

Catch The Butterfly: Using Gaminiscing to Design a Serious Game about Immigrants

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Abstract—This short paper explores the utilization of the gaminiscing method in the design of a narrative-driven game, where every game mechanic is derived from the authentic stories of an immigrant. The aim is to provide valuable insights to game designers interested in employing the gaminiscing method for the development of storytelling games that generate empathy. By leveraging the unique and personal narratives of immigrants, this paper offers a perspective on how the gaminiscing approach can enhance the design process and create immersive and engaging gameplay experiences.

Keywords—Gaminiscing, Empathy, Game Design, Storytelling, Meaningful Games, Immigration

I. INTRODUCTION

Catch The Butterfly is a game that shares the real and personal stories of an immigrant who faced many challenges including the loss of job, loss of financial stability and the loss of family and friends. This short paper discusses the design of this game as it highlights the issues of immigrants and the challenges they face through sharing their personal stories.

Immigrants are individuals who make a conscious decision to leave their home country due to various reasons, including seeking better economic opportunities, reuniting with family, or pursuing personal goals like education. Immigrants often have to face multiple losses after leaving their home country including loss of social status and roles. This combined with other stress factors can impact the mental health of immigrants [1].

Games can serve as a gateway to expose players to the stories and struggles of others, including immigrants [2]. The immersive nature and potential of games enables players to assume diverse roles and perspectives, fostering deeper understanding and empathy for a wide range of experiences [3].

The game design method used in the creation of *Catch The Butterfly* – and the game design method discussed in this short paper – is "Gaminiscing," which derives its name from the combination of the words "reminiscing" and "games." Its author defined gaminiscing as "the use of game technology to archive and recreate personal oral history as an engaging experience." [4], [5]. This method was first employed in the creation of *Brukel*, a game that received international recognition and awards. Hence, it was decided to use the gaminiscing method for the design of this game, *Catch The Butterfly*, to capture and share the authentic stories of an immigrant and his challenges.

As the first successful example of utilizing the gaminiscing method, *Brukel* inspired the design of *Catch The Butterfly*. While a heuristic blog post on Gaminiscing exists [6], the description of the gaminiscing design process remains vague. Currently, the process can be characterized as a design research method, in which the interview subject influences the design of the game through their recorded memories. This approach adopts a case study perspective to deepen the comprehension of immigration challenges following the subject's migration to a new country. Drawing upon Tellis's [7] recommendation that single case studies can enhance understanding and prevent misrepresentations, the development of *Catch The Butterfly* aims to establish a more robust and rigorous design method for Gaminiscing.

II. RELATED WORK

Catch The Butterfly builds upon the design process employed for *Brukel*, which serves as an exemplar of gaminiscing. *Brukel* is a gaminiscing game featuring the recorded audio of a World War II survivor – the grandmother of the game's designer. A first-person exploration game, the player explores a 3D recreation of the narrator's home while hearing and experiencing her survival of World War II [6]. This inspiration translates into *Catch The Butterfly*, where players encounter the recorded audio of an immigrant sharing his stories and challenges of immigration as they advance through the game. Additionally, *Catch The Butterfly* incorporates elements from other games in this domain such as *Path Out* and *Bury Me, My Love* which also portrays personal stories, specifically those of Syrian refugees in their respective cases. While not created through a gaminiscing process, *Path Out* and *Bury Me, My Love* are both based on the true stories of Syrian refugees fleeing their country during the Syrian Civil War. Both games are a representation of the challenges refugees had to face at that time. These games encourage compassionate play by minimizing the boundaries between the refugees' worlds and the players' world through sharing personal stories of the Syrian refugees [8]. *Path Out* and *Bury Me, My Love* have influenced *Catch The Butterfly*'s design, providing clear paths on how to create compassionate play through the sharing personal stories of refugees. Ultimately, this game aims to create a human connection between players and the narrator using a gaminiscing process.

