

DISCOVERING GENDER IDENTITY IN THE DIGITAL AGE: USING VIRTUAL  
REALITY AS A GENDER AFFIRMING THERAPEUTIC TOOL FOR  
TRANSGENDER AND GENDER NON-CONFORMING YOUNG ADULTS

by

Stephanie Kane  
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Submitted to the  
Graduate Faculty  
of  
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of  
Master of Arts  
Computer Game Design

Committee:

\_\_\_\_\_ Director

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ Director, Computer Game  
Design

\_\_\_\_\_ Dean, College of Visual and  
Performing Arts

Date: \_\_\_\_\_ Spring Semester 2021  
George Mason University  
Fairfax, VA

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Affirming Therapeutic tool for Transgender and Gender Non-Conforming Young Adults

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of  
Arts at George Mason University

by

Stephanie Kane  
Bachelor of Arts  
George Mason University, 2008

Thesis Director: Scott Martin, Associate Professor  
Affiliation

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Fairfax, VA

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## TABLE OF CONTENTS

	Page
List of Figures .....	ix
Abstract .....	xii
Social Constructs, Evolution of Definition and the History of the Concept of Gender and transgenerism .....	1
The Gender Question in Western Europe .....	3
Urbanization, Feminism and Diversity in the United States .....	6
Misogynistic Roots, Transphobic branches .....	8
Diagnostic Statistical Manual.....	10
Digital vs. Material: Issues Transgender People Face in the Material World .....	11
Workplace Discrimination .....	11
Housing Discrimination .....	11
Medical Discrimination.....	12
Politicizing Healthcare .....	13
Racial Disparity for LGBT Population .....	16
Current Therapies and Their issues.....	17
Conversion Therapy .....	17
Watchful Waiting and Gender Non-Conforming Children .....	21
Gender Affirming Therapy .....	22
Compassion Focused Therapy and The Minority Stress Model.....	23
Pop Culture, Digital Gender Exploration, and The Digital Self.....	25
Why Virtual Reality? .....	26
Issues with Virtual Reality Therapy .....	30
Discovering Identity through the Digital Age .....	34
GRAVIT-e: A Therapeutic Tool.....	35
.....	35
Avatar Creation.....	36
Gameplay.....	37
Affirmative Mode .....	40
Realistic Mode .....	40

Possible Outcomes .....	40
Appendix A- Game Design Document .....	42
Design History .....	43
Version 1.20 .....	43
Version 1.10 .....	43
Game Overview .....	44
Key Points .....	44
General Features.....	44
Customizable Avatar.....	44
Customizable Experience.....	44
Replayability .....	44
Game Design Goals.....	45
Creating a sense of presence.....	45
Almost limitless customization options.....	45
Adjustable Level of Affirmation .....	45
Common Questions .....	45
What is the game?.....	45
Why create this game?.....	46
Where does the game take place?.....	46
What do I control? .....	47
What is the main focus?.....	48
What’s different? .....	49
Section II- Gameplay and Mechanics .....	50
Gameplay .....	50
Play Flow.....	51
Mechanics.....	51
Movement.....	51
Rendering System .....	52
Overview .....	52
Ray Traced Shadows .....	52
Ray Traced Reflections .....	52
Camera .....	53

Overview .....	53
Game Engine .....	53
Overview .....	53
Lighting Models .....	53
Overview .....	53
Lightmass Global Illumination .....	54
Screen Based Global Illumination .....	54
Section III- Story, Setting and Character .....	55
Story and Narrative .....	55
The Game World .....	55
Overview .....	55
Customizable world and experience .....	56
Realistic Sense of Presence in the World .....	57
The Physical World .....	57
Overview .....	57
Key Locations .....	57
Travel .....	59
Scale .....	60
Objects .....	60
Time .....	60
The World Layout .....	61
Overview .....	61
Player Bedroom with attached bathroom .....	61
Computer .....	61
Closet .....	61
Bed .....	61
Door .....	62
Bathroom .....	62
Bathroom .....	62
Sink/Mirror .....	62
Shower .....	62
Bedroom .....	62

Clothing Store.....	62
Fitting Room.....	62
Cashier Counter .....	63
Exit.....	63
Restaurant .....	63
Hostess Stand.....	63
Table .....	63
Women’s Bathroom.....	64
Stall .....	64
Mirror/Sink .....	64
Men’s Bathroom .....	64
Stall .....	64
Mirror/Sink .....	64
Gender Neutral/Family Bathroom.....	65
Doctor’s Office .....	65
Check in Desk.....	65
Waiting Room.....	66
Doctor’s Examination Room .....	66
Job Interview .....	67
Game Characters .....	67
Overview .....	67
Creating a Character .....	68
NPCs.....	71
Notable NPC’s.....	72
Dr. Corwen.....	72
Mr. Richard Chambers.....	72
Madison, Waitress.....	73
Kristen, Cashier.....	74
Your Friends .....	74
Section IV- Interface.....	75
Overview .....	75
Conversation.....	75



Interactable Object Glow .....	76
Cell Phone.....	76
Appendix B- List of Terms and their Meanings .....	78
References.....	80

## LIST OF FIGURES

Figure	Page
Figure 1: The “Genderbread Person”- A chart to explain the intricacies of gender, sex, and orientation .....	2
Figure 2: Table of Municipal Laws Prohibiting Cross-Dressing, retrieved from Transgender History, Stryker.....	7
Figure 3- Map of States and their Transgender Private Insurance Laws- retrieved from Movement Advancement Project.....	14
Figure 4- Map of States and their Transgender Medicaid Insurance Laws- retrieved from Movement Advancement Project.....	15
Figure 5: Data of harm caused by ex-gay experiences. Retrieved from BeyondExGay.com .....	19
Figure 6: Percentage of U.S LGBT Youth who attempted suicide after experience with conversion therapy (retrieved from The Trevor Project).....	20
Figure 7: Photo of two users experimenting with gender swap VR Program, Girl Mirror Look. Retrieved from Polygon .....	28
Figure 8- GRAVIT-e Logo .....	35
Figure 9- Examples of chest surgery scars available in Dax3D Transgender shapes created by Disparate Dreamer.....	37
Figure 10- Concept Art, GRAVIT-e Public Bathroom Setting .....	39
Figure 11- Example of Possible Character creation with Daz3D Transgender Shapes for Genesis 8.....	48
Figure 12- Public Restroom within Restaurant Level, Artist- Jennifer Clark .....	56
Figure 13- Concept Art of Bedroom Level, Artist- Jennifer Clark.....	59
Figure 14- Concept Art of the Doctor's Examination Room, Artist- Jennifer Clark .....	66
Figure 15- Example of Slider Scales to Create Player Character- retrieved from Daz3D Transgender Shapes for Genesis 8.....	67
Figure 16- Example of Possible Character Creation Option .....	68
Figure 17- Example of Character Creation Option.....	70
Figure 18- Example of Possible Character Creation Option .....	71
Figure 19- Example of Design for Mr. Chambers, retrieved via Daz3D examples of Characters .....	72
Figure 20- Example of Design for Kristin- in both Negative and Affirmative Mode .....	74
Figure 21- Mock- Up of GRAVIT-e Dialogue System .....	75
Figure 22- Mock- Up of UI Design with Interactable Objects .....	76
Figure 23- Mock Up of Cell Phone Options Screen .....	77



## ABSTRACT

DISCOVERING GENDER IDENTITY IN THE DIGITAL AGE: USING VIRTUAL REALITY AS A GENDER AFFIRMING THERAPEUTIC TOOL FOR TRANSGENDER AND GENDER NON-CONFORMING YOUNG ADULTS

Stephanie Kane M.A.

George Mason University, 2021

Thesis Director: Dr. Scott Martin

When playing games and surfing the internet, anyone can take on any identity they choose. The concept of the internet and custom avatars being used by transgender people has been a concept since the early 1990's with Caitlin Sullivan and Kate Bornstein's novel *Nearly Roadkill*. The evolution of identity and gender exploration using technology only seems natural when considering these roots. Virtual Reality offers the extended benefit of presence. By using the brain's concept of body ownership in the virtual world afforded by this technology, with special attention paid to new methods of gender affirming therapy, we can continue to give transgender and gender non-conforming individuals a chance to explore their new gender and identity in a safe, non-judgmental, guided way, and helping questioning individuals to discover their desired identity through using a more kinesthetic methodology.

## **SOCIAL CONSTRUCTS, EVOLUTION OF DEFINITION AND THE HISTORY OF THE CONCEPT OF GENDER AND TRANSGENDERISM**

In the year of 2021, when a person is pregnant, one of the first questions asked is “Is it a boy or girl?”. In the United States, sex, or more accurately phrased, gender, is one of the first things established before we are even born, and yet, gender is not even something inherit within ourselves. “We are not born with gender. We learn how to become gendered within complex social interactions that dictate how we acceptably behave as female or male.”<sup>1</sup>

While a person is born with sexual characteristics, genitals, and chromosomes that dictate how a person will grow and develop into an adult, none of these are actually a person’s gender. No biological “cause” of gender identity has been proven, and instead some prefer to think of gender identity as a complex learned behavior.

“[A]lthough they understand us humans to have a biological capacity to use language, they point out we are not born with a hard-wired language ‘preinstalled’ in our brains. Likewise, whereas we have a biological capacity to identify with and to learn to ‘speak’ from a particular position in a cultural gender system, we don’t come into the world with a predetermined gender identity.”<sup>2</sup>

Instead, gender is what our society dictates in what is considered masculine and feminine and it is difficult to generalize the variations of acceptable gender expression throughout history and various cultures, which makes it even more complicated to try to

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<sup>1</sup> Leonard, T. and Grousd, L. (2016).

<sup>2</sup> Stryker, S. (2017).

pinpoint or trace gender non-conforming history.<sup>3</sup> So while a person is born with biological sex characteristics that can influence how we view ourselves within the complex social language that is gender, it's not easily connected, and scientists cannot seem to find a biological connection to gender. The concept of gender is evolving from a binary (male and female) to a flexible spectrum.<sup>4</sup> Many now use charts and forms to discuss the flexibility of gender, expression, sex, and sexual attraction. Author of itspronouncedmetrosexual.com and LGBT advocate, Sam Killerman created the following diagram to explain all the elements involved with individual gender states in the 21st century.

