User-Design: An Enabling Method of Video Game Making

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Introduction

The use of games in education has evolved from a teaching strategy to a more advanced instructional system that enables users to create their actual designs of gaming software in recent years. Rogers (2003) asserts that the former phenomenon has helped early innovators with prototyping media artifacts, such as games, empowering the end user to engage in what Banathy (1991) calls the process of user design. This systemic model enables the end-user to design their innovations.

Differently from more traditional models of education and training, where artifacts were developed solely by experts (Carr-Chellman & Savoy, 2003), this study attempts to contribute to the body of knowledge of communication education by enabling the end-user to serve as the designer of his educational intervention, a post-modern idea rarely adopted by designers of academic training using technology. This paper aims to study the impact of the phenomenon of user design (Banathy, 1991) through the production of a video game artifact in a medium-sized university in the northeast, involving participants chosen through a sample of convenience for the development of progressive teaching methodologies to advance diffusion of innovations (Rogers, 2003).

Brief Literature Review

User-Design

Carr-Chellman and Savoy (2003) define user design as "the engagement of end users in creating new artifacts" (2003, p. 100). This "engagement" empowers participants to make decisions and adopt these innovations faster than previous attempts. When user design combines with video game-making activities, it can result in activities becoming challenging yet fun and empowering (Almeida, 2008).

Delgado-Gaitain and Trueba (2022) also indicate that video games can be used as an avenue for teaching content in community settings, are empowering, can be used as instruments of education reform, and are tools of empowerment and design. Adoption of innovation increases as empowerment with technology increases. The former statement is supported by Li (2010) when she stated that when technology is used purposefully in an educational endeavor, it can be empowering and consequently assist the end-user with implementing the used technology. Carr-Chellman (2006) prefers to use the term "stakeholder involvement" when operationalizing empowerment, contributing to the vast body of participatory design research conducted by Carroll and Rosson (2007). I wanted to investigate user design (Banathy, 1991) in the context of game-making to capture students' lived experiences when designing their games and further explore this design model's impact in creating modern media innovation.

Educating Through Game Design

Using games as a learning tool is widespread (Ashinofff, 2014; Gee, 2003; Gee 2005; Presnky, 2005). Historically, however, video games in the classroom have been used as an innovation to offer pupils rewards and motivation (Sailer et al., 2017), or as a tool for practicing for standardized tests (Cheung & Ng, 2021). Paras and Bizzocchi (2005) stated that video games were once used as a rewarding mechanism or as a tool to assist students with performing better on exams. Squire (2003) concurs with scholars that traditionally, video games, when used for educational purposes, are nothing more than drill and practice exercises to reinform classroom-taught concepts. However, gamification is less widespread than designing video games by the user. There are only a few scholars who are proponents of using games as empowering mechanisms, enabling the end-user to serve as the designer of their interventions (Kafai, Franke, Ching & Shih, 1998; Almeida, 2008; Phelps & Consalvo, 2020).

According to Kafai (2006), enabling subjects to design their games helps them to retain knowledge. Overmars (2004) extends Kafai's argument by proposing that when pupils create games to learn computer programming, they reinforce their interest in computer science. Almeida (2008) argued that enabling students to be game designers helped them understand the design process better, even though it was pretty challenging. Squire (2007) called for more learning environments as designing experiences, as he foresaw the tremendous opportunity that video games could have in society and education. Research on user design relating to video game making has also been minimal. It seems reasonable and relevant, in an attempt to further investigate the potential impacts of user design in education through game development, that a research study investigating the lived experiences of students creating a video game through user design in a public university be conducted.

Research Design

This phenomenological study incorporated qualitative research methodology to investigate further, in-depth, the lived experiences of 5 undergraduate students majoring in Communications Media in a medium-sized public university. The participants were asked to create a platform-style game and were given complete power to make their own game's final design decisions. I engaged in triangulation (Lincoln & Denzin, 2008) by observing their design processes and interviewing participants. I conducted the interviews using Patton (1990) recommendations. Each interview lasted about 45 minutes. I conducted three interviews per participant, observed the participant's design processes, and created an observation protocol with the guidance Bogdan and Binklen (1992) provided to triangulate the data. In this research study, I used a convenience sample to collect data. I attempted to answer the following research question, "What's it like to have the authority to create your own video game? During the data analysis process, I followed the steps suggested by Patton (1992), and I also adhered to the pragmatic steps Graneheim and Lundman (2003) proposed to move from a condensed unit to a theme. I also took the following steps to obtain trustworthiness:

1. I identified my bias and why I intended to conduct the research study.

2. I engaged in phenomenological reduction to define the boundaries and presumptions of this research study.
3. I carried out horizontalization, treating all the data equally, and through constant comparison and narrative analysis, I completed this study's data analysis.
4. I synthesized all the data by analyzing the participants' experiences, the actual descriptions in the text, and the observations that I carried out.

Results

After collecting and analyzing the data using the guidance provided by Graneheim and Lundman (2003), three themes transcended from the collection of interviews and observations I did. These themes were: User Design is empowering and enables creativity, user design can be challenging and a tool of design, and user design is a rewarding learning experience.

User design is empowering and enables creativity

This study concurs with the theoretical spins proposed by Banathy (1991) and later advanced by Carr (1997) and Almeida (2008). It was clear from my observations and the participants' responses that the user design process can be a tool of creativity that empowers users to make their own decisions, enabling them to produce their artifacts. When developing their own platform game in the lab, students shared the following thoughts after a series of interviews when asked if they felt empowered to design their game systems.

"Yes, I feel like I am finally doing the work I had always wanted. Now, it is my turn to create the things I've always dreamed of making" (Participant #1).

