Applying Blue Ocean Strategy to Game Design : A Path to Innovation

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Abstract — **Game industry is highly competitive, and innovation is an important aspect in making a hit. This is especially decisive in game conceptualization, the initial stage of game design, when basic game ideas are proposed. In entrepreneurship, innovation and design literatures, various processes and concepts have been used to help developers in creating innovative products and services. This is the case of the Blue Ocean Strategy and Personas technique, for instance. Despite their success, to our knowledge, these approaches have not been explored in designing games, particularly in the conceptualization phase. This paper proposes a process that brings together Blue Ocean Strategy and Personas technique to assist the creation of innovative games. This process was applied in two successful games: *Boney The Runner* and *Fruits Inc.***

Keywords—game design; concept design; innovation in games; blue ocean strategy; personas

I. INTRODUCTION

It is not novelty that the videogame business is an extremely competitive multibillionaire industry. In 2011, it moved $74 billion worldwide, and $112 billion are expected by 2015 [1]. Finding out what players want is essential in order to make a great game [2], but it is often not enough to guarantee success.

In such a hardcore industry, how is it possible to assure a title's success, or at least improve its chances of happening? Wesley and Barczak enumerate a few cues in [3], from which we can highlight innovation. In a market with massive and varied titles, a fresh and innovative game may ascend easier than others. Such quest for novelty makes designers face a different challenge: how to create something new?

Design processes are important tools assisting game designers' creative method. Within game design processes, there is a stage called concept stage or conceptualization. It consists of generating and selecting main ideas for a game [4], thus defining its fundamental rules and features. It is an important step in game design, since a good concept can help to make or to break a market hit. Recent independent games are good examples of this. For instance, Bastion[1] may appear as only a common hack-and-slash game with beautiful graphics;

however the addition of a narrator to game concept was essential to make it an awarded hit.

Although conceptualization is such a crucial stage in game design, it tends to be devalued in comparison with other steps (e.g. level design) and is often done without a proper game market analysis [5]. This little market influence can easily result in lack of defined target audience or market space.

Thus, it is necessary to incorporate market information in game design process. Usage metrics and analyses of available titles are two ways of doing this incorporation. Outside game industry, different strategies have been proposed to assist innovation process while focusing on the market. Among such strategies lie Blue Ocean Strategy (BOS) and Personas.

BOS attempts to make competition irrelevant by creating a new competition-free market space [6]. It focuses in generating products or services that are different from those already in the market, thus avoiding competition with a large amount of companies. Persona is a technique used in the initial step of design process. Personas are descriptions of hypothetical users, containing characteristics, personality traits, likes, dislikes and goals. They represent, in a single individual, a general type of user [7].

As described above, incorporating market information in the process of concept game design is a challenge. This paper proposes a Blue Ocean Strategy based process to assist concept design stage. Such strategy was never applied to game design. Our process also uses Personas to provide guidelines for user models. These techniques do not guarantee success, but significantly decrease the chances of failure. The process was used during the development of two games: *Boney the Runner* and *Fruits Inc.*

This paper is structured as follows: section 2 describes what game design and game concept are and summarizes related works. Section 3 describes the Personas and Blue Ocean Strategy fundamental concepts. Section 4 presents the proposed process. Section 5 contains the description of two case studies, while section 6 summarizes their results. Finally, section 7 consists of conclusions and future works.

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[1] Bastion, by SuperGiant Games http://supergiantgames.com/index.php/media/

II. GAME CONCEPT: PROBLEM FORMULATION AND RELATED WORKS

A. Problem Formulation

The game industry evolution resulted in improvements in game design processes. Game design processes are responsible for game conception and project aspects. They commonly have analysis and evaluation, synthesis and document refinement phases [8]. With time, these processes became less artistic and more efficient [9]. In general, these processes are composed of three major stages: conceptualization, refinement and development.

Conceptualization is the initial stage of game design, when game concept is created. Hagen [10] describes the game concept as the collection of all important design ideas that define the game. It consists of two parts: the recycled part (ideas that were used in other games, movies or books, e.g. "this game is platform game") and the innovative part (game ideas that have not been used before).

The creation of game concept is often done without specific methods. This is dangerous to the game's development because it can result in games with basic flaws in design. Such flaws can potentially affect how the game will be received by the public.