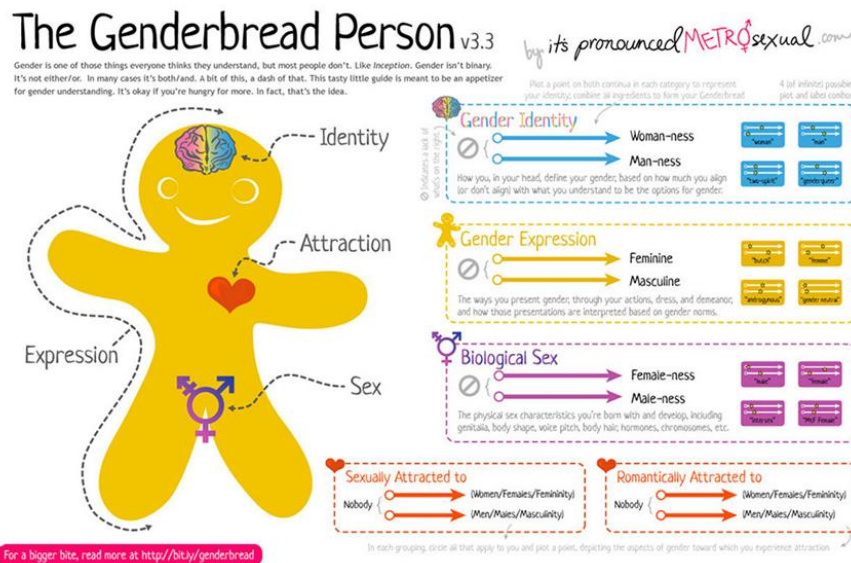


Figure 1: The “Genderbread Person”- A chart to explain the intricacies of gender, sex, and orientation

<sup>3</sup> Tosh, Jemma (2016).

<sup>4</sup> Brill, S. and Kenney, L. (2016).

Today, any person whose gender does not correspond with the biological sex they were assigned at birth is considered transgender. The term originates from the Latin word *trans* meaning “on the other side of” or “to change.” Trans people not only are those who fit on the binary of man or woman, but also those who fit in neither category: genderqueer or non-binary. While in 2021, transgender is now a more common term and is slowly becoming more socially acceptable, this has been a long struggle throughout western history, including criminal offenses, misunderstandings, and creating a myth of the trans population as a group of sexual deviants.<sup>5</sup>

### **The Gender Question in Western Europe**

Unfortunately, due to the flux of social norms regarding dress and gender roles, tracing the origin of gender nonconformity is problematic if not impossible, “but what is known is that cross-dressing, and gender nonconformity have a long history across the world with ancient texts referring to the practice for millennia.”<sup>6</sup> One of the first times we see alternative gender expression in Western history was among the Ancient Greeks. In the first book of *The Histories* written in 430 BCE, Herodotus mentioned the Enarei, effeminate or androgynous Scythian shamans, who were afflicted with “the female sickness” as punishment for pillaging a temple to Aphrodite. “The goddess afflicted the Scythians who had despoiled her temple and their descendants in perpetuity with a

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<sup>5</sup> Bracken, M.D. (2020).

<sup>6</sup> Tosh, J. (2016).

feminizing disease.”<sup>7</sup> According to Herodotus, this explanation was provided by the Scythians themselves. “The Scythians maintain that this is why they have the disease and visitors to Scythia can see how these men they call ‘Enarees’ are affected.”<sup>8</sup>

Hippocrates, 30 years later, theorized further about the Enarei, in *On the Winds, Waters and Places* stating that the Scythians were not cursed, but instead Scythian methods of horseback riding caused the change in gender expression due to the compression of genitals, rendering Scythians infertile. “They clothed themselves, and wielded the spindle and the distaff, as women did, and superstitious people respected them, fearing that the gods would afflict him with the same disease.”<sup>9</sup>

There are also examples throughout history where the gender binary was less restrictive. During the time period of the Middle Ages, even though gender roles were fairly rigid, it was recognized that men and women were inverses of the same sex, with the vagina considered to be an internal penis.<sup>10</sup> Something a few psychologists consider more progressive theory than what we understand today.<sup>11</sup>

In 1892, Richard von Krafft-Ebing published *Psychopathia Sexualis* which defined homosexuality and transgender as belonging on the same spectrum with varying degrees of severity, homosexuality being a less severe diagnosis of sexual metamorphosis where a man believed he was a woman, but both were considered abnormal and a perversion.<sup>12</sup>

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<sup>7</sup> *The Histories*, Book I, ch. 105

<sup>8</sup> *Ibid*

<sup>9</sup> De Sauvages, F. B. (1763).

<sup>10</sup> Tosh, J. (2016).

<sup>11</sup> Whittington, K. (2014).

<sup>12</sup> Tosh, J. (2016).



It wasn't until 1923 when Magnus Hirschfeld identified the term transsexualismus and moved away from a rigid gender binary, proposing a theory of sexual intermediaries, where gender (physically and mentally) existed as a continuum, with cisgender heterosexual people being the "absolute."<sup>13</sup> Unfortunately, until Hirschfeld, most of the studies on these "travesties" or "cross-dressers" tied the desire to sexual proclivities rather than a desire to be one's authentic self.<sup>14</sup> David Oliver Cauldwell introduced the term transsexualism into the United States in 1949, from Hirschfeld's research, and defined the term as "individuals who wish to be members of the sex to which they do not properly belong. Their condition usually arises from poor hereditary background and a highly unfavourable childhood environment."<sup>15</sup>

Various medical terms were given to the diagnosis of being born one gender but believing to be another: Scythian melancholy, sexual metamorphosis, autogynophilia, and monomania.<sup>16</sup> "The concepts and terms we currently use (which continue to change and diversify) did not begin to take shape until the mid-20<sup>th</sup> century, when increasing attention was given to medical advancement in body modification procedures."<sup>17</sup>

In the 1960's, Stoller wrote that gender was made up of 3 parts: biological sex, gender role (or your public expression of gender), and gender identity (which was subjective and psychological). Stoller, Cauldwell, and Hirschfeld were all on the forefronts of gender, sex and identity, however it is important to note that all 3 of these

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<sup>13</sup> Tosh, J. (2016).

<sup>14</sup> ibid

<sup>15</sup> ibid

<sup>16</sup> ibid

<sup>17</sup> ibid

men felt that transsexualism was a personality disorder that needed to be prevented and cured.<sup>18</sup>

### **Urbanization, Feminism and Diversity in the United States**

It is difficult to pinpoint any one reason why cross-dressing became an issue in need of regulation in 19<sup>th</sup> century United States. “People who contradicted social expectations of what was considered typical for men or for women have existed since the earliest days of Colonial Settlement in what is now the United States.”<sup>19</sup> Gender was always flexible at least in terms of enslaved Africans. The institution of slavery in the antebellum period stripped away gender signifiers from enslaved people by treating them interchangeably through hard labor.<sup>20</sup> During the 1850’s US cities began passing ordinances making cross-dressing illegal.

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<sup>18</sup> Tosh, J. (2016).

<sup>19</sup> Stryker, S. (2017).

<sup>20</sup> Ibid

**Municipal Laws Prohibiting Wearing Dress of Opposite Sex**

Nineteenth Century				Twentieth Century	
Location	Year	Location	Year	Location	Year
Columbus, Ohio	1848	Dallas, Texas	1880	Cedar Rapids, Iowa	1905
Chicago, Illinois	1851	Nashville, Tennessee	1881	Orlando, Florida	1907
Wilmington, Delaware	1856	San Jose, California	1882	Wilmington, North Carolina	1913
Springfield, Illinois	1856	Tucson, Arizona	1883	Charleston, West Virginia	1913
Newark, New Jersey	1858	Columbia, Missouri	1883	Columbus, Georgia	1914
Charleston, South Carolina	1858	Peoria, Illinois	1884	Sarasota, Florida	1919
Kansas City, Missouri	1860 1889	Butte, Montana	1885	Pensacola, Florida	1920
Houston, Texas	1861	Denver, Colorado	1886	Cleveland, Ohio	1924
Toledo, Ohio	1862	Lincoln, Nebraska	1889	West Palm Beach, Florida	1926
Memphis, Tennessee	1863	Santa Barbara, California	189?	Detroit, Michigan	195?
San Francisco, California	1863	Omaha, Nebraska	1890	Miami, Florida	1952 1956
St. Louis, Missouri	1864	Cheyenne, Wyoming	1892	Cincinnati, Ohio	1974
Minneapolis, Minnesota	1877	Cicero, Illinois	1897		
Oakland, California	1879	Cedar Falls, Iowa	1899		

*Compiled by Clare Sears in "A Dress Not Belonging to His or Her Sex: Cross-Dressing Law in San Francisco, 1860–1900" (PhD diss., Sociology Department, University of Law in San Francisco, 2005), based on data from William Eskridge, Gaylaw: Challenging the Apartheid of the Closet (Cambridge, MA: Harvard University Press, 1997).*

**Figure 2: Table of Municipal Laws Prohibiting Cross-Dressing, retrieved from Transgender History, Stryker**

It is important to note that in the United States, homosexual desire and gender variance were often closely associated, meaning anything we know about gay and lesbian communities probably include transgender and gender nonconforming communities as well.<sup>21</sup> A common way of thinking about homosexuality in the 19<sup>th</sup> and early 20<sup>th</sup> century was a gender “inversion” in which a man who was attracted to men was thought to be

<sup>21</sup> Stryker, S. (2017).

acting like a woman and vice versa.<sup>22</sup> A few possible social movements that encouraged this regulation was the urbanization and industrialization of US cities, as well as the 19<sup>th</sup> century first wave suffrages/feminism movement culminating in giving women the right to vote in 1919.

Historian John D'Emilio theorized that that Gay and Lesbian communities did not develop until the mid-1800's, with the rise of urban, large working-class cities that encouraged men to leave their rural tight-knit communities and flourish with similar individuals. Lesbian communities could not grow with gay communities due to the social constraints put upon women. It would not be until women received the right to vote and the ability to be independent wage earners that lesbian communities in urban centers would begin to grow.<sup>23</sup>

Gender non-conformity was an important focus of the first wave feminism, via dress. Equality activist Amelia Bloomer argued in the 1840's that long skirts and cumbersome undergarments were a form of bondage that dragged women down and until women dressed as men did, they could not be equals.<sup>24</sup>

### **Misogynistic Roots, Transphobic branches**

Most writings on transsexualism, transvestism, and cross-dressing were mostly pointed to at what these psychologists referred to as men. Masculinity was (and still is in some places) considered the superior, and so women were often seen as cross-dressing

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<sup>22</sup> Stryker, S. (2017).

