



Who are We?: A 2D Animated Short Film on Maintaining Personal Characteristics in an Immersive Virtual World

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DOI : <https://doi.org/10.5281/zenodo.23358693>

ABSTRACT :

This study focuses on the relationship between personal characteristics and virtual self-expression in immersive virtual environments. It aims to explore how individuals may maintain or experience changes in their personal characteristics while interacting through avatars and virtual spaces. The study will present these concepts through a 2D animated short film that uses visual storytelling to portray the characters' experiences, interactions, and changes in self-expression. The animation will utilize character movement, facial expressions, composition, camera shots, environments, and transitions to communicate the narrative and illustrate the tension between personal identity and virtual representation. Through the development of the animated film, the study seeks to provide a creative representation of how virtual environments may influence the way individuals express and perceive themselves while maintaining aspects of their personal characteristics.

Keywords: personal characteristics, virtual self-expression, virtual identity, avatars, immersive virtual environment, visual storytelling, 2D animation

SECTION I — INTRODUCTION (THE PROBLEM AND ITS SETTING)

Introduction

According to Hube et al. (2024) situational context may influence users' choices of avatar characteristics, showing that avatar representation is not independent from the environment in which it is used. The increased use of avatars on online games and to emerging metaverse applications in which users can immerse and customize their representation or their virtual avatars. Lan and van Berlo (2023) examined how avatar identification and embodiment relate to social participation, Dupraz et al. (2024) researched whether avatar embodiment shapes Proteus effect, highlighting the relationship between virtual representation, personal identity and behavior is complex. While users may express aspects of their existing characteristics through avatar, avatar characteristics and virtual experiences may also influence perceptions, attitudes, self-expression and behavior. However, these influences do not necessarily replace or alter a person's existing identity.

This raises a concern regarding users who use avatars to represent an idealized version of themselves. While virtual environments may provide opportunities for self-expression and exploration of their desired characteristics, longer immersion may also influence how a person perceives and behaves beyond the virtual environment. Hein et al. (2024) found that avatars may influence the users' attitudes, emotions, perceptions and behaviors with differences observed in the extent to which gamers experience these effects. This suggests that the characteristics represented by an avatar may influence the user without necessarily replacing their existing identity.

Background of the Study

Zimmermann, Wehler and Kaspar (2023) found that avatars can represent both users actual and ideal selves, showing that virtual representations may contain characteristics of how individuals perceive themselves. Ratan et al. (2022) further examined avatars representing users actual, ideal and future selves, showing that avatar customization can be used to express different versions of user identity.

Virtual environments provide opportunities for individuals to explore and modify how they present themselves. Szolin et al. (2023) explained that users may project aspects of their identity onto their avatars while also being influenced by their virtual representations. This influence is associated with Proteus Effect, where the characteristics of an avatar can affect a user's attitude and behavior. Beyea et al. (2022) further discussed that Proteus Effect can be stronger in immersive virtual-reality environments, highlighting how immersion may influence users beyond simply representing themselves.

Zhang and Juvrud (2024) also found that virtual environments allow users to experiment with identity and self-expression through their avatars. With these findings, it shows that while virtual worlds allow the users to explore an idealized version of themselves, their virtual experiences may influence real-life behavior, perceptions and the expression of personal characteristics.

1.3 Objectives of the Study General Objectives

The general objective of the study is to produce a 2D animated short film that illustrates the importance of maintaining personal characteristics, relationships and responsibilities while participating in an immersive virtual world.

Specific Objectives:

- To produce a 2D animated short film showing the experience of a student dealing with academic pressure and difficulty expressing personal struggles.
- To portray the contrast between the protagonist's real-life characteristics and the characteristics expressed through his virtual avatar.
- To portray a meaningful interaction between the protagonist and another player that will encourage him to reflect on his relationship with his virtual identity and real-world self.
- To illustrate how increasing immersion in a virtual environment may affect protagonist's academic responsibilities, social relationships, and everyday behavior.
- To produce a 2D animated film that communicates the intended message to the audience.
- To assess and gather feedback on the narrative, character design, visual aesthetics, background, camera composition, animation smoothness, transition effects, sound design, performance delivery and overall entertainment value.

1.4 Scope and Limitation of the Study

This project focuses on developing a 2D animated film using 2D animation techniques such as frame-by-frame animation, tweening and compositing. The production of animated film also involves 3D modeling as an aid to create the background layouts. The topic that will be tackled in the film focuses on depicting a story that illustrates the importance of maintaining personal characteristics while immersed in a virtual world.