This paper targets the problem of providing a conceptualization process with focus on innovation to increase chances of success. In order to provide better chances of making a hit, conceptualization should attend the following requirements:

- **Innovation**: tools or guidelines to guarantee innovation elements in game design. These elements are important in order to make a game standout in the market;

- **Market Information**: incorporation of users and industry data. This is a crucial, although often renegaded, aspect in making a successful game;

- **User-Centered Design:** game design must be focused on players. This helps to develop games with higher acceptance rates and increases chances of satisfying players.

B. Related Works

Although game design processes did not converge into a single principal method, they mostly are composed of three main stages, as stated above. Thus, these processes can be clustered into groups that follow common guidelines. This section will present a few game design processes that represent the main game design styles.

Zimmerman [1] proposed an iterative method, that is appears in Fig. 1. It is based on repeatedly and cyclically prototyping, analyzing and refining the game design. In this process, it is possible to go back and forward in steps, in order to make necessary design changes. This methodology relies heavily on play testing. Thus, it is possible to adjust design to testers that match target audience.
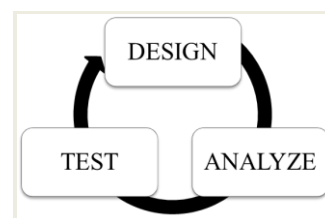

Fig. 1. Method proposed by Zimmermann [11].

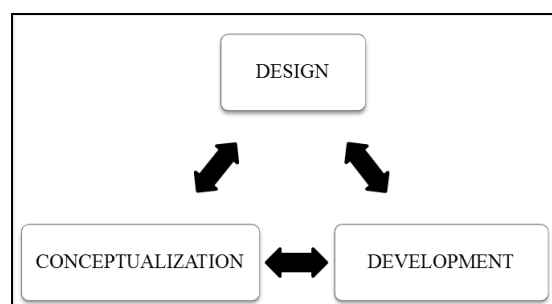

Fig. 2. Adams' process [12].

Fig. 3. General model proposed by Araújo and Roque [13].

Unlike Zimmermann's idea of iteratively improve concept design, Adams argued that this is not viable in medium or big games [12]. He proposed a user centered process, also divided in three stages: concept, elaboration and tuning stage. In this process, shown in Fig. 2, initial choices, such as main concept, audience and genre, should be decided only at conception stage. They remain unchanged through the rest of the process. Elaboration stage adds design details, prototypes and playtests. Tuning stage is about making small adjustments, but no new feature can be added in this stage.

Araújo and Roque [13] describe a game design process containing the following phases: conceptualization, design and development; as shown in Fig. 3. Conceptualization aims at defining the game's main concept. The game's requirements, basic ideas, main theme and target market are proposed in this stage. This concept will be used in latter steps. If there is the need to change some part of this initial idea later, it is possible to return to the first step. The concept will be transformed into a rule system in design step. This stage will produce a more robust game design document. It uses a process of development, prototyping and evaluation. Finally, development step improves and evaluates game prototypes until a satisfactory product emerge.

Luban [14] proposed a four staged process. First step consists of defining goals and organizing the team. It is focused on selecting people that will work in following steps. Second

step is identifying parameters and their values. Parameters are characteristics that will be used to describe the game, such as "marketing segment" or "background". Example of values for "marketing segment" could be "FPS", and for "background" could be "contemporary, 20th century".

Third step requires filtering ideas and defining preferences. Since there are a large amount of possible combinations between parameters and values, it is necessary to narrow this scope. This is achieved by removing sets of ideas that have conflicting values. For instance, one may argue that an underwater racing game makes little sense, market wise, and remove this idea. Finally, forth step consists of analyzing and selecting ideas according to previous defined priorities.

Credidio [9] proposed a four step method for game design. First step consists of the exploration of design problem, where the game's needs and requirements are studied. Second step is the generation of alternatives, when several different ideas are proposed. Step 3 analyses and selects the ideas proposed in previous step, and finally, step 4 consists of presenting the solution in a game design document. For each step, he suggested a series of techniques removed from general design processes, or other game design processes.

Zimmermann [11], Adams [12], and Araújo and Roque [13] provide interesting and useful game design processes. However, none of them focus on the initial stage of game design: conceptualization. Their proposals are too general, lacking specific detail about how to proceed in conceptualization step. They also state that is important to design for market, but do not properly explain how to do so.