<sup>23</sup> ibid

<sup>24</sup> Ibid

only to gain access to the social hierarchy they were removed from, while cross-dressing men were seen to be moving down the social hierarchy, which causes more ridicule.<sup>25</sup>

Janssen argues that the English-Speaking world had trouble coming to terms with anything beyond the binary heterosexual due to the Judeo-Christian condemnation of all things considered sodomitical, the Old Testament even forbids cross-dressing.<sup>26</sup>

The overt pathologizing of femininity in what professionals deemed heterosexual men, just pushed the superiority of masculinity. In fact, women who wished to be men were not believed to exist. No terms related to the various gender diagnosis of men were ever given to women.<sup>27</sup> This is known as the “Progress Narrative” and pushes the idea that cross-dressing was only acceptable to gain access to increased social standing.<sup>28</sup> Unfortunately, the “Progress Narrative” often erases transmen by placing the blurring of gender roles as something only needed until gender equality was achieved.<sup>29</sup> It is also confusing because this narrative also conflates women challenging gender roles, cross-dressing, and transgender people.<sup>30</sup>

However, once women began to move up in the social and cultural hierarchy, it is interesting to note that the standards for masculinity changed too. Physical strength and dominance as well as practical dress was the ideal “real man.”<sup>31</sup> This polarization of

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<sup>25</sup> Tosh, J. (2016).

<sup>26</sup> (2020). *Transgenderism Before Gender: Nosology from the Sixteenth through Mid-Twentieth Century*. Archives of Sexual Behavior.

<sup>27</sup> Tosh, J. (2016).

<sup>28</sup> *ibid*

<sup>29</sup> *ibid*

<sup>30</sup> *ibid*

<sup>31</sup> *ibid*

gender only caused more harassment and ostracization of those seen as cross-dressing men.<sup>32</sup>

### **Diagnostic Statistical Manual**

The Diagnostic Statistical Manual (DSM) is what the American Psychologist Association releases as a handbook to describe and define various mental disorders. It is always being updated and rereleased as we learn more about mental illness and personality disorders.

The DSM- 1 (1952) and DSM- 2 (1968) listed *transvestism* under deviations of sexuality, and as stated previously, only focused on men.<sup>33</sup> In 1980, the DSM-3 introduced “*paraphilia*” and listed “*transvestism*” under this new category. Childhood Gender Identity disorder was also added in the DSM-3 and opened the door for treatment and prevention of gender nonconforming behavior in children.

In 1994, *autogynophilia*, a diagnosis which states that heterosexual men are erotically aroused by the thought or image of themselves as women, was included in the 4<sup>th</sup> edition of the DSM as a link between transvestic fetishism and gender identity disorder. There are four categories, transvestic, behavioral, physiological, and anatomic. It remains in the current DSM-5 (2013) and is a point of contention amongst cross-dressing, gender nonconforming, and transgender communities, as they believe the motivation to pursue body modification is not sexual, but to be who they truly are.

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<sup>32</sup> Tosh, J. (2016).

<sup>33</sup> *ibid*

## **DIGITAL VS. MATERIAL: ISSUES TRANSGENDER PEOPLE FACE IN THE MATERIAL WORLD**

### **Workplace Discrimination**

In the United States, transgender people face employment discrimination, housing discrimination, and social discrimination, and combined with the stress of early transition, can be quite harmful 47% of transgender people faced adverse job consequences as a direct result of them being trans, with 1 in 4 reporting losing a job simply for being trans. Many trans people often face discrimination regarding their perceived competency at any given role, 23% report being denied a promotion simply due to their gender identity, as well as 44% reporting that they are underemployed.<sup>34, 35</sup>

In addition to this discrimination, there is no legal recourse for trans people. “The Human Rights Campaign<sup>36</sup> noted that only 18 U.S. states prohibit workplace discrimination explicitly based on gender identity. The Americans With Disabilities Act (ADA) is ‘the only federal law that speaks to protection of [trans people] in an employment context . . . and the ADA specifically mentioned the group for purposes of excluding [trans people] from protection’<sup>37</sup>

### **Housing Discrimination**

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<sup>34</sup> Collins, J. C., McFadden, C., Rocco, T. S., & Mathis, M. K. (2015).

<sup>35</sup> James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016).

<sup>36</sup> Human Rights Campaign. (2015).

<sup>37</sup> Twing, S., & Williams, T. (2010).

Regardless of state protections, transgender people still report housing discrimination, even in states with protections most of these cases are never legally challenged.<sup>38</sup> The federal Fair Housing act enacted in 1968 protects against housing discrimination in accordance with a number of factors, such as race, color, national origin, etc. There is no protection specifically for sexual orientation or gender identity. A national study of transgender individuals found that 19% of participants were denied access to housing for which they had applied and an additional 11% of participants reported they had been evicted from existing housing because of their gender identity which is nearly twice as high as cisgender LGB individuals.<sup>39</sup>

### **Medical Discrimination**

Due to the discriminations faced in the workplace, transpeople are less likely to have health insurance than their cisgender counterparts. 1 in 6 LGB adults have avoided healthcare in the past due to anticipated or previously experienced discrimination, trans adults is even higher.<sup>40</sup> These fears and experiences lead to negative health outcomes for LGBTQ people, because they will be less likely to access services in the future, which will lead to poor health.<sup>41</sup>

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<sup>38</sup> Kattari, S. K., Whitfield, D. L., Walls, N. E., Langenderfer-Magruder, L., & Ramos, D. (2016).

<sup>39</sup> *ibid*

<sup>40</sup> Casey et al, (2019).

<sup>41</sup> *ibid*



## Politicizing Healthcare

Insurance policies determine access to healthcare in the United States and because transgender people face high levels of discrimination systemically, it can be difficult to navigate policies that change upon politician's whims. Over half of the respondents of the United States Trans Survey reported having insurance, with approximately 20% having public insurance.<sup>42</sup> When the Affordable Care Act, the current federal health care law, was written, Section 1557 declared it illegal for health professionals to discriminate based on race, color, national origin, sex, age or disability.<sup>43</sup> In 2016, the Obama administration declared that sex included sexual orientation and gender identity.

This meant that insurances could not discriminate on the basis of sex, including refusing coverage for transgender people, refusing specific transgender related care, nor limiting coverage purely on transgender care. For example: George Mason University uses the insurance company COVACare, a state health insurance plan in Virginia.<sup>44</sup> Prior to the 2016 rule, George Mason University did not cover gender related healthcare.<sup>45</sup> Once the Obama Administration ruled Section 1557 included gender affirmative health care, the policy was changed.<sup>46</sup> However, in 2019, the Trump administration declared that sex referred to only "biological sex,"<sup>47</sup> so it is now up to the insurance companies and

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<sup>42</sup> Bakko, M. and Kattari, S. (2019).

<sup>43</sup> Simmons-Duffin, S. (2020).

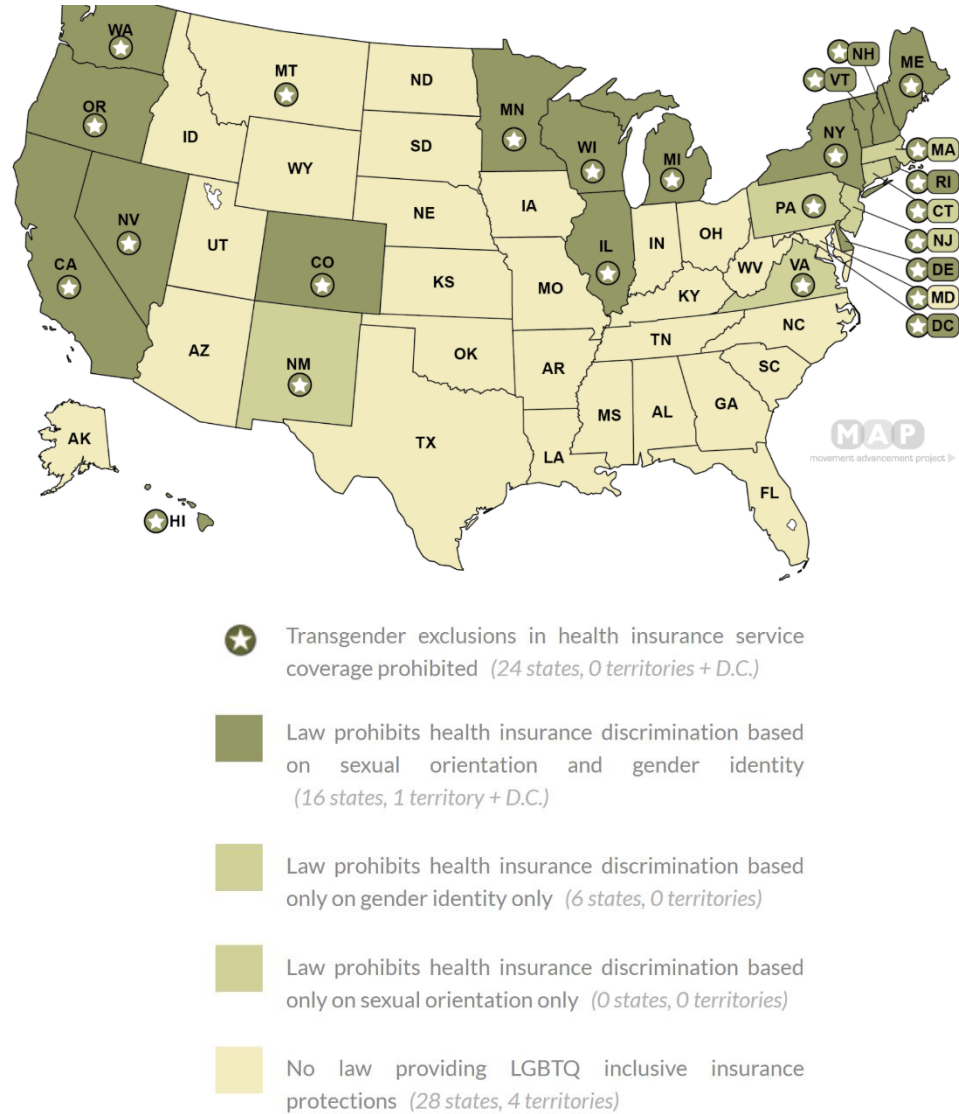
<sup>44</sup> George Mason University (2021) Human Resources and Payroll, Benefits Summary. Retrieved from [hr.gmu.edu/benefits/](http://hr.gmu.edu/benefits/)

<sup>45</sup> Department of Human Resource Management, Commonwealth of Virginia. (2016). COVACare Member Handbook.