III. METHODS

The current gamining guidelines outline three essential steps for designing games using this method. As identified in this heuristic blog post [6]:

1. Iterations: This step of the process refers to the overarching collection of information, consisting of multiple rounds of interviews with the subject. This is to ensure all aspects of the story are captured through steps 2 and 3.
2. Interviews: The guidelines suggest that the subject should be able to tell their story at their own pace and as they see fit. Therefore, an unstructured interview process is appropriate for the first interview. This minimizes the interviewer's influence and allows the subject to freely share their narrative. To gain further insight on specific narrative aspects, follow-up semi-structured interviews may be required with predetermined questions.
3. Organizing the audio: This step includes transcription, assigning keywords, and refining the recorded audio to extract the most compelling and refined version of the story, acknowledging that further interviews may be required.

The process of implementing the gamining guidelines in the development of *Catch The Butterfly* began with an initial interview, utilizing a single case study approach [7], where the subject shared the story of his immigration experience. Expanding from the Charmaz work [9], careful attention was paid to ensure that no misunderstandings arose due to culturally different methods of qualitative research and with checks to clarify shared meaning.

This is important - because gamining is a new method of game design, the subject was part of the design team. This co-design method was implemented so that the subject co-designer could provide feedback, insight, and help shape the process should any alterations be needed. Subsequently, follow-up questions were identified to gain further clarity on the narrative. A second round of interviews was conducted with the subject co-designer. Thematic analysis [10] was then conducted on the gathered data and open coding was used to derive meaningful insights that directly influenced the design decisions and implementation of the game.

IV. RESEARCH RESULTS

The purpose of the thematic analysis was to identify key themes and experiences from the content of the interviews [10] that could be used to design the game's narrative. After conducting the interviews, which had a total duration of approximately 30 minutes, the recorded conversations were transcribed by the research team. These transcriptions were carefully analyzed to identify key themes and insights. The content of the story was analyzed using the open coding method and 12 key themes related to the subject's experiences as an immigrant were identified as a result (see TABLE 1).

TABLE 1. The key themes of the narrative

Theme	Interview Quotations
Leave Everything	"During the civil war in my country, and because of the minority issues over

	there, I had to leave everything, and seeking (sic) a new life, in a new country."
Language Barrier	"One of the difficulties that I faced here was the language limitation and language barrier."
Family And Responsibility	"So I had to sacrifice many things to provide a shelter or house for my family."
Wait And Frustration	"The most frustrating thing was I had to wait 3 years for my transcript to be transferred from my country to US for the evaluation."
Friends	"Most of my friends I knew them from the elementary school. Even kindergarten. We became like a family."
Strength	"I got my motivated (sic) and study like because I start to see myself gaining strength again."
The Girl	"Because she was pushing me up. She was trying to support me."
Light	"So during the connection with that girl, I felt a little bit uh... a light? Positive light?"
Shutdown	"Then covid happened, the pandemic started, country gets closed, test centers was (sic) hung up, everything got freezed."
Going Back	"I started sleeping a lot, eating unhealthy foods. I gained weight."
Flexibility	"So I have to be more stronger (sic), more acceptable, more flexible, flexibility is very important in the life. Flexibility is the key to change from certain (sic) period to another."
Catch The Butterfly	"My therapist advised me to get up again, to collect my strength, and chasing (sic) targets. Either like working out, drawing, playing music, socialized (sic). To be like something aiming to do - like catch a butterfly"

V. GAME DESIGN

A. Overview

Catch The Butterfly is a game that reflects the hardship and resolution of the narrator’s immigration journey as the core experience. It is a 2D virtual experience with simple mechanics designed to maximize the player’s engagement with the narrative. The player character is a loose lotus petal that metaphorically represents the narrator and his separation from his previous life. To demonstrate this separation, the game starts with an animation of a full lotus flower moving down the river. The flower suddenly hits a rock and loses one of its petals. Following Belman and Flanagan’s [2] design principles, this animation is specifically designed to evoke empathy at the beginning of the game.