Luban's [14] and Credidio's [9] methods brought ideas about how to proceed in conceptualization. Luban's use of parameters and values can increase creativity and assist conceptualization. However, it lacks user and market information. Credidio, on the other hand, tried to provide guidelines for this process, but instead presented a huge amount of techniques chopped from other sources. While his contribution was significant and he was the first author, that we know of, to highlight the necessity of conceptualization processes, he did not properly presented which combination of techniques is best for innovation or market strategy purposes, thus becoming extremely vague. Also, unlike the other methods described previously, Credidio did not evaluated his methods in real industry games, presenting only a reduced scaled test that fails to prove its relevance in an industrial environment.

It is possible to observe that game design processes still present a series of problems, in special concerning concept stage. Vagueness, lack of innovation guidelines, lack of market input in design process and lack of details for conceptualization are main concerns. There is a clear opportunity for studying and developing processes for conceptualization stage. This paper presents a conceptualization process to attacks the problems stated above. Market information is obtained through the use of a business technique called Blue Ocean Strategy. We also make use of a user-centered technique known as Personas to provide model for players and target audiences. The next section presents an introduction in these techniques.

III.   BACKGROUND

A. Blue Ocean Strategy (BOS)

Kim and Mauborn [6] created in 2005 a management approach called Blue Ocean Strategy (BOS). They introduced the concept of a universe made of blue and red oceans. Red oceans are known markets. They are well defined and highly competitive. Small and weak organizations perish in this market, making it bloody – thus creating a "red ocean".

In contrast, blue oceans are unexplored market. They have potential for demand creation and profitable growth [6] [15]. A blue ocean does not need to be something completely new, but can be a red ocean expansion. The blue color represents innovation, which is followed by change of market shape, and, later, content evolution [15].

Table 1 shows the differences between red and blue oceans approaches. Kim and Mauborn [6] argument that the most important difference is lacking of value/cost trade-off. In traditional strategies, cost is dictated by product's value. A company can choose to offer customers a higher cost with a higher value, or a lower cost with a reasonable value. However, blue ocean strategy pursues both diversification and low cost. Fig. 4 compares these strategies in relation to buyer value and cost.

Another important innovation in BOS is the strategy canvas concept. It captures current companies' actions in market space. This highlights where competition is investing and what products are already available [6]. The strategy canvas is represented by a two axis graph. Horizontal axis shows products characteristics, e.g. in games, it could be price, duration or replay value. Vertical axis quantifies the offering level of these characteristics, from low to high. For example, in case of replay value, a high offering value would indicate a higher replay value.

Companies' data is plotted in strategy canvas and define the company's value curve. The value curve represents the organization's performance in market space.

TABLE I.   COMPARISON BETWEEN BLUE AND RED OCEAN STRATEGIES

| Blue Ocean Strategy	Red Ocean Strategy
Creating a competition-free market space	Competition occurs in existing market space
Competition becomes irrelevant	Beating the competition is necessary
No substitution between value and cost	Attend existing demands
Create and capture new demand sources	Value/Cost trade-off
Company's activities are aligning choosing both differentiation and low cost strategy	Company's activities are aligning choosing differentiation or low cost strategy
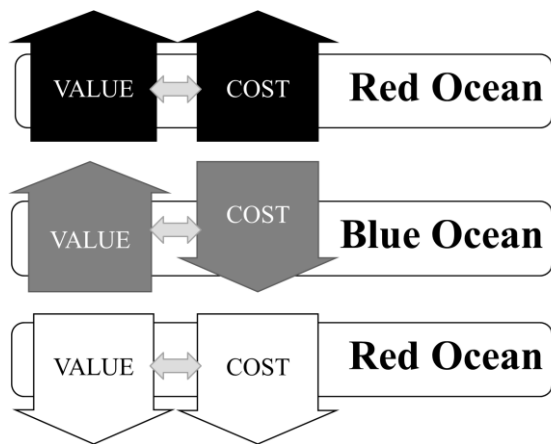
Fig. 4.   Value/Cost trade-off in red and blue oceans.

B. Personas

The Personas technique is commonly attributed to Cooper [16]. It is a powerful analysis tool that can help in identification of the system requirements [17].

A persona is a pretend user that represents the archetype of potential real customers [16]. It has a name, an age, background, personality, likes and dislikes. This hypothetical user is treated as a real person by the designer team. Thus, software functionalities are supposed to appeal and attend the personas' needs and preferences.

Although fictional, personas are defined by real user data. Their behavior mirrors that of potential customers. As such, they are a valid and important tool in design process, allowing the application of user information and increasing chances of success.