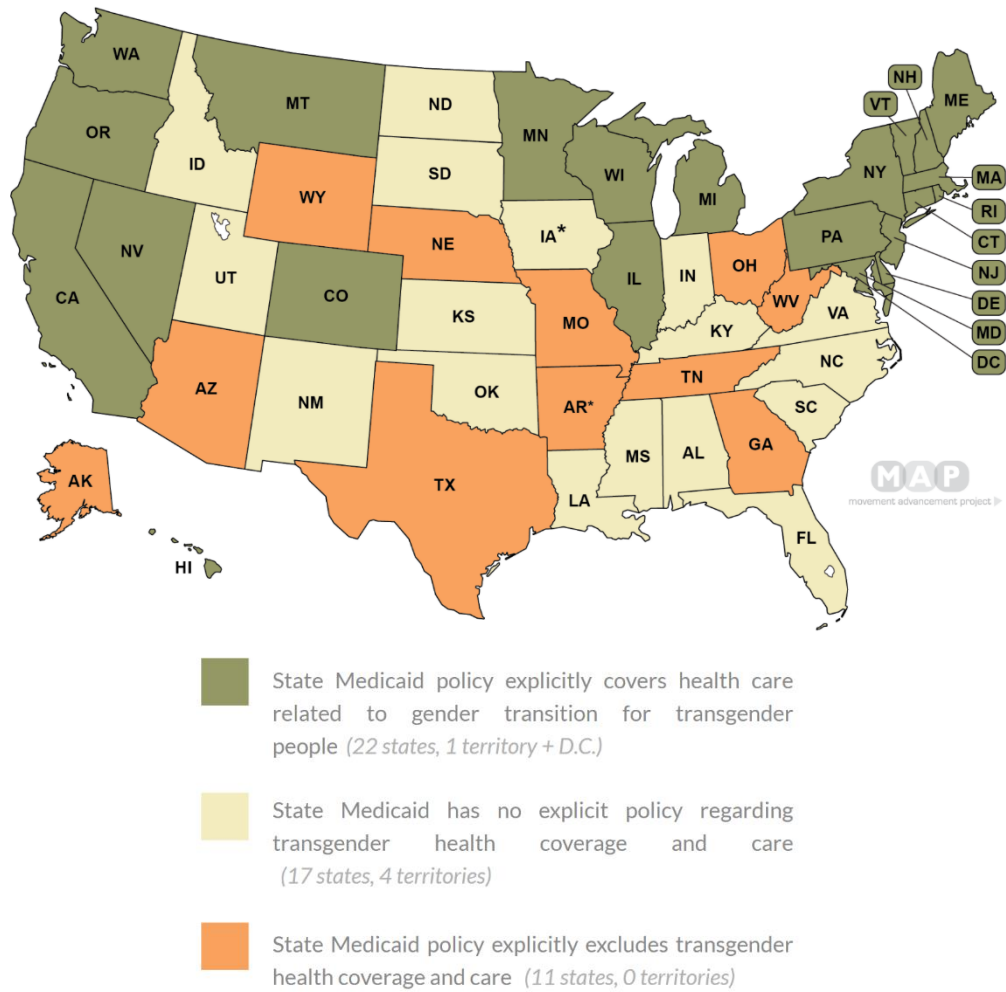
<sup>46</sup> COVACare Member Handbook. Amendments. (2017).

<sup>47</sup> Ibid

states to decide what to cover, which means COVACare and the state of Virginia may rescind this coverage in the future.



**Figure 3- Map of States and their Transgender Private Insurance Laws- retrieved from Movement Advancement Project**



**Figure 4- Map of States and their Transgender Medicaid Insurance Laws- retrieved from Movement Advancement Project**

So, although the majority of transgender people report having insurance, they cannot access the gender affirming care they need for a good quality of life.<sup>48</sup> According to the United States Transgender Survey, of the transgender people that reported denial of

<sup>48</sup> Bakk, M. and Kattari, S. (2019).

care, 25% were denied for hormone therapy, and 55% were denied coverage for gender affirmation surgery.<sup>49</sup> This is important because it can be difficult if not impossible to pay out of pocket for these treatments and surgeries. For example, the Philadelphia Center for Transgender Surgery reports that “bottom surgery” or sexual reassignment surgery costs around \$25,000. This does not include other gender affirming surgeries such as breast implants, mastectomies, and other smaller procedures nor the cost of hormones, if they also must be paid for out of pocket.<sup>50,51</sup>

Because there is no federal standard of care for transgender people, insurance gaps exist. For example, a transgender teenager may be eligible for puberty blockers under his parents’ insurance, however, that continuation of care may be dropped once he reaches adulthood, due to the state or private insurance not covering transgender related care.

### **Racial Disparity for LGBT Population**

These statistics are even worse for LGBT racial minorities, as racial minorities within the LGBT umbrella are less likely to hold a college degree, less likely to make \$25k or more a year, have health insurance, and are twice as likely than LGBT whites to face discrimination systemically through courts or police.<sup>52</sup>

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<sup>49</sup> Bakk, M. and Kattari, S. (2019).

<sup>50</sup> Philadelphia Center for Transgender Surgery. Male to Female Prices. Retrieved from [TheTransgendercenter.com](http://TheTransgendercenter.com)

<sup>51</sup> Philadelphia Center for Transgender Surgery. Female to Male Prices. Retrieved from [TheTransgendercenter.com](http://TheTransgendercenter.com)

<sup>52</sup> Casey, L.S. et al. (2019).

While white LGBTs are more likely to face social stigma, microaggressions and sexual harassment, LGBT people of color are more likely to experience systemic violence. Black transwomen make up 80% of all murders of transgender people in the last 5 years, with less than half of those cases solved. 40% of black transwomen also have HIV and are less likely to seek medical care due to the systemic discrimination in the health system.<sup>53</sup> Due to these statistics, a black transwoman's life expectancy is only 35.<sup>54</sup>

The statistics above do not even begin to approach the amounts of informal discrimination in social situations that transgender people face. Including threats of sexual assault and violence, emotional abuse, gossip, intentional mis-labelling, and misuse of pronouns.<sup>55</sup> This informal discrimination causes emotional and mental distress, which of course ties directly to the depression and suicide figures mentioned above.<sup>56</sup>

### **Current Therapies and Their issues**

#### **Conversion Therapy**

One of the more controversial therapies available to transgender individuals is Sexual Orientation Change Efforts, otherwise known as conversion therapy. This therapy promises to change a person's gender identity or sexual orientation. Methods include talk therapy that includes shaming, as well as aversion therapy, where counselors burn, shock, or otherwise provide pain while showing pictures of homosexual activity. These methods

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<sup>53</sup> CDC. (2019).

<sup>54</sup> Richardson, J. (2020).

<sup>55</sup> Kattari, S. K., Whitfield, D. L., Walls, N. E., Langenderfer-Magruder, L., & Ramos, D. (2016).

<sup>56</sup> Ibid

are promised to have the queer individual become heterosexual and cisgender. There is not much literature on Gender Identity Conversion therapy, specifically. Most often it is wrapped up into Sexual Orientation Conversion Efforts under the title of Conversion Therapy.<sup>57</sup> There currently exists a research gap as to the prevalence and characteristics of Gender Identity Conversion.

Conversion therapy originally developed in the mid-19<sup>th</sup> century when homosexuality was viewed as criminal activity or the results of mental illness.<sup>58</sup> Approximately 700,000 Americans have received conversion therapy at some point, mostly involuntarily.<sup>59</sup> In 2016, Twitter user @DamagedBttm tweeted about his experience in conversion therapy.

I was in [conversion] therapy from November 2012 to May 2013 (I was 15/16). Those were the darkest days of my life. The First part (the first 6 months) they ‘deconstructed us as a person.’ Essentially teaching us to hate ourselves[.]And this wasn’t just the fake ‘oh I hate myself’ you hear on the streets. This was a deep loathing for everything you are. This stage was done when we were so desperate to change ourselves that we were willing to do anything.<sup>60</sup>

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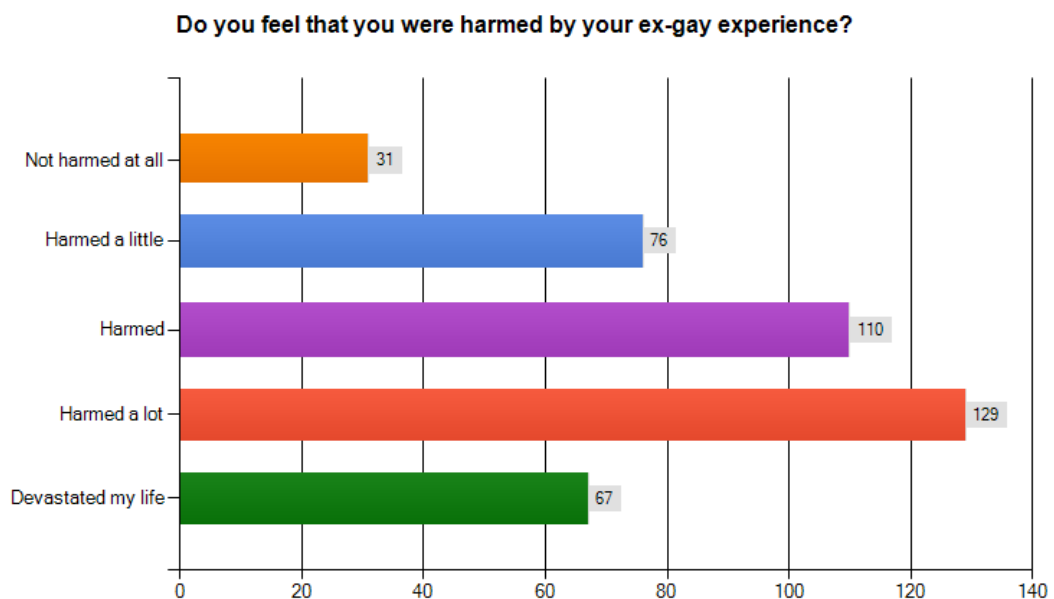
<sup>57</sup> Wright, T. Candy, B., King, M. (2018).