The goal of the game is to control the lotus petal to guide it back to the lotus flower it detached from. The player is tasked with avoiding rock obstacles as they move automatically downstream (see Fig. 1). While doing this, the player listens to an authentic vocal recollection of the narrator’s immigrant story, which is divided into 12 modules based on the key themes identified in the research results. The player may also collect leaves that are floating along the river, which reward the player with a visual representation of what the narrator is discussing. If the player collides with one of the obstacles, the game enters the dark state (see Fig. 2), in which the vocal recording is paused. To escape the dark state, the players must catch a glowing yellow butterfly that moves randomly along the river. Finally, at a specific point in the narrative, the weather becomes dark and rainy, and at the narrator’s lowest point, the player is forced into the dark state by a lightning bolt.

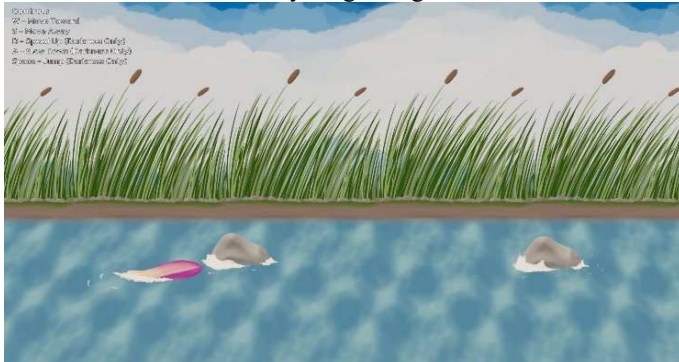


Fig. 1. *Catch The Butterfly*, a 2D side scrolling game.

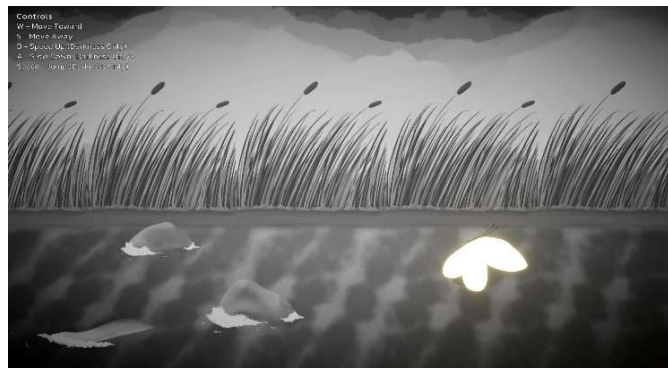


Fig. 2. The dark state of the game after player hits an obstacle.

B. Design Philosophy

The researchers/designers of *Catch The Butterfly* believe that the game will deliver its core experience by upholding three design principles that constitute its core design philosophy.

The first principle is that the player should hear the story directly from its source to accentuate the authenticity of the story. This is obtained from the gaminiscing heuristic blog post [6]. The narration of the game is delivered through a raw recording of the narrator’s interview. No element of the game’s design should compromise or overshadow the narrator’s voiceover. The player should clearly be able to hear and see not only the story’s subject matter, but they should also feel the tone and emotion of that voiceover.

The second principle posits that gameplay mechanics should be derived from details of the narrator’s story. Each mechanic is conceptualized and built to reflect a specific detail in the narrator’s story. The mechanic is introduced alongside the piece of the narrative that generated it to display that connection and better tie the narrative to the gameplay.

The final principle is that the gameplay should reflect the sentiment of the story. The game should be more difficult and evoke frustration or annoyance when the narrator is discussing frustrating and somber elements of his story, and the game should be less difficult and more rewarding when the narrator is discussing happy or uplifting elements of his story.

C. Mechanics

As prescribed by the second design pillar, the mechanics of the game are driven by the story to increase the connection between the storytelling and the gameplay.

The player primarily interacts with the world via movement. The player can move the lotus laterally across the river using the arrow keys or WASD keys. However, the river automatically moves the player forward. This mechanic reflects the narrator’s story, as the game simulates his lived lack-of-control—being forced to move from his home country to another. It is derived from the first key theme of “Leave Everything” identified in the narrative (see TABLE 1). Likewise, the lotus petal moves with the river from left to right regardless of the player’s actions.