IV.   PROCESS

This section describes our proposed process. It consists of a five step method, listed as follows:

1. Definition of primary, secondary and tertiary markets.

2. Research and analysis of competition products.

3. Extraction of main features and creation of existing products' value curves.

4. Creation of new value curves.

5. Analysis of proposed value curves and selection of best proposed title.

These steps will be described in details in following subsections.

A. Definition of primary, secondary and tertiary markets

Defining target markets is the initial step in our process. Its main goal is to define target audience. Markets represent game genres. They can be major genres, such as strategy or board games, or minor ones, like tower defense, a type of strategy game, or chess.

Primary, secondary and tertiary represent the importance order of targets. For instance, if the goal is to develop a mobile casual game, one may choose casual games as primary market, simulation as secondary market and strategy as the tertiary one.

In this step, two personas shall be developed. This quantity was chosen because targeting many markets is a bad practice. It lack focus and decreases chances of success. First persona represents the main target. It is an audience that must be pleased at all costs. Second persona represents clients that should not be unpleased, but are not the main public. These personas should also be similar. Using too many personas or making them too different can result in a game that has no target audience, and pleases no one.

The personas can be created using data mining or user analytics. One example would be using real data from previous games. User analytics can provide a better knowledge of players [18]. They make possible to learn age, gender, common behaviors, among other useful information.

At the end of this step, two personas, primary and secondary, must have been developed. They shall have an age, gender, literary and musical preferences, availability (when they usually play), and favorite games.

B. Research and analysis of competition products

After defining what will be game's main focus, it is necessary to research each market's popular games. This is important in order to discover what games are popular and why. Since two personas were previously developed, it is possible to extract a set of games from their favorite titles. All markets must be represented by at least a few games.

The analysis is performed by a set of people from different specialties. Producers, programmers, designers, artists, marketing people and managers must work together. If possible, at least one person from each domain must be present. This generates a diverse group, where each one defends his point of view. An artist, for instance, can give important ideas for visuals, allowing a programmer to actively discuss that such input may or may not impact programming.

This group reviews a set of games mentioned above. This evaluation, called internal review, is used to progress the development. They discuss aspects such as art, gameplay, what they thought went right or wrong with each title.

C. Extraction of main features and creation of value curves

After analyzing each game, reviewers will create a set of attributes. These describe each game and can either influence the game positively or negatively. Examples of attributes are "unique purpose items", "slow pacing" or "power ups".

In possession of these attributes, it is possible to create a strategy canvas with value curves for each game. Although this canvas does not contain every game of each market, the games chosen in previous steps must be able to properly represent their markets. Thus, it is possible to have a general idea of which features are common or not.

D. Creation of new value curves

The creation of a strategy canvas in later step provided cues about which features from each market are interesting or not. Then, a series of new value curves is proposed. These curves must have mostly features from primary market, but some attributes from secondary and tertiary markets. The main idea in this step is increasing some attributes while decreasing others. These curves may require posterior adaptation. For instance, a game mechanic that works well in a certain public may need some changes to be accepted by other audiences.

E. Analysis of proposed value curves and selection of best proposed title

After creating value curves, the team must decide which curve is the most interesting one. Although there is not a better or worse selecting method, the simpler may be to rate each curve. The curve with the highest rating may be chose. Another way is though voting, where each team member ranks the curves, and the one with most votes is selected. This selected value curve contains a set of features that will serve as a skeleton for the game design.

V. CASE STUDIES

The proposed process was applied to the conception of two games: *Boney the Runner* and *Fruits Inc.* Former one is a mobile game, while the latter is a computer game. The team involved in both processes consisted of 8 people. From these, 2 were game designers, while remaining 6 were managers, programmers, artists and producers. This section will analyze conceptualization stage process in each test case.

A. Case Study nº 1: Fruits Inc.

1) Definition of primary, secondary and tertiary markets

Strategic decisions for this case study were heavily influenced by the necessity of matching market opportunities and the team's abilities. Thus, primary, secondary and tertiary markets chosen were time management (TM), puzzle and hidden objects (HO) games, respectively. This order was chosen because TM games usually requires less art features than HO games, and are easier to refine, game design-wise, than puzzle games. Also, all the genres are highly popular among casual gamers.

Time management is a genre focused on managing the amount of time spent on various tasks to maximum efficiency. Hidden objects is a sub-genre of puzzle games in which players must find items from a list. These items are hidden within a picture. Finally, puzzle is a broad genre that involves solving puzzles of mathematical, strategy, logic, pattern recognition or word solving nature.