The visual style of the animated film and concept art will be stylized and simplified to support efficient production while allowing the characters and environments to remain visually expressive. The virtual and real-world environments will be designed to visually distinguish the protagonist's experiences in both places. The animated film will not cover the development of actual virtual reality systems, online games or the diagnosis of gaming-related disorders. And thus, the interpretation presented will be based on related studies reviewed by the researchers and the context within the story. To add, the usage of 3D software in the production of the animated film is limited to creating references for the background layouts. Softwares that will be used in the production of the animated film are limited to their free counterparts running on hardwares that are readily available to the animators.

1.5 Significance of the Study

This project aims to create an engaging 2D animated short film that illustrates the importance of maintaining personal characteristics while immersed in a virtual world.

- **Researchers** - This project requires the application of skills in animation production, allowing the researchers to develop their abilities in critical thinking, time and project management, storytelling, character design, storyboarding, animation, sound design and post-production. This also provides the researchers with experience in translating a research topic into a visual narrative.
- **Future Animators** - This animation may serve as a reference for aspiring animators who wish to develop short films that communicate social and personal concepts through visual storytelling. It shows how character development, virtual and real-world environments, and animation techniques can be integrated to communicate a central theme within a limited production scope.
- **Students** - The animation may help students to relate to situations involving academic pressure, personal struggles and the use of virtual environments as an escape. Presenting these experiences through an animated story may provide an accessible way for viewers to reflect on the importance of maintaining their real-life responsibilities and relationships while engaging in virtual environments.
- **Online Game Users** - This project may provide online game users with narrative representation of the relationship between virtual characteristics and real-life characteristics. Through the protagonist's experiences the animation can encourage viewers to reflect on how virtual activities may influence their time, relationships, responsibilities and self-expression.
- **Society** - Animation provides an engaging visual medium for presenting concepts involving virtual environments and personal identity. Rather than presenting these concepts solely through written discussion, animation allows viewers to observe differences between a character's real-life and virtual experiences. The use of visual storytelling, expressive characters, contrasting environments and narrative situations can make the topic more accessible and encourage viewers to reflect on the role of virtual environments in their everyday lives.