The primary motivator for the player to move laterally across the river is to avoid obstacles. Colliding with an obstacle triggers the dark state, signaled by a desaturation of colors and a vignette effect. The narrative pauses during this state so that the player does not miss any of the story. In place of the narrative are repetitive, negative voice lines portrayed as internal player thoughts. The dark state is aimed to portray the frustration and sadness of the narrator when facing difficulties in life, which is derived from the “Wait and Frustration” key theme identified in the narrative (see TABLE 1). For example, the narrator recalls that “[he] looked different,” and “when [he] looked at the mirror [he] saw a different person” when describing his depressive episodes. Furthermore, he mentions “happiness... is from the inside. And [he] wasn’t able to see that in [himself] anymore.” The dark state mechanic was designed as a visual representation of these negative emotions.

The butterfly catching mechanic allows the player to escape the dark state. When in the dark state, the player gains autonomy. They are able to increase and decrease their speed relative to the river and are able to jump out of the water. This is reflective of the narrative's theme that escaping a depressive state is an active endeavor. When the player uses these new abilities to collide with the glowing yellow butterfly that appears in the dark state, they can return to the normal colors of the game and resume the narrative from where they left off. This mechanic was derived from the key theme of "Catch the Butterfly" identified in the narrative (see TABLE 1).

The secondary motivator for the player to traverse the river laterally are collectables. At appropriate points in the narrative, green leaves flow down the river towards the player. If the player collides with these leaves, they are rewarded with an evocative image that captures the current story beat of the spoken narrative. These collectables add interactivity to the game and emphasizes important concepts in the narrative.

The companionship mechanic consists of the player's interactions with other lotus petals. In the beginning of the story, when the narrator talks about his friends and family in his home country, other lotus petals appear alongside the player character, gleefully jumping and gliding on the water's surface. This represents the happiness and comfort the narrator felt in his home country. Later in the story, when the narrator talks about being unable to connect with friends in his new country, single lotus petals appear in the river but quickly dash away from the player as they approach. This represents the isolation and lack of connection to others that the narrator felt in the new country. This mechanic is derived from the "Language Barrier" and "Friends" key themes identified in the narrative (see TABLE 1).

Finally, the lightning mechanic is designed to take agency away from the player and ensure they enter the dark state at least once during gameplay. Unlike the other obstacles, players cannot avoid lightning and they have no control over entering the dark state when the lightning strikes. This is representative of the major events that were completely out of the narrator's control, events that forced him into a depressive state nonetheless, such as the Covid-19 global pandemic. The narrator states, "...then covid happened, the pandemic started, country gets closed, test centers was hung up, everything got freezed (sic). So [he] fell down again." The dramatic lightning effect aims to capture this feeling and instill a feeling of hopelessness in the player. The mechanic is derived from the key theme of "Shutdown" identified in the narrative (see TABLE 1).

VI. DISCUSSION AND FUTURE WORK

This paper shows that gaminiscing is a powerful process that can deeply tie the mechanics of a game to the unique and authentic story of a game's subject. Previously, gaminiscing

had only been used by its author in a single game. *Catch The Butterfly* serves as another example of the gaminiscing method, one that expands gaminiscing's use from familial stories to include the stories of immigrants. The process of creating this game also provides groundwork for gaminiscing as a research-based design method. Utilizing this method, valuable insight was gained about the subject's deep and personal experiences. These stories could only be recorded when treating the subject (and co-designer) with utmost respect throughout the process. It highlights the importance of maintaining an open-minded approach towards the outcomes of the interviews and staying focused on the narrative as a guiding force. By acknowledging these principles, a game was created that truly honors the subject's story and provides an authentic experience for players. This paper serves as an exploration into the efficacy of designing a game using the gaminiscing process. Whether the intended effects of this process are achieved has yet to be established. In future research, a study will be conducted to assess how well the player can engage and empathize with the subject's story, and it will measure how each gameplay element influences the player's perspective on the story being told.

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