Data mining in social network's information was used to learn information about potential players. Main characteristics found indicated that target audience was middle-age mothers. This resulted in the creation of two personas:

- *Primary Persona*: Diane (Fig. 5)

Diane is 42 years old architect, single and lives in Detroit, Michigan. She has a son, Jonathan (22). She has little free time,

Fig. 5.   Primary persona of first case study: Diane.

and occasionally watches comedy movies, such as "The Break-Up" and "What Happens in Vegas". Her favorite television show is "Friends", but she also enjoys other comedy and drama television shows. Diane listens to rock music and reads suspense and fictional books. She is a busy woman, who plays videogame to relieve stress.

- *Secondary Persona*: Amanda (Fig. 6)

Amanda is a 28 years old housewife. She is happily married and lives with her husband in San Diego, California. Amanda has two children: Elizabeth (4) and Sean (3). Among her favorite action movies are "Pirates of the Caribbean" and "Ocean's Eleven". She likes to watch investigation television shows and reality shows. She also listens to pop and country music, and reads adventure books.

2) Research and analysis of competition products

In this step, some of the popular games of the three markets chosen in step one were selected. These games were:

- *Time Management*: My Kingdom for the Princess II, Royal Envoy, The fifth gate, Hotel Dash, Emily's Taste of Game.

- *Hidden Objects*: Mystery Case Files, Robinson Crusoe,

Fig. 6.   Secondary persona of first case study: Amanda

Haunted Manor, and Devil's Triangle.

- *Puzzles*: Zuma's Deluxe, Chuzzle Deluxe, Bejeweled 2 Deluxe, Jewel Quest.

Each game was then reviewed. Two kings of review were used: specialist review and players' review. Specialist reviews were made by some team members that were specialists. They included a more technical analysis. This review's purpose was to analyze aspects such as graphics, sound, gameplay, replay ability and game progression. Examples of comments are "Some screens/popups really need aesthetic improvements" (graphics) and "There's lack of mini-games or bonus levels" (gameplay).

Players' reviews were gathered from websites. They help designers in understanding how the players reacted to the games features and what they thought were good or bad. Examples of comments are "I like the fact you have to review all options quickly to figure out best plan of action" and "I would probably buy this game if it were not for the mini games".

3) Extraction of main features and creation of value curves

A set of attributes were identified through reviews. They were described as single aspect, and are listed below:

- *Time Management*: Long-term Objective, process improvement, unique purpose items, Supporting Characters, Customization, Button Smash.

- *Hidden Objects*: Mini-Puzzles, Hint Options, Very Slow Pacing, Adventure.

- *Puzzles*: Bosses, Power-ups, Scalable Combos, Eye-hand Coordination.

Each one of the games mentioned in step 2 was described using these features. Then, a strategy canvas with each game's value curves was developed, in order to analyze the difference between these games. Fig. 7 shows an example of the value curves of two games.

4) Creation of new value curves

In possession of the games' value curves created above, new values curves were created. These value curves were done with the attributes of the primary market (TM) in focus. Then, some of these attributes where removed or decreased, and one attribute of the other two markets were included. Some value curves created are shown in Fig. 8.

5) Analysis of proposed value curves and selection of best proposed title

The team rated each proposed value curve. This rating measured cost versus benefits, while also evaluating the estimated difficulty and time required to develop each proposal. Finally, the best rated curve was selected, and further developed in order to produce a proper game.

B. Case Study nº 2: Boney the Runner

1) Definition of primary, secondary and tertiary markets

For the second case study, it was chosen to develop a mobile game. In this case, markets selected were more specific,
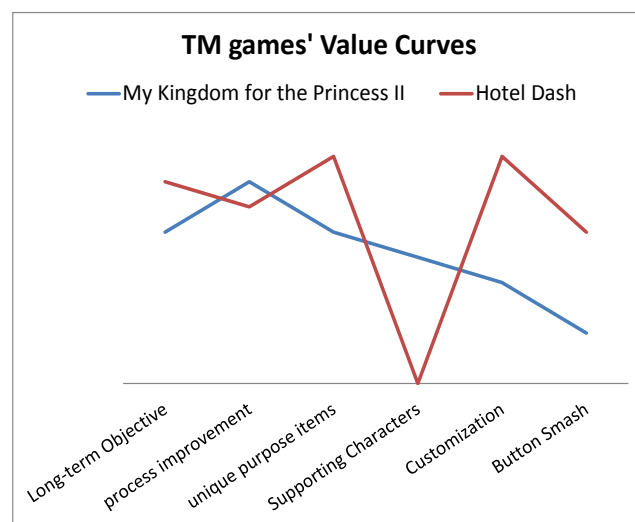

Fig. 7. Example of value curves created to describe the games: For My Princess II and Hotel Dash.

in comparison to those in case study no. 1. Primary, secondary and tertiary markets were, respectively, endless runners, endless jumpers and blitz puzzles.