1.6 Definition of Terms

1. **Animation** – Adobe (2026) describes animation as the process of creating the illusion of movement through a sequence. In this study, animation refers to the 2D animation used to present the characters, environments, movements and events of the proposed film.
2. **Avatar** – Cambridge Dictionary (n.d.) defines avatar as a character or creature created to represent a person in a game or on the internet. In this study, the avatar refers to the digital representation of a character which aspects of identity and personal characteristics are represented within the virtual world.
3. **Behavior** – The American Psychological Association (n.d.) defines behavior in relation to the observable activities or responses of an individual. In this study, it refers to the actions, reactions and mannerisms demonstrated by the characters with those associated with their interaction with their avatars and virtual environment.
4. **Character Design** - Character design refers to the process of developing the visual appearance and distinguishing features of a character for use in visual media. In this study, character design refers to the creation of the characters' physical appearance, clothing, colors, facial expressions, and other visual features that communicate their personal characteristics.
5. **Identity** - The American Psychological Association (n.d.) defines identity as individual's sense of self and their characteristics which a person understands and distinguishes themselves. In this study, identity refers to the characters' understanding and representation of who they are in their relation to their personal characteristics and virtual representation.
6. **Immersive Virtual World** - Cambridge Dictionary (n.d.) defines immersive as something that surrounds a person or audience in a way that makes them feel completely involved. In this study, immersive virtual world refers to the fictional digital environment in which the characters become involved and experience situations that challenge or influence their personal characteristics.
7. **Personal Characteristics** – Personal characteristics refer to the qualities, traits or attributes that distinguish one individual from another. In this study, personal characteristics refer to the traits, qualities, attitudes and behavioral attributes that define each character and are examined in relation to their experiences in virtual world.
8. **Proteus Effect** – Beyea et al. (2022) describe Proteus Effect as tendency for individuals to conform to the characteristics associated with their avatars. In this study, the Proteus Effect refers to the portrayed influence of an avatar's characteristics on a character's behavior, attitudes, or self-perception within the virtual environment.
9. **Self-Expression** – The American Psychological Association (n.d.) defines self-expression as the expression of one's feelings, thoughts, abilities, attitudes, or impulses. In this study, self-expression refers to the ways characters communicate their personality, emotions, thoughts, and personal characteristics through their appearance, dialogue, actions, and avatars.
10. **Self-Presentation** – The American Psychological Association (n.d.) defines self-presentation as behavior intended to convey information or a particular image of oneself to others. In this study, self-presentation refers to how the characters display aspects of their identity and personality through their avatars, appearance, behavior, and interactions within the virtual world.
11. **Storyboard** – Cambridge Dictionary (n.d.) defines a storyboard as a series of drawings used to show the planned order of events in a movie or other visual production. In this study, a storyboard refers to the sequence of visual panels used to plan the scenes, camera shots, character actions, compositions, and progression of the animated short film.
12. **User-Avatar Relationship** – This term is a specialized concept, so a scholarly source is more appropriate than a general dictionary. Szolin et al. (2022) discuss the relationship between users and their avatars in relation to identification and the effects of avatar characteristics. In this study, the user-avatar relationship refers to the connection between a character and their virtual representation, particularly how the avatar represents or influences the character's identity, behavior, and personal characteristics.
13. **Virtual Experience** – A virtual experience refers to an experience that occurs within a digitally created or simulated environment. In this study, virtual experience refers to the activities, interactions, events, and situations encountered by the characters while participating in the virtual world depicted in the animated film.
14. **Virtual Immersion** – Cambridge Dictionary (n.d.) defines *immersive* experiences as those that make a person feel completely involved in something. In this study, virtual immersion refers to the degree to which the characters become involved or absorbed in the virtual environment as portrayed throughout the animated narrative.
15. **Virtual Self-Expression** – Virtual self-expression refers to the expression or representation of aspects of oneself through digital technologies or virtual environments. In this study, virtual
16. **Self-expression** - refers to the ways characters represent their personality, identity, emotions, and personal characteristics through their avatars and interactions within the virtual world.
17. **Visual Storytelling** – Visual storytelling refers to the communication of a narrative or idea through visual elements. In this study, visual storytelling refers to the use of character movement, facial expressions, composition, camera shots, environments, transitions, and other visual elements to communicate the story and portray the characters' experiences and personal characteristics.

SECTION II — LITERATURE REVIEW

2.1 Introduction to the Review

This chapter presents related literature and studies the researchers have gathered through various sources to aid readers in grasping the overall flow of the study. It discusses concepts related to personal characteristics, avatars, virtual immersion and the relationship and contrast between virtual experiences and real-life behavior. This tackles as well animation, storytelling and production as the primary medium for presenting these concepts.

2.2 Review of Related Literature and Studies

Personal characteristics influence how individuals understand and present themselves in different environments. These characteristics can be expressed in virtual worlds through avatars, which may represent aspects of a user's actual characteristics while also allowing them to explore idealized forms of self-presentation (Tantasawat, 2022). Zimmermann et al. (2023) also discussed that avatars may keep similarities to users' actual and ideal selves, Zhang and Juvrud (2024) showed that virtual environments can provide opportunities to experiment with identity, behavior and communication.

The connection between users and avatars can also influence behavior through the Proteus Effect. Szolin et al. (2023) explains that avatar characteristics, embodiment and immersion affect users' attitudes and behavior. Dupraz et al. (2024) further discussed the relationship between avatar embodiment and the Proteus Effect which suggests that virtual immersion does not necessarily remove a person's real-life characteristics.

