAA usually uses a mechanics known, tested and with a fan base, so the game will be made with less market risk. Indie game developers and development of small games usually do a game in an agile way, with innovative mechanics and using a lot the feedback from players to evaluate the next game version. "Agile methods are more effective when the system can be developed with a small located team able to communicate informally"* [8]. Another important point to game developers is that the communication between team should be understandable to the different developers' skills. For example, the same GDD should be understandable for a programmer, for a writer and for a musician.

This work focuses on proposing a simpler game design document that should be used as a source of goals. The proposed document could be seen as a vision of the complete game, and the experiences described are the step by step of features to be included in the game. The game evolves when the experiences are validated on gameplay tests, not when the new game function is done. Seeing this way, the team will realize that is developing a gameplay and not just scripts, classes, songs or images.

4.1 Game Design Document Features

This work was influenced by Motta and Trigueiro [3] and Almeida and Silva [1] in features to propose a document. One discussion about software engineering and game design and a research about indie game development environment was made to get a list of requirements for a game design document. Then, an analysis and an evaluation of ten GDDs found on internet were made. All these steps influenced the game design document model proposed. In addition, the indie game development environment was considered to define a game design document most adequate to the case. Some characteristics like many modifications during the development, small teams, greater integration of all team and a lack of deadlines influenced the proposed model. Therefore, the proposed document has less text and more images where these images shows some concepts of mechanic, entities, interactions, user interface and others. When something is not clearly defined, the game designer should hide how the game has to be to get the gameplay, and describe what feelings the game has to pass to the player. After it, the team will have to find a way to make the game pass the experience and feelings to the player. It is important because the gameplay changes a few times. To offer the gameplay, the game is tested and modified many times because the "how to get gameplay" changes often making more work to update the GDD.

From what was discussed and noticed, some features were listed to evaluate the game design documents found on internet. The following characteristics were defined to evaluate the GDDs:

1. Overview: A general description about game, technologies and team. Information like, name, genre, resolution, minimal requirements, target audience and others.
2. Narrative and environment: Descriptions about the world of game, the physics, animals, general environment and the plot.
3. Conciseness: How much the document was concise, how much it explains about the game using few words and not repeats mentioned information before.

4. Clear gameplay: How much it can imagine about the game running while is reading the document.
5. Visual references: How much the document uses images to explain different information about the game.
6. Market and team: The document contains information about the developer team, schedule, target audience description, risks, opportunities and others information to help to know about market.

Each GDD evaluated has received a value to describe each feature described above, the values are poor, medium, good, rich and excellent. Then, for each features used to evaluate the GDDs was made a sum of values of all GDDs where the numeric values to poor, medium and rich are 1, 2, 3, 4 and 5 respectively. The table 1 shows the result of evaluated GDDs and a sum of each features attributed to all game design documents.

Table1: Review Summary of GDDs

Document	Overview	Narrative and environment	Conciseness	Clear gameplay	Visual references	Market and team
GDD 01	Rich (4)	Good (3)	Good (3)	Medium (2)	Medium (2)	Medium (2)
GDD 02	Medium (2)	Good (3)	Good (3)	Good (3)	Poor (1)	Medium (2)
GDD 03	Good (3)	Good (3)	Good (3)	Good (3)	Poor (1)	Medium (2)
GDD 04	Good (3)	Excellent (5)	Medium (2)	Rich (4)	Excellent (5)	Medium (2)
GDD 05	Good (3)	Rich (4)	Good (3)	Good (3)	Good (3)	Medium (2)
GDD 06	Rich (4)	Rich (4)	Poor (1)	Medium (2)	Poor (1)	Poor (1)
GDD 07	Rich (4)	Rich (4)	Medium (2)	Rich (4)	Good (3)	Poor (1)
GDD 08	Good (3)	Rich (4)	Medium (2)	Medium (2)	Good (3)	Medium (2)
GDD 09	Rich (4)	Rich (4)	Medium (2)	Rich (4)	Medium (2)	Medium (2)
GDD 10	Good (3)	Good (3)	Medium (2)	Good (3)	Good (3)	Poor (1)
Score (sum)	33	37	23	30	24	17

Seeing the table 1, it can be noticed that in general the game design documents contain a good description of the overview, narrative, environment and the gameplay, but they do not focus on market or team. It is important for indie team to think about the market to get a better way to get and keep players. Also, indie teams often have no schedule or do not fulfill it. This is a problem because the team may feel that they are never late because it has no commitment to the schedule. Another important point is that most of the time the GDDs have a tiresome reading with many texts and many details. Several aspects of the GDDs templates generates large documentations and the creation of the document is labor intensive [3].

This large amount of texts with few images makes the document look like a book. The reader has to actively try to imagine the animations, the sounds, the entities and others. For a book is good to stimulate the reader´s imagination, but for a team of game developers it is not, since it is a necessary that all developers think the same way. For example, when people watch movies based on books, then actually read those, they will have thoughts very similar to the movie content while reading. Images can convey a lot of information without text, and this information is quickly captured by the observer. In their work Almeida and Silva [1] gather some requirements to a game designer tool such as be lightweight and minimalist, be easy to create and maintain and must allow the use of visual languages.