Endless runners' genre has a simple basic idea: the player must run until he dies. They have the potential of having endless game sessions, but in practice this usually does not occur, because they become harder with time. Endless jumpers are similar to endless runners. The difference lies with the axis: while in endless runners action occurs horizontally, in endless jumpers the players must jump vertically, always trying to achieve higher heights. Finally, blitz puzzles are fast match puzzle games. The objective is to join certain number of items to make them disappear. For instance, one game may be about sliding stones in order to join three stones with matching colors.

In order to create the personas, data was retrieved using logs of a previously launched game, called Dino Jump. These data included information such as age, gender and time spent in
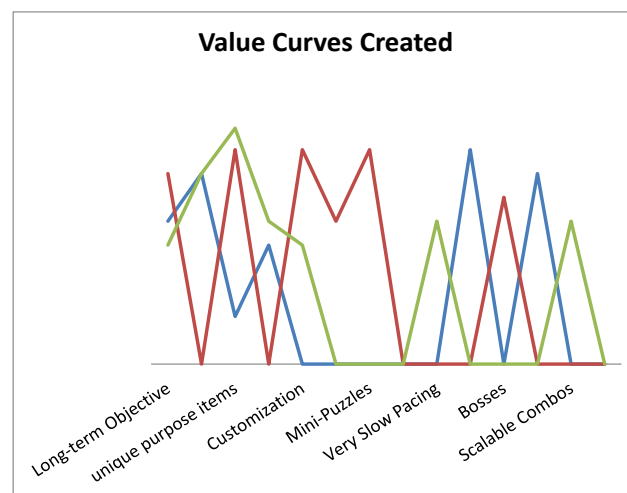

Fig. 8. Example of value curves created for the first test case.

game. This helped understanding possible audience and developing two personas:

- *Primary Persona*: Brandom (Fig. 9)

Brandom is a 28 years old American lawyer. His annual income is U\$ 100,000.00, allowing him to have a comfortable life. He lives with his girlfriend, Joan. He is very connected, never letting go of his smartphone, which he uses mainly for work and to have little sessions of fun. He likes casual games because they do not take much of his time.

- *Secondary Persona*: Elle (Fig. 10)

Elle is 23 years old and lives in England. She is a college student who just left her parents' house. She lives with three friends, all college students. Her annual income is U\$ 80,000.00. She likes comedy movies, and spends a big amount of time talking with her friends or using social networks, like Facebook.

2) Research and analysis of competition products
In this step, a set of popular games from each market was selected and reviewed. They were:

- *Endless Runner:* Jetpack Joyride, Run like hell, Temple Run.

- *Endless Jumpers*: Doodle Jump, Mega Jump, Dino Jump.

- *Blitz Puzzles*: Bejeweled Blitz, Zuma Blitz.

Like in the first case study, reviews were made by specialist and also extracted from the internet.

3) Extraction of main features and creation of value curves
The analysis of popular games indicated the existence of the following features:

- *Endless Runner:* Changing mechanics, power-ups, Gear Upgrades, Coin Packs, Line of Death.

- *Endless Jumpers*: Upgrades, Coin Packs, Collectable Upgrades, Line of Death.

- *Blitz Puzzles*: Consumables Economy, Timed Gameplay.

Again, each game's value curve was described using these features. It is important to highlight that these curves are subjective, thus different people can evaluate the same game in slightly different ways.

4) Creation of new value curves
In this step, new curves were proposed by altering, increasing or decreasing the quantity of the attributes. Endless runners were the main market, thus its features were used as a base for the curves.

5) Analysis of proposed value curves and selection of best proposed title
The value curve's analysis and selection was done similarly the one done in case study no. 1. The team rated each curve and selected the one that had a better cost/benefit trade-off. The selected curve can be seen in Fig. 11.

Fig. 9.   Primary persona of second case study: Brandom.