Review of Related Literature and Studies

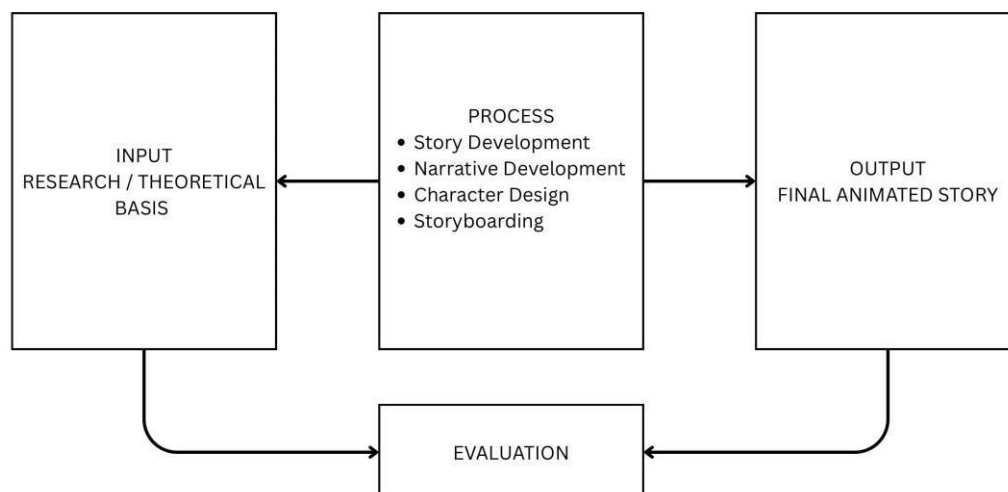
Beyea et al. (2022) likewise found that the effect can be stronger in immersive virtual environments. As it may create opportunities for users to express, explore and potentially be influenced by their virtual representations. Users may bring existing characteristics into virtual environments, characteristics associated with their avatars may also influence their attitudes, perceptions and behavior.

Hushain et al. (2023) describes animation as a dynamic medium that communicates ideas and experiences through sequential images, movement and character representation. It is suitable for portraying experiences that may be difficult to convey through text along with its ability to visually present characters, actions, and emotions that viewers can easily resonate with. Storytelling provides the structure through which characters, conflicts, events and ideas are communicated. Bhatt et al. (2025) highlights the connection between storytelling, character design, movement, facial expressions, sound and audience engagement. Adobe (n.d.) also explains that storyboards help organize major events, character actions, dialogue and scene progression before full animation.

For the proposed project, films and animated works like *"Ready Player One"* (2018) and *"Recovery of an MMO Junkie"* (2017) will serve as a reference for the narrative style. In contrast, *"Steven Universe"* (2013) and *"Gravity Falls"* (2012) will be reviewed to serve as a visual style reference for the project.

Conceptual Framework

The procedure shown simplifies the process and reduces errors by focusing on critical checkpoints.



The theoretical concepts provide the foundation for the story concept and guide the production process of the 2D animated short film. Research analysis informs the narrative development that will establish the story, conflict and themes. Followed by character design and storyboarding, which will translate the narrative into visual elements (Toon Boom Animation, n.d.). (Kapi'olani Community College, New Media Arts, n.d.) states that the overall production follows the stages of time-based media development which consists of pre-production, production and post-production. The completed animated film will go through an evaluation before producing the final output.

Synthesis

The reviewed studies show that avatars can serve as extensions of personal identity, allowing users to express existing characteristics while exploring idealized or alternative versions of themselves (Zimmermann et al., 2023; Ratan et al., 2022).

However, the connection between users and their avatars can be two-way, as avatar characteristics and embodiment may influence users' attitudes, perception and behavior through a phenomenon called Proteus Effect (Szolín et al., 2023; Dupraz et al., 2024).

Immersion in a virtual environment may create tension between a person's virtual avatar characteristics and their real-life characteristics. The reviewed literature suggests that personal characteristics, identity, avatar representation, virtual self-expression and behavior are related but distinct concepts. A person may express aspects of their existing identity and personal characteristics through avatars, while avatar characteristics and virtual experiences may also influence perceptions, attitudes, self-expression and behavior. This relationship is not necessarily one-directional, and virtual immersion does not automatically replace an individual's existing identity. Instead, the interaction between real-world characteristics and virtual self-expression may create tension that can be explored through the proposed animated film. With Hushain et al. (2023) findings, animation gives an appropriate medium for visually portraying the problem, idea and message that the project wants to communicate.

SECTION III — RESEARCH DESIGN

This project will use a qualitative research design with a production-oriented approach to explain the relationship and contrast between personal characteristics and real-life behavior in an immersive virtual world. The qualitative element will discuss the relevant academic literature, studies and existing animated works in order to identify the concepts and findings that will inform the proposed 2D animated film. (Skains, 2024; Phoenix & Chamberlain, 2025) further discusses that research design and methodology can be adapted to the nature of creative and practice-based projects, specifically when the research involves the production of an artistic output, in this proposed case an animated film.

The production-oriented approach is therefore appropriate because the study aims not only to examine the relationship between virtual representation and personal characteristics but also to translate the findings into a tangible creative audiovisual output. Hamilton & Hansen (2024) explains that artistic processes can generate practical information that may not be captured easily through conventional research approaches alone.

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