4.2 Template Proposed

Many tutorials today use few texts and instead use just some animated images that transmit information faster, less tiring and in many cases more accurate. The game design documents can use the visual communication to do a lighter document. Some designers have found in the visual modeling a strong ally in communicating their game vision to the development team [1]. The GDD should focus on show the gameplay to the reader so that he can "see" the game running while reading. Descriptions like "the apple gives 30 health points when the player catch it" or "the pineapple gives +40% of power when the player catch it" are specific and are very likely to change, unlike descriptions like "many times the player will feel relieved when catch an apple" and "when the player catch a pineapple will feel most confident and will play more fast to enjoy the benefit from the item" that are much less likely to change. By the document development, the values or the items' effects should not be that important, since they can be tested in different ways afterwards. However, gameplay of challenging agility game or a thinking game hardly change. These characteristics are based on the statement "a game designer does not create a technology, a designer creates an experience"* [5].

A GDD is an important tool created early in the development process. In his book, [8] states that a software process is a set of activities related to a software development, that there is not such a thing as the best process and therefore many companies develop your own software process. Thinking about indie game development teams, this work presents a game design document with few texts, many images and descriptions about gameplay, avoiding specific descriptions about "how to make the gameplay". The figure 1 shows an example of one page of the GDD template proposed.

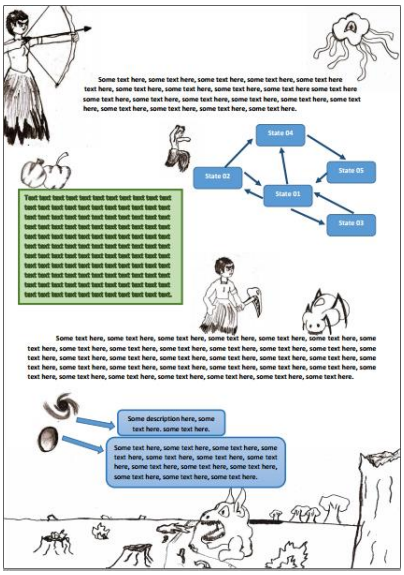

Figure 1: Example proposed template page.

* Translated from Portuguese to English.

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As mentioned before, there are many kinds of games with many different elements, making difficult to create a generic template with a table of contents which allows the game designer to follow strictly. Thinking about this, the proposed template shows a table of contents that the game designer can follow and choose what best describes each topic. The proposed table of content is:

1. Overview: Quick descriptions about name, game genre, interactions, mechanics, platform, developers and others general features.
2. References: Games or mechanics that are references to the game described in the GDD.
3. Environment: World descriptions, characters, plot overview. It is important to make a description of the world before the plot overview because then the reader will know the environment while reading the plot.
4. Screens: Game screens prototype with comments.
5. Diagrams: User case diagram, state machines, simplified class diagram.
6. User stories: Shows the gameplay, expected learning curve, what the player will feel when playing. This part is the best to describe the gameplay and it is also the part that has more text in the document.
7. Market and team: SWOT analysis, target audience, benchmarking, developers, schedules and others about market or team.
8. Other: More information like artificial intelligence, entities, items, plugins and other important features.

Contents like game genre, world description, plot overview and characters help the reader to understand the environment that the player will interact and why to interact. Contents like inputs, game mechanics, platform, references, screens and diagrams help the reader to understand how the player will interact with the world and how will be the ludic feedback of game. User stories help the reader to understand how a novice player will learn to play the game and what experiences the gameplay will offer to the player. Market should show to a reader some information about how the game will get and keep players. Except to user stories and to market and team, the document should contain many images with figures, tables and diagrams and not a lot of texts like a book. The images can easily show the entities, actions, relationship between entities, user interface and others characteristics of game.

5 CONCLUSIONS AND FUTURE WORKS

This work concluded that the game design document should not been seen as a document that describes how the game will be to player, it should be seen as a document that describe the experiences which the game will offer to the player. Other important conclusion is that the game should be seen as done when the users experiences are validated on gameplay tests, it makes sense with the discussions about the role of game designers because they not create a game to users, they create experiences through the games. Do a lot of documentation to a product that changes frequently brings a lot of effort to make and update a document that the developers usually not read. Thinking about these points, was proposed a template of a small GDD that is not need to update a lot because it describes the experiences. The proposed game design document uses few texts and many images to show the general game information.

The next step of this work is validating the proposed model as a tool for indie game teams to use in order to document their ideas. Firstly, a game design document about a small game will be made, then the game described on this document will be developed. Finally, some developers of different areas will: 1) read the GDD of the game, 2) play the game described on the GDD and 3) fill a form about the GDD and about the game. It is expected to validate the template as a smaller model less likely to change over time, that shows the gameplay efficiently and that allows the developers to know what to do for project.

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