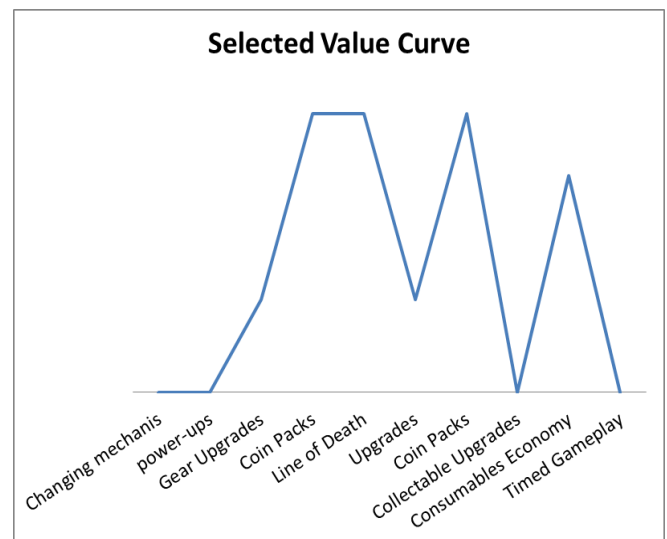Fig. 10. Secondary persona of second case study: Elle.

Fig. 11. Selected curve for case study no. 2.

VI. RESULTS

A. Case Study nº 1: Fruits Inc.

The value curve selected in this test case eventually became Fruits Inc., shown in Fig. 12. It is a computer time management game, with features that resemble HO and puzzle genres. This game was launched in the market. Currently, it was translated to 11 languages and is available for PC and Mac, but also has a browser version. It has over 3.2 million downloads on PC and Mac versions, and over 15 million game sessions on browser version.

Fruits Inc. received a review of 4.5 / 5 by GameZebo[2], with users' reviews ranging from "Fresh setting and challenging game mechanics meet problematic pace and balance" and "It's overall a more original game than most" to "Gameplay is simply too slow". It is important to highlight that critics were only focus on game balancing and pace, which were not the focus of the process. On the other hand, positive reviews praised the innovative aspects of the game.

B. Case Study nº 2: Boney the Runner

Boney the Runner (Fig. 13) was the result of the second case study. It is a mobile game, released in iOS and Android markets. It is an endless runner game, where the player must touch the screen to make Boney (the skeleton main character) jump, avoiding obstacles and catching coins. The game ends when Boney gets caught by a group of dogs.

The game differs from other endless runners due to the addition of gamble based, combining and consumable features. It is possible to obtain items through a change-game in between game sessions. These items can then be combined to form power-ups that are consumed in-game, changing the gameplay (e.g. making Boney run faster, or changing coin types).

Boney the Runner has over 300 thousand downloads, over 11 thousand daily active users (DAU) and over 110 thousand monthly active users (MAU). DAU and MAU are the amount of players that interacted with the game in a given day and month, respectively. The average game session length is 12.5 minutes per session.

Boney the Runner received good reviews: 4.6 / 5.0 in Google Play[3] (over 2.332 users rated 5 / 5) and 4.5 / 5.0 in iTunes[4].

VII. CONCLUSION AND FUTURE WORK

Conceptualization is the initial stage in game design, when the game's main ideas and attributes are decided. It is often an ignored step, being done without a proper process and in a subjective manner. This can result in games that lack market target or, worse, are too similar from other games in the market. This can lead easier to failure. Thus, it is important to provide innovative and user-centered methods that can incorporate industrial information. None of existing game design processes focus on conceptualization, innovation, user-centered design and market at the same time.

This paper proposed a process for conceptualization focused on innovation and market information. This process used the Blue Ocean Strategy and personas technique, and aimed at increasing a game's chances of success. It was applied to two test cases: Fruits Inc., a computer game, and Boney the Runner, a mobile game. They were launched on the market and showed good critics' and users' reviews.

Our approach mainly differs from previous game design processes due to its focus on conceptualization stage. The BOS resulted in an important asset in innovation process, enabling the discovery of new market spaces. On the other hand, the personas helped guarantee that the design focused on the user. Finally, our test case showed good results and demonstrated that our method is limited to one distribution platform, like computers or mobile.

Our process requires the analysis of massive amounts of

Fig. 12. Fruits Inc. screenshots. Main menu and game screen.

[2] http://www.gamezebo.com/games/fruits-inc/review

[3] https://play.google.com/store/apps/details?id =com. mobage. ww. a1088 .Boney_The_Runner_BH_Android&hl=pt_BR).