"Yes. The feeling of being in complete control while making a video game is like none other. It is empowering being able to make a video game and designing each level how I feel about it. it was also a good way to get in touch with my creative side, which is something I can't do in my other classes (Participant #4).

Like the reflections of Participants One and Four, Participants Two and Three shared similar sentiments yet revealed that their experiences were appealing and brought a sense of achievement and fulfillment.

"Definitely. The ability to create and "do with as I desire" is unimaginably appealing to me. To play the role of a virtual god of the virtual world gives me a huge sense of achievement." (Participant #2)

"Very, This is exactly the type of experience I was looking for. I would not have been as fulfilled if I had to work for somebody else" (Participant #3).

Participants might have felt good about designing their games, feeling creative and empowered because they had the chance to make final decisions. Perhaps they saw their projects as "theirs," and the former might have been a moral decision for them to make, as Banathy (1991) and Carr-Chellmand and Savoy (2003) have theorized, which might be why they were so excited to participate in the study. When less oppressive teaching methods (Freire, 1968) are

used, students feel empowered and decide on designing innovations (Rogers, 2003) that can be completed with much creativity.

User design can be challenging and a tool of design

Norman (2013) stated that design is a taxing, challenging endeavor. Therefore, it should not be surprising that designing a video game with little supervision is very difficult. This finding concurs with the results of my doctoral dissertation. Unlike the assumptions presented by Prensky (2001), digital natives struggled with the actual game design tools. This is an exciting finding because a subset of the population and some scholars have claimed that the youth is highly tech-savvy. (Embry & Embry, 2019). According to this study's findings, the new generation is sometimes less tech-savvy than it was once thought. The participants, however, indicated that user design is a suitable tool for designing games. Some participants encountered difficulties because of the need for more usability of the program itself, which needed to include some of the basic and advanced functionalities expected by the participant, including software components of design.

> *"It (user-design) was hard to do because platform studio lacked a lot of the components to make a challenging game. I disliked the lack of depth platform studios offered. I found it hard to make engaging levels for the game (Participant #4).*

> *"It was very difficult getting started without very many tutorials available, only a few on youtube" (Participant #2).*

Participant Three revealed that he liked the experience and the opportunity to design. He appeared to be a competent digital native, according to Prensky (2001), and was excited about participating in the research study.

> *"To be honest, there is nothing really that I don't like about the experience. The user interface might be a bit clunky at times, but I learn fast, and it becomes a non-issue" (Participant #3).*

It seems plausible, based on the responses provided by the participants, that. Designing and developing platform games through user design is challenging. Still, when students are empowered to design instead of being receptors of knowledge (Freire, 1968), the tools assist them with being better user-designers and self-learners despite the difficulties of the toll itself.

User design is a rewarding learning experience

There was a consensus among all this study's participants that user design is a rewarding learning experience. Kurt (2021) stated that constructivist learning theory, which this study is founded upon, enables participants to learn in a contextual and personal manner. It is unsurprising that Participant One stated that his experience creating his own game was

rewarding, even though he also indicated that a degree of trial and error could be problematic and perhaps not relevant in some cases.
"Trial and error is a double-edged sword. While it is rewarding to have something start working after attempting creating..." (Participant #1)

Participant Three concurred with Participant One and revealed the dated nature of how college courses are taught, which has been hypothesized previously in the field (Reigeluth, 2011), indicating that our current educational system is more in sync with the industrial age model than the informational one when he noted that he could incorporate his ideas and own game creation decisions in the design of his artifact. Game playing was also shown to be a sound output of user design.

"*It was one of the most rewarding experiences this year. I enjoyed making the games and looked forward to working on it every day, unlike most of my classes. It was cool to incorporate my personality and ideas into a game to see how they played" (Participant #3).*

In the early 90's, Mclauren (1992) stated that schools inhibit creativity. Robinson (2006) made the same remark a decade later during his "Do Schools Kill Creativity?" speech on TED.com. A more recent article by Shulnan (2020) indicates that schools close the doors to creativity, advancing the ideas proposed by these former scholars. This study's participants found user design rewarding because it allowed them to be creative and exercise their creative tendencies (Michalko, 2006). The enabling nature of user design is fundamentally empowering (Banathy, 1991; Carr-Chellman & Savoy, 2003) because it provides an alternative to the colonial model of instructing pupils in the classroom, where the teacher, not the student, has the final say on the intervention. Participant One indicated that he grew daily when designing his own game and that he went through a learning experience creating games even with little experience in design.

"I would describe it as a learning experience. I had little or no experience creating games. As I worked independently and as a team, I solved problems and my skills continue to grow every day" (Participant #1).

User design is a rewarding experience based on the responses and the observations that I did. User design enables students to engage in introspection and self-regulate their learning while engaging with the art of designing.

Conclusion

User design proved to be an enabling method for producing video games, empowering the users to be creative while making their own decisions despite the expert-based formalized process of design often used in game-making (Marklund et al., 2019). Participants felt rewarded in this research study, and the game-making experience was challenging for the group. This study concurred with the theoretical spins and research results of former studies investigating user design as a phenomenon and model (Banathy, 1991; Carr-Chellman, 2006; Almeida, 2008),

especially Almeida's (2008) findings that user design is a fun experience. More research on user design seems urgent, primarily because no study has been conducted with female designers or minorities pursuing careers in media in historically black colleges and universities. Although this study provided important insights about game making and important intricacies relating to user design, there are several reasons to believe its results could be inconclusive. First, the study only had five participants. If I had invited more participants or if other participants were not interested in media making, the results of this study could have been the same. Also, all participants were caucasian males. A group of five Hispanic females could have also resulted in different findings.

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