<sup>58</sup> Bracken, M.D. (2020).

<sup>59</sup> Ibid

<sup>60</sup> God Is a Bottom. [@DamagedBttm] October, 2016. Tweet Series.

One thing has been reported is that some individuals report mental anguish after completing conversion therapy, either due to the therapy itself or because the therapy did not work, thereby exacerbating depression and distress.<sup>61</sup> In a survey conducted by BeyondExGay.com respondents were asked if they were harmed by what they identify as an ex-gay experience, out of 413 responses, 75% felt harmed in a significant way.<sup>62</sup>



**Figure 5: Data of harm caused by ex-gay experiences. Retrieved from BeyondExGay.com**

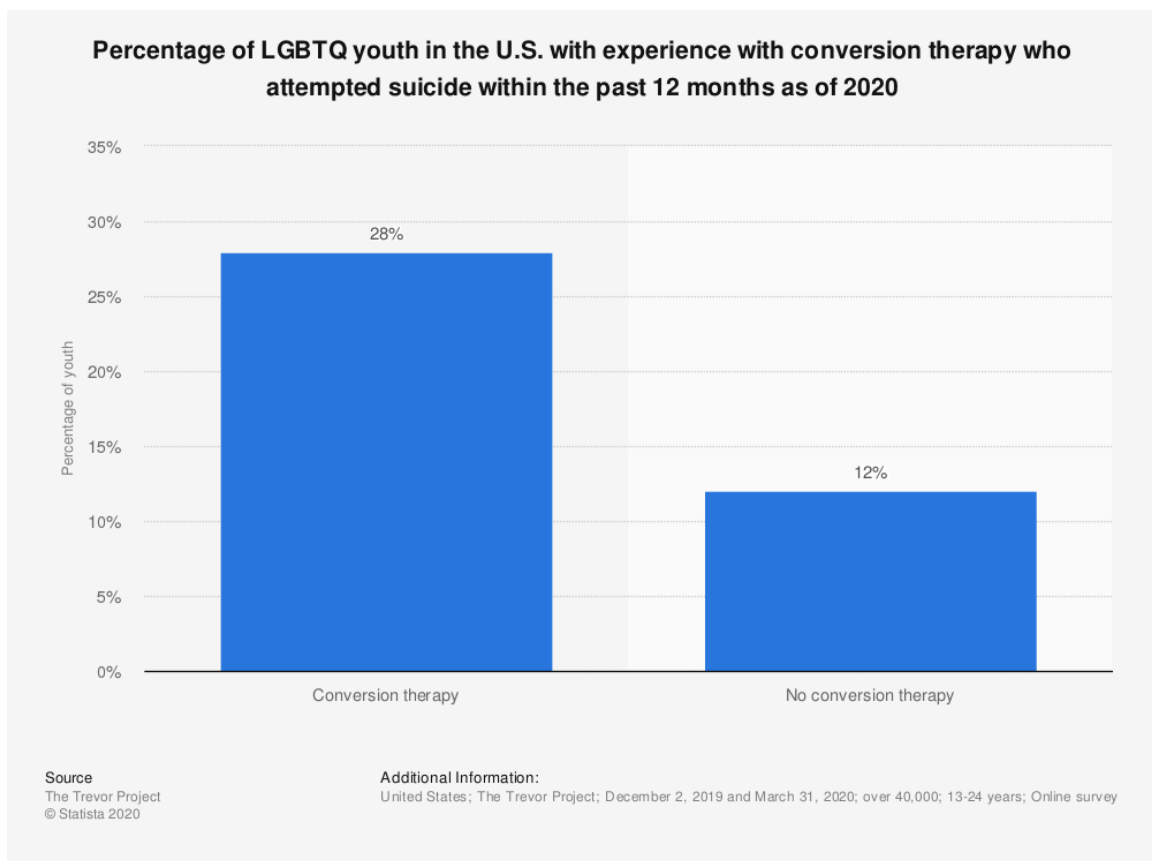
@DamagedBttm reported similar feelings during his time in conversion therapy.

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<sup>61</sup> American Psychological Association. (2009).

<sup>62</sup> An ex-gay experience is identified as any activity whether solo-led or counselor led in an attempt to act or become heterosexual and cisgender

[The Conversion Therapists] explained that about 50% of their ‘patients’ killed themselves when [the first part of the] process was near completion[.] I found this to be true. I met around 50 people during my time there, and 27 killed themselves. We were all between the ages of 13 and 17[. . .] I was also suicidal as I was reaching the end of the first step. I attempted several times, but they didn’t work. All I wanted was death[.]<sup>63</sup>



**Figure 6: Percentage of U.S. LGBT Youth who attempted suicide after experience with conversion therapy (retrieved from The Trevor Project)**

<sup>63</sup> God Is a Bottom. [@DamagedBttm] October, 2016. Tweet Series.



The American Psychological Association (APA) states that some individuals report mental anguish after completing sexual orientation conversion therapy, either due to the therapy itself, or because the therapy did not work, thereby exacerbating depression and distress.<sup>64</sup> However, these sources focus on sexual orientation change efforts, not gender identity conversion.

### **Watchful Waiting and Gender Non-Conforming Children**

The American Academy of Pediatrics published a policy statement for treatment of gender dysphoric or gender non-conforming children discussing the watchful waiting approach and how it is outdated, recommending a gender affirmative approach for children, just like adults.<sup>65</sup>

However, Dr John Cantor, clinical psychologist argues that even the AAP sources used prove that the proper method for gender non-conforming children is the watchful waiting approach.<sup>66</sup> Watchful waiting includes discussing gender identity, social and preconceived gender roles, and perhaps prescribing medication that delays the onset of puberty while a child or adolescent explores their feelings of gender discomfort.<sup>67 68</sup> Cantor states that the studies used show that the follow-up studies cited by Rafferty and the AAP show that over puberty the majority of gender non-conforming children do not

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<sup>64</sup> American Psychological Association. (2009).

<sup>65</sup> Rafferty, J., AAP Committee on Psychosocial Aspects of Child and Family Health, AAP Committee on Adolescence, AAP Section on Lesbian, Gay, Bisexual, and Transgender Health and Wellness. (2018).

<sup>66</sup> Cantor, J.M. (2020).

<sup>67</sup> de Vries, A. L. C., and P. T. Cohen-Kettenis. (2012).

<sup>68</sup> Florence A. (2019).

want to transition, with only between 2.2% and 11.9% of gender non-conforming boys actually wanting to continue with transition, gender non-conforming girls have not been studied. However, those that want to transition after the start of puberty tend to want to transition into adulthood.<sup>69</sup> The American Association of Child and Adolescent Psychology also recommends a watchful waiting approach to minors expressing gender distress due to a lack of evidence.

### **Gender Affirming Therapy**

The belief behind the Gender Affirmative model of therapy posits that gender variations are not disorders or immoral; that gender presentations are culturally diverse, and sensitivity must be observed; that the concept of gender is interwoven with biology, development, socialization, and culture, with all bearing on an individual's gender and gender presentation; and that gender is fluid, not binary as commonly discussed in the past<sup>70</sup>. The therapy is an expressive one, with the goal of fully allowing the transgender patient to navigate and communicate their identity, and expressions of that identity, with the help of the therapist and any caregivers. It is important to allow people to explore their gender identity and expression, especially children<sup>71</sup>.

“[G]ender health is defined as a child's opportunity to live in the gender that feels most real or comfortable to that child and to express that gender with freedom from

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<sup>69</sup> Adelson S.L. (2012).

<sup>70</sup> Brill, S. and Kenney, L. (2016).

<sup>71</sup> Ibid

restriction, aspersion, or rejection. Children not allowed these freedoms [. . .] are at later risk for developing a downward cascade of psychosocial adversities including depressive symptoms, low-life satisfaction, self-harm, isolation, homelessness, incarceration, PTSD, and suicidal ideation and attempts.”<sup>72</sup>

The objective of Gender Affirming Therapy is to support gender-nonconforming people, whether they are exploring gender expression but still are the gender they were assigned at birth or are in fact transgender. The support, safety, and communication can assist a patient’s self-understanding and allow the space to explore the infinite gender spectrum. One of the issues with a Gender Affirmative therapy is that it is not readily or easily available.<sup>73</sup> Many transgender or gender non-conforming people are unable to access this therapy due to a lack of practitioners trained in this model, as well as insurance refusing to cover the therapy, or a lack of access to insurance in general.<sup>74</sup>

### ***Compassion Focused Therapy and The Minority Stress Model***

It can be inferred that those who live in fear of harassment and discrimination face unique stressors that other people perhaps do not. The Minority Stress Model states that the LGBTQ population suffers not only from the chronic stressors of discrimination and fear of harassment, but also internalized stressors such as internalized homophobia all of which have a negative impact on mental health.<sup>75</sup>

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<sup>72</sup> Brill, S. and Kenney, L. (2016).

<sup>73</sup> Edwards-Leeper, L., Leibowitz, S., & Sangganjanavanich, V.F. (2016).

<sup>74</sup> Ibid

<sup>75</sup> Petrocchi, N. and Baiocco R. Compassion Focused Therapy in the Treatment of Shame-Based Difficulties in Gender and Sexual Minorities. In Skinta, M.D. and Curtain, A. (Eds) (2016).

Often those who were abused, bullied, invalidated and ignored have a difficult time being self-compassionate when experiencing personal setbacks and will often blame and attack themselves as a way to avoid future humiliation.<sup>76</sup> Compassion Focused Therapy (CFT) suggests that people have three types of emotional regulation systems: threat and protection, incentive and resource-seeking, and soothing, contentment, and safeness.<sup>77</sup> The goal of CFT is to balance these systems by having CFT-trained therapists help clients experience safeness within their interactions to fully embrace exploring various topics therapeutically. Then assisting clients in developing compassionate relationships with themselves by replacing the patterns of blaming, criticizing, and shaming themselves.<sup>78</sup> It is important to note that compassion does not mean pity, or weakness, but learning to cope with difficulties by being open and honest about painful feelings. In order to heal, people need to disengage from the shameful self-criticism and have the courage to handle obstacles and move forward.<sup>79</sup>

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<sup>76</sup> Petrocchi, N. and Baiocco R. Compassion Focused Therapy in the Treatment of Shame-Based Difficulties in Gender and Sexual Minorities. In Skinta, M.D. and Curtain, A. (Eds) (2016).

<sup>77</sup> Ibid

<sup>78</sup> Ibid

<sup>79</sup> Ibid

## POP CULTURE, DIGITAL GENDER EXPLORATION, AND THE DIGITAL SELF

In the 1999 movie *The Matrix*, the characters erode the line between the real and digital worlds, when the former was left in a desolate wasteland. Within the confines of the digital prison of the Matrix, these characters can choose their physical attributes, dress, or abilities; and even reject names they were born with, in favor of names they chose. Their appearance in the Matrix is what is colloquially called “Residual Self Image,” a projection of how a person views themselves.<sup>80</sup> It almost seems that these digital representations are more real than the actual bodies these characters inhabit. “The entire movie is about transcending the limitations of the physical form to explore what the mind is capable of... It is suggested bodies are, at best, a suggestion. Your brain is what really matters.”<sup>81</sup> Once you delve into the development of the movie, the *trans* metaphor becomes even more explicit. The character of Switch was written to present as male in the desolate real world, but as female in the digital Matrix.

The ability to create avatars, donning a separate persona in as many layers as interactivity allows, creates a safety for exploration of both the world and the self. There is even an online word for trans people who have not realized they are trans yet: *egg*.<sup>82</sup> The benefit is that one can explore, experiment, and leave the online identity behind when it is no longer needed, either because the person realized that they are trans and will

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<sup>80</sup> Wachowski, L. & Wachowski, L. (Producers and Directors). (1999). *The Matrix* [Motion Picture]

<sup>81</sup> VanDerWerff, E. (2019).

<sup>82</sup> Ibid

begin that transition or will realize they are not trans and leave the unnecessary identity behind to rot in digital space.

### **Why Virtual Reality?**

“VR allows users to move their perspectives to different scenarios and universes.”<sup>83</sup> Virtual Reality has been used as a therapy tool for phobias, Post Traumatic Stress Disorder, and in pain relief management, and the sense of self in the virtual space is so strong that women feel disassociated when they have male avatar hands rather than female ones.<sup>84</sup> Why is the sense of self so strong in virtual space?

On a basic level, the brain can be tricked into thinking a fake or virtual body is their own. To see the science behind this, one only needs to look at the “Rubber Hand Illusion.” By tapping on a subject’s hidden real arm, while showing them a false rubber arm aligned up with their own, after about 20 seconds, the subject began to feel sensations on the rubber arm as if it was their own.<sup>85</sup> Mel Slater continued this experiment with a virtual hand, by providing simultaneous stimuli to the subject's actual hand and a visual representation of the stimuli to the virtual hand, the brain believed that the virtual hand was real.<sup>86</sup> “The experiments reviewed in this article strongly suggest that virtual limbs and bodies in virtual reality could be owned by participants just as rubber hands can be perceived as part of one’s body in physical reality. Furthermore, the

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<sup>83</sup> Bertrand, P., Guegan, J., Robieux, L., McCall, C.A., Zenasni, F. (2018).

<sup>84</sup> Schwind, V., Knierim, P., Tasci, C., Franczak, P., Haas, N., & Henze, N. (2017).

<sup>85</sup> Slater, M., Perez-Marcos, D., Ehrsson, H. H., Sanchez-Vives, M. V. (2009).

<sup>86</sup> Ibid

experimental findings suggest that ownership of virtual limbs and bodies may engage the same perceptual, emotional, and motor processes that make us feel that we own our biological bodies.”<sup>87</sup>

Dr. Michael Schaffer, researcher of neurology at Otto-von-Guericke University in Germany, even took it a step further, seeing if subjects could believe they had additional appendages and feel them as if they were real. While some subjects refused to believe the additional appendage was in their full control, almost all the subjects revealed they felt sensations in the false arm as if it were their own.<sup>88</sup> “Results revealed that most of the participants were not only seeing a third arm and hand connected to their body but felt this artificial third arm as belonging to their own body.”<sup>89</sup>

Later, Slater attempted to see if the subject would own a virtual body in its entirety rather than just a limb. Subjects were put into a virtual room and given time to explore and get acclimated to the virtual environment. Then they were transported into the body of a girl, with a woman standing before them, the virtual woman would stroke the virtual girl’s shoulder, and then slap her multiple times across the face. Two experiments were given, one where the subject was looking “through” the eyes of the virtual girl, and one where they were given an aerial view of the scene. When the subjects were seeing in the first-person perspective, they felt the sensations of shoulder strokes and face slaps, rather than in the aerial view. It seems that head movement and point of

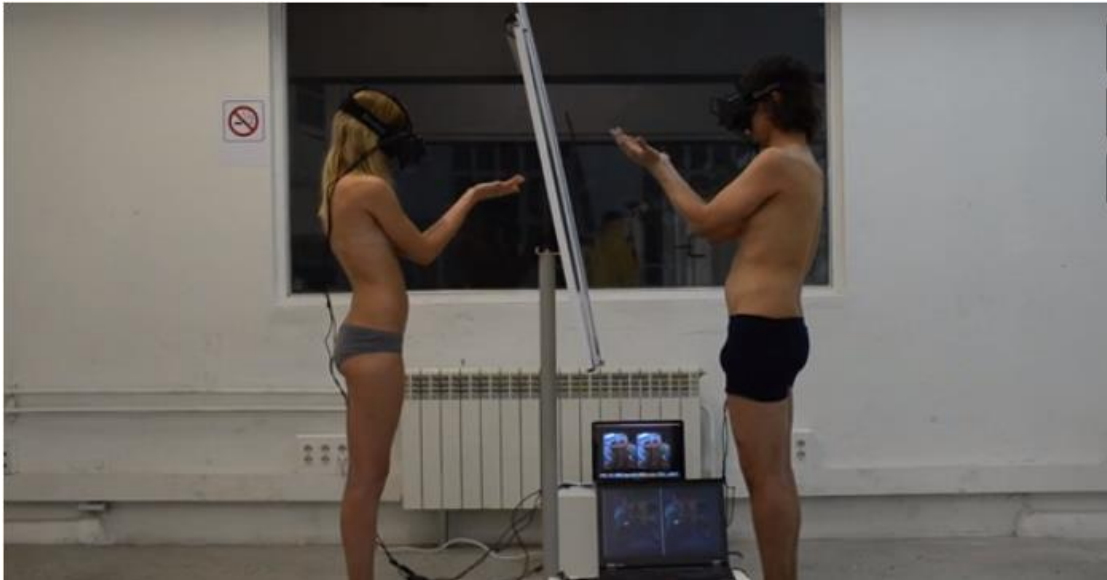
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<sup>87</sup> Slater, M., Perez-Marcos, D., Ehrsson, H. H., Sanchez-Vives, M. V. (2009).

<sup>88</sup> Schaefer, M., Heinze, H.J., Rotte, M. (2008).

<sup>89</sup> Ibid

view was important in feeling the virtual sensations. Even more interesting, was that all the subjects were male, and were still able to own a virtual female body.<sup>90</sup>



**Figure 7: Photo of two users experimenting with gender swap VR Program, Girl Mirror Look. Retrieved from Polygon**

Polygon reporter, Ben Kuchera, examined a virtual reality gender swap program, *Girl Mirror Look*. Designed to promote empathy, a performer and subject use Oculus Rift headsets, with each headset hooked to the other's feed, so the subject sees the opposite gender when they look around. Then they shake hands. "The camera projects the point of view of the woman to the man's headset and vice versa. The next step is something akin to calibration: you both reach out and shake the hand of someone in front of you at the same time. This allows your mind to lock into the person's body."<sup>91</sup> This is similar to the

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<sup>90</sup> Slater, M., Spanlang, B., Sanchez-Vives, M.V., Blanke, O. (2010).

<sup>91</sup> Kuchera, B. (2014).



discussion of body ownership. By correlating a touch sensation with a visual sensation, the brain believes that to be your body. The performer and subject then begin to mirror each other's movements. The goal is to have the subject feel as if they are in the performer's body. Kuchera reported feeling dysphoric during the experiment. "My feeling of discomfort and unease at seeing a female form looking back at me from the mirror in the Oculus Rift demo gives one an indication of what it must feel like for someone who knows they are a man or a woman, but sees and feels the opposite reality in their body."<sup>92</sup>

While the creator of the experiment, artist, Philippe Bertrand, expresses that he cannot speak to the potential mental health benefits, Kuchera did speak to a mental health professional, Dr. Anne Vitale, on the possible benefits<sup>93</sup> Vitale agreed that there could be some benefit, "I can see where this sort of virtual gender-role expression could be at least temporarily helpful. It is a form of cross-dressing in a way. The image you see on the outside is much closer to what you really want, than what cross-dressing would give."<sup>94</sup>

In a case study involving pain management with burn wound care, doctors found that Virtual Reality provided enough of a distraction that users complained of less pain. The users' brains were owning the body in the virtual space, rather than the physical one, causing a distraction.<sup>95</sup> "While a patient is engaged in in a virtual-reality program, the

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<sup>92</sup> Kuchera, B. (2014).

<sup>93</sup> Ibid

<sup>94</sup> Ibid

<sup>95</sup> Hoffman, H. G. (2004).

spotlight of his or her attention is no longer focused on the wound and the pain but drawn into the virtual world.”<sup>96</sup>

Also, virtual reality is already used to explore the effects of embodied perspective VR to reduce social stigma of communities. “Besides education, role playing techniques have been used in therapeutic contexts, conflict mediation, restorative justice, and many other fields. In each of these fields, different practices are proposed to help participants visualize events and conflicts from the perspective of others.”<sup>97</sup> A study done by researchers used VR to combat prejudice towards darker-skinned individuals. “The manipulation decreased negative implicit associations toward black individuals immediately after the experiment.”<sup>98</sup> In a non-experimental setting, individuals were put in the virtual shoes of a Guantanamo Bay prisoner. Although, no data was collected, users reported feeling anxious, stressed, and felt an emotional connection to the prisoner.<sup>99</sup> It is also proven in more recent studies that individuals will act how they believe the virtual avatar will react. For instance, it has been shown in VR environments that an avatar resembling a Ku Klux Klan member had users react with more negative thoughts and lead users to participate more violently and aggressive in the scenario.<sup>100</sup>

### **Issues with Virtual Reality Therapy**

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<sup>96</sup> Hoffman, H. G. (2004).

<sup>97</sup> Bertrand, P., Guegan, J., Robieux, L., McCall, C.A., Zenasni, F. (2018).

<sup>98</sup> Ibid

<sup>99</sup> Ibid

<sup>100</sup> Peck, T. C., Seinfeld, S., Aglioti, S. M., Slater, M. (2013).

With any new therapy or approach there are always barriers to have it readily available. There is often the challenge for the innovator to create a product that follows all government regulations, funding issues (both for building and testing the product and to get the product out to the public), there is also a diverse audience of administrators, physicians, and group purchasing organizations that can choose not to use or purchase the product. All of these are barriers before it can even be suggested for use by the public.<sup>101</sup>

For Virtual Reality therapy specifically, there needs to be proven efficacy, there could be prohibitive costs, and of course a therapist's attitude.<sup>102</sup> There is a misconception that technology could replace the therapist, but it's important to note, that technology- especially virtual reality- is only there to assist the therapist in creating experiences otherwise not available in regular sessions.<sup>103</sup>

Another possible issue is that using this proposed virtual reality therapy could exacerbate feelings of dysphoria when returning the material world. When Polygon reporter Ben Kuchera spoke to Sam Prell, a game journalist that transitioned to live as a woman for 6 years only to transition back, he was quick to provide reasons why a virtual reality therapy might not work well.

“There are a lot of expectations and harsh realities when you're going through gender dysphoria. [. . .] If you're going through the physical transformation, there are a lot of things you have to either learn to accept, or that won't match up to what you

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<sup>101</sup> Herzlinger, R.E. (2006).

<sup>102</sup> Annema, J., Verstraete, M., Vanden Abeele, V., Desmet, S., & Geerts, D. (2010).

<sup>103</sup> Ibid

expect.”<sup>104</sup> Being able to inhabit a body that a transgender person may never actually achieve may set some up for worsening depression, or self-doubt. Prell explained “I would be cautious about using it, because I’m afraid it would set up unhealthy expectations.”<sup>105</sup>

Many cisgender people believe that “passing” is the goal. But not always. Often transgender people only do the behaviors or medical interventions they deem necessary for their own comfort, not someone else’s. Therefore, some transgender people push against the concept of passing as unattainable, others choose to pass as much as possible for safety. Some even argue that passing erases the identity of transness, as Dean Moncel writes, “When I pass, the world forgets the queerness in being transgender [ . . . ] I can never be a man who is not transgender. Yes, transgender men are men, but they are uniquely transgender men.”<sup>106</sup>

This also dismisses the inherent queerness of being raised socially as one gender, only to grow to be another. Moncel continues,

“Times that I have passed as a cisgender man, I have been able to use my preferred name and pronouns with no problems, ignored by other cisgender men, entered male spaces unquestioned and even provide a bit of safety to my female friends in locations. But I have also learned the other side of it: when you pass as a man, smiling at children is much less acceptable, as the common perception of a predator is male. Similarly, I’ve had to remind myself several times while walking home late after a night

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<sup>104</sup> Kuchera, B. (2014).

<sup>105</sup> Ibid

<sup>106</sup> Moncel, D. (2018).

out that the woman in front of me, picking up speed every time she glances over her shoulder, is scared of me, a strange man in her eyes. I've had to remind myself to cross the street for her peace of mind, because I have been in her shoes."<sup>107</sup>

Being placed, even therapeutically in the body of a cisperson as a transperson may increase feelings of dysphoria, and it may create pressure to pay for costly surgeries, some of which don't quite exist on a simple cosmetic level, and being treated as the identifying gender constantly may not solve all of the various emotions and feelings that come with being trans. "For those born with dominating sex characteristics like broad shoulders, a petite frame, or a chiseled jawline, presenting as their true gender in an unforgiving society is a challenge that isn't easy to overcome."<sup>108</sup> Donning a VR headset, however, is a safer way to gain the insight and perspective they need to affirm or refute their questions and doubts to ultimately make an informed decision about a social transition that could have life-long implications."<sup>109</sup>

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<sup>107</sup> Moncel, D. (2018).

<sup>108</sup> Brown, J. (2019).

<sup>109</sup> Ibid

## DISCOVERING IDENTITY THROUGH THE DIGITAL AGE

Gaming, social media, and the internet have been reprieves for transpeople since they became commercially available. By taking over a character of your choosing, or putting on a virtual mask, trans individuals have been exploring their identity with or without allies. Either through AOL chatrooms, *SecondLife*, or *VRChat*, trans people have been exploring their gender and breaking free of their shells in a safe and consequence-free way.<sup>110</sup>

“This isn’t to say that *VRChat* and VR spaces are the holy grail of safe gender expression and discovery. Just like in the outside world, it can be hard on people who don’t fit the status-quo, and role-playing your true gender online isn’t always going to be met with positive encouragement. But there are supportive communities and genuinely understanding people to befriend in these places. People who don’t care about how you look or sound, or how far from your avatar you happen to be in real life.”<sup>111</sup>

While creating a therapeutic 3D immersive environment of what trans people have already been doing can create a positive experience and provide a service for a disserved population, the real issues are social. Trans people can have as much safe practice at being themselves as possible, but the unfortunate truth is that the world is not safe for Trans people. And while using a gender experience virtual reality program could create empathy and help transgender people explore their identities, what the trans

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<sup>110</sup> Brown, J. (2019).

<sup>111</sup> Ibid

population truly needs is legal protections, social acceptance, and access to the care they need. As software developer Jessica Janiuk says, “I think a little bit of empathy is something the entire human race needs more of.”<sup>112</sup>

### **GRAVIT-e: A Therapeutic Tool**

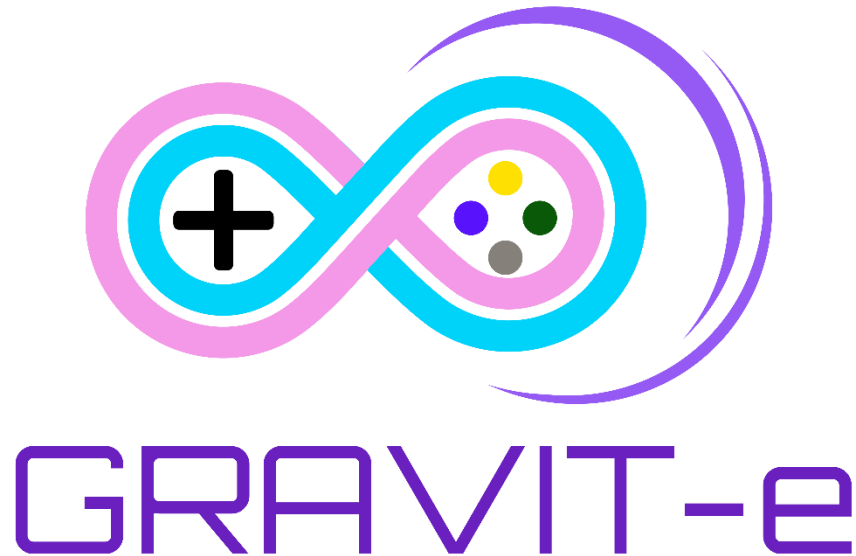


Figure 8- GRAVIT-e Logo

Games try to put you into the shoes of a protagonist, perhaps one that is different from you, or maybe one with whom you share some characteristics. GRAVIT-e will put you in the shoes of who you are. Based on the ability of Virtual Reality to create the

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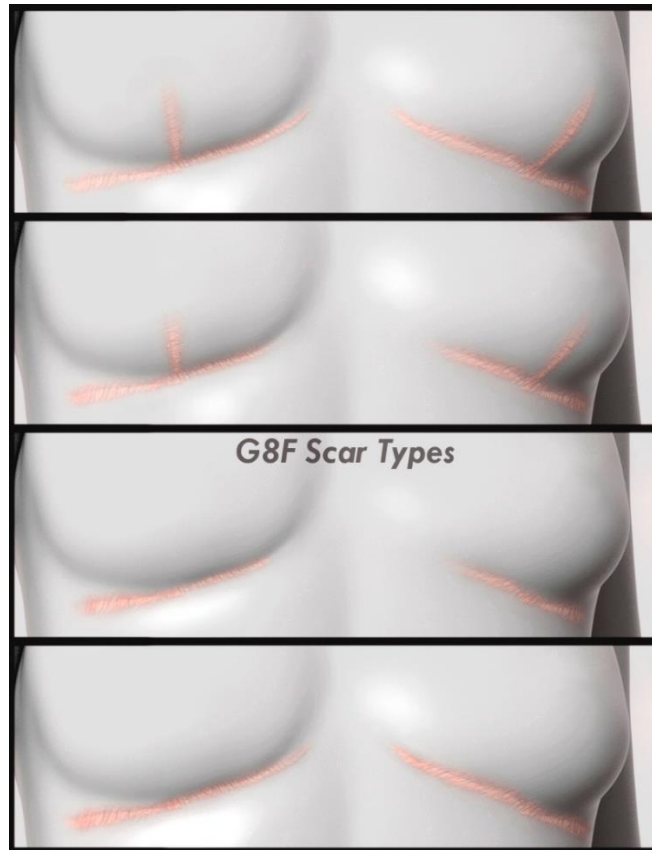
<sup>112</sup> Kuchera, B. (2014).

sense of presence and virtual body ownership, GRAVIT-e is designed to therapeutically place a transgender or gender questioning person into the body that feels right for them.

### **Avatar Creation**

GRAVIT-e will have a comprehensive avatar creation system, that not only includes various options for hair, height, weight, and facial features, but also options of testosterone-driven, masculine traits, estrogen-driven, feminine traits, as well as surgery markers and other body modifications that can come with gender affirmation surgery. The player will also be able to choose their own pronouns and honorifics. The joy being that a player can mix and match any traits that feel correct to them, with no assumptions being made about gender identity or expression.





**Figure 9- Examples of chest surgery scars available in Dax3D Transgender shapes created by Disparate Dreamer**

The goal is to create a realistic body for the player to feel comfortable in and alleviate some of the gender dysphoria. It is vital to create what the player visualizes themselves to truly be, while remaining realistic. Surgery leaves scars, and hormones will affect the body in various ways, and it is important to be honest about it to not leave the player in a worse state of dysphoria due to an unattainable standard.

## **Gameplay**

Now that the player has the image they wish to present to the world, what comes next? Experiencing life in the body you want. With the help of a counselor, the player will be able to explore themselves and select experiences that can cause discomfort for transgender people. Each setting will allow the player the freedom to move around, interact with objects, and non-playable characters.

The settings will include:

- A personal bedroom and bathroom for self-exploration
- A clothing store for comfort being in public and shopping for gender affirmative clothing.
- A restaurant with friends with a public restroom to practice comfort in using the correct gender affirming restroom
- A doctor's office to face the challenges of discussing health and body issues.
- A job interview to face the challenge of being confident in a new location.



**Figure 10- Concept Art, GRAVIT-e Public Bathroom Setting**

All these locations were selected due to the various stresses, transphobic language, and harassment transgender people face for these specific moments. To create further therapeutic moments, GRAVIT-e will also offer two modes of play: Affirmative and Realistic.

### ***Affirmative Mode***

In affirmative mode, the player will not experience any transphobic behavior. All NPC's will use the players selected pronouns and honorifics and will never make assumptions about the player's gender. While everyone may not be kind, they will be gender affirming and not say transphobic things.

### ***Realistic Mode***

In realistic mode, the player will experience a variety of negative, transphobic, and harassing remarks. It is important to note that while this is going to be difficult for some players, no NPC will be violent or combative. It is important this mode be played with the guidance of a counselor, to help work through the more traumatic scenarios.

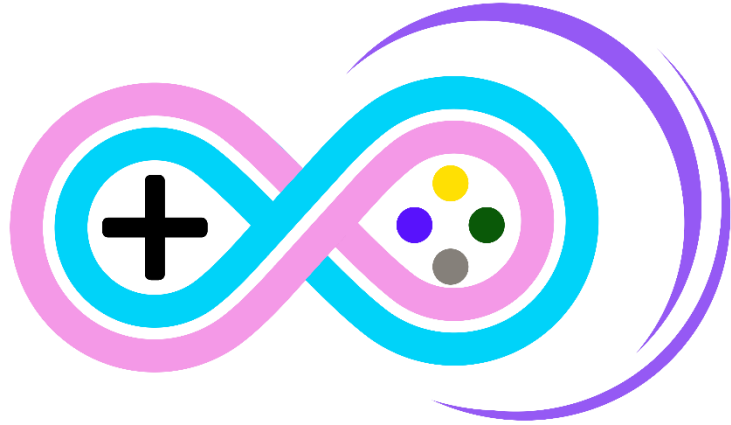
### **Possible Outcomes**

Gender affirmative therapy already includes role playing of possible scenarios that a transgender person could face. This game would be able to take the hardship of playing difficult roles off the therapist and on to virtual bodies. It will also allow transgender people to view themselves how they always have. It could be possible that with all of the hurdles that comes with transitioning genders, including therapy, this could alleviate some of those barriers. Although not the intention of this game, it could also provide necessary empathy to cisgender people who want to understand what their loved ones are experiencing. It also provides a method of those questioning their gender a safe

way to explore that without anything that may disrupt their lives, especially if they realize that maybe they are just gender non-conforming, rather than transgender.

Games and virtual avatars provide a reprieve from our real life and our real identity, generally for entertainment. Why can it also not be for therapy? We are who we are and hopefully GRAVIT-e can help players realize who that is.

APPENDIX A- GAME DESIGN DOCUMENT



GRAVIT-e

**Gender Role Affirming Virtual Identity Therapeutic Experience**  
**A Virtual Reality Therapeutic Tool for Transgender and Gender Non-Conforming**  
**Youth**

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Version # 1.10

## DESIGN HISTORY

Updates to all design documents are here to help understand the process and determine the correct paths in achieving the game design goals for this project. This allows the team to see where the project has evolved from and where it can continue to go.

### Version 1.20

Version 1.20 includes some UI sketches and design.

### Version 1.10

Version 1.10 includes some tuning and tweaking that I did after making my initial pass at the design previously. Here is what I changed:

1. I added a logo and fleshed out all of the world layouts.
2. I incorporated feedback from the Thesis Committee to add a more realistic mode to help players experience realistic negative experiences.
3. Eliminated the street level, it seemed to have little impact overall and felt the incorporated body positivity would be included better in a clothing store. It also seemed difficult to incorporate walking in a realistic manner that would not disrupt the desired state of presence
4. Add two additional levels that will add depth to the experience as it is two scenarios that can cause discomfort in transgender people.
  - A Doctor's Office
  - A Job Interview

## GAME OVERVIEW

### Key Points

Virtual Reality Serious Game

Target audience: Transgender and gender non-conforming adolescents and young adults ages 10 – 22

Hardware: HTC Vive

Gameplay: First Person Viewpoint, Role-Playing Walking Simulation.

Style: Realistic and based on current time period

### General Features

***Customizable Avatar***- almost limitless choices in looks weight, bone structure, hair length, style, and color, genital appearance, and height

***Customizable Experience***- You can choose between having a total affirming experience or a more realistic experience with some negative transphobic comments.

***Replayability***- A player can replay and customize the experience and their avatar at any point to assist with the flexible gender spectrum.



## **Game Design Goals**

### **Creating a sense of presence**

By creating a realistic virtual environment, this game is trying to achieve the virtual body ownership phenomenon. Creating an almost surreal sense of presence for the player.

### **Almost limitless customization options**

Allowing players to customize their virtual body will help them explore gender identity in a safe and affirming way, so a goal is to allow for as close to limitless avatar creation as possible.

### **Adjustable Level of Affirmation**

Adjustable NPC's can allow a player and their therapist to tailor the experience to their needs, with varying levels of affirmation to either create a safe space for exploration or to prepare a player for a more realistic experience.

## **Common Questions**

### **What is the game?**

This is a virtual reality experience to allow players the chance to explore their gender identity. By creating a custom avatar that can be updated as the experience progresses, as well as allowing players to explore a virtual world in this body and be

treated as the gender of that figure, it is hopeful that players will be able to explore their gender, their gender expression, and help make decisions about transitioning. Once players create an idealized version of themselves, with the help of a therapist, players will be able to experience what seem like simple everyday tasks. These tasks may seem arbitrary, but can cause stress and anxiety in transgender people just beginning their transition. Players will be able to visit a public restroom that aligns with their gender identity, or hear people use the proper pronouns, or go on a job interview as the gender they are in the safe confines of a virtual world.

### **Why create this game?**

Transgender individuals have historically faced discrimination, hardship and having medical professionals pathologize their experiences. Virtual Reality has been able to simulate the body ownership phenomena, originated by the Rubber Hand Illusion, and with this ability to establish presence and ownership in the virtual world, transgender people may be able to place themselves into a body that corresponds more with their internal identity and gender. This game exists to be therapeutic and helpful to those struggling with their gender identity.

### **Where does the game take place?**

The game will take place in a virtual fictionalized version of the real world, with separate settings for various experiences, including a virtual home, a restaurant, a clothing store, a doctor's office, and office building. Each setting will have

what seems like simple everyday tasks but can be difficult for those who are experimenting with their gender expression. These settings can be combined with therapy to determine the order these scenarios will be played.

### **What do I control?**

You control a virtual avatar of your design. The customization will allow you to pick and choose features, such as a slimmer jawline, a beard, breasts, genitals (both affected by hormone therapy or post-surgical), to create a simulated gender affirming experience.



Figure 11- Example of Possible Character creation with Daz3D Transgender Shapes for Genesis 8

### What is the main focus?

Most games focus on an entertaining experience. This game is supposed to be a therapeutic tool to help transgender and gender non-conforming people explore their gender and gender expression as well as prepare them for obstacles during transition. The freedom to explore various looks, genders, bodies, and locations will give transgender and gender non-conforming individuals the ability to explore gender thoroughly and completely.

## **What's different?**

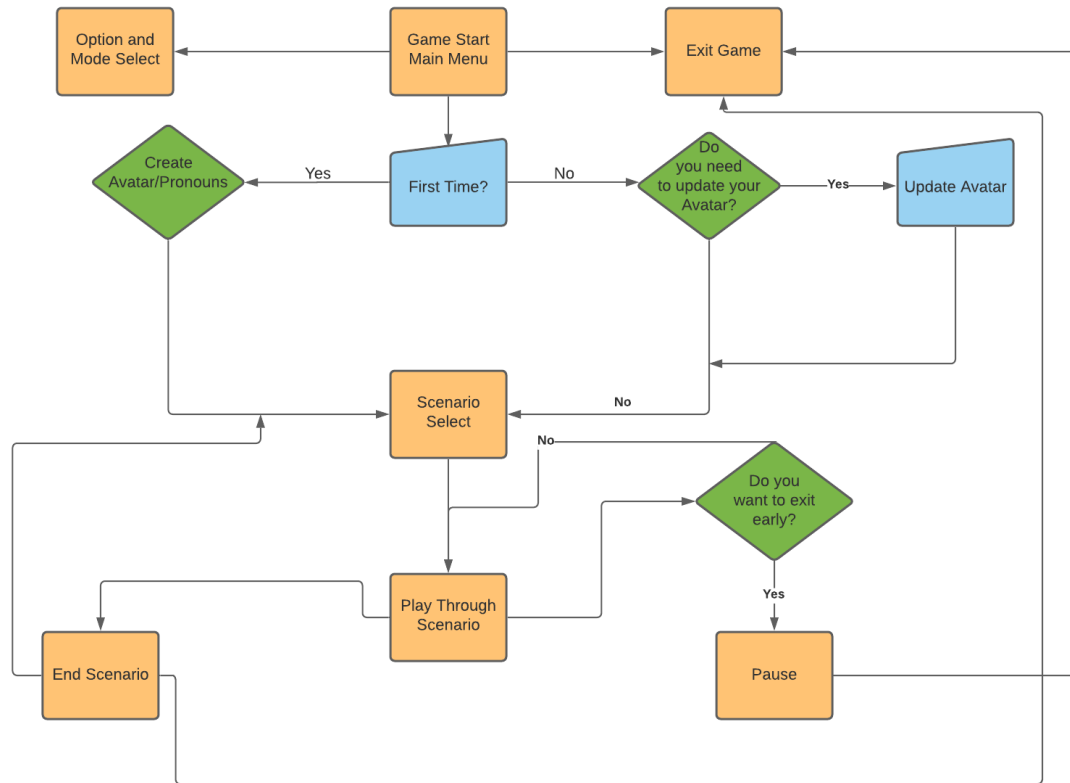