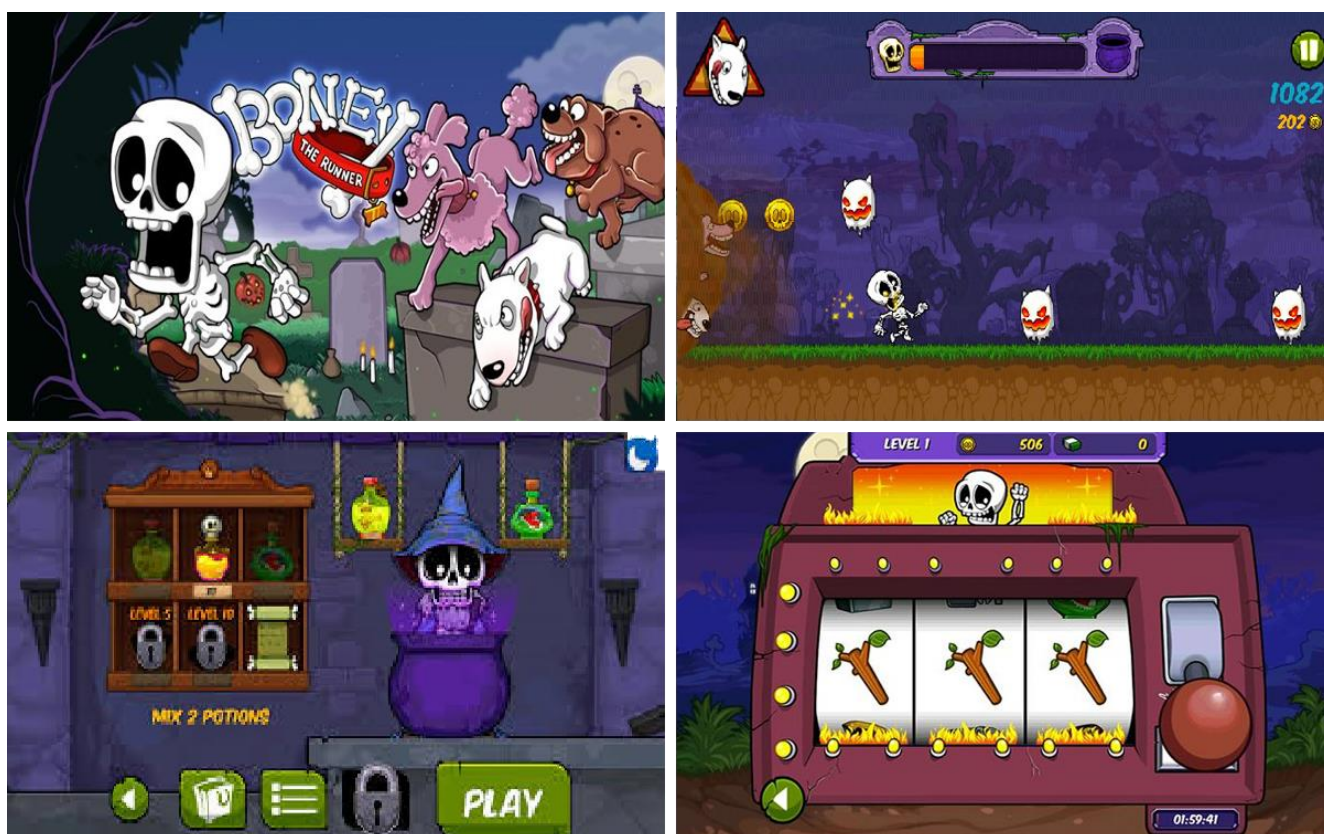[4] https://itunes.apple.com/us/app/boney-the-runner/ id573242168? mt=8&ign-mpt=uo%3D2

Fig. 13. Boney the Runner screenshots. Top left: Main screen. Top right: Gameplay screenshot. Bottom left: Creation of power-ups by combining items. Bottom right: Change-game feature, where a user get itens if three images match.

market information. Thus, it stays as future work the development of guidelines and tools to assist the extraction and analysis of such data.

Also, we believe that the curves' potential for innovation can be further improved through the use of procedural generation. The analysis of these curves is also methodical, because most attributes usually describe characteristics in a way of "having" or "not having". Thus, we are working in develop tools to create and rate these curves in an automated manner.

Finally, it stays as a future work to test our process with other markets and with different teams to assess how its results vary from one situation to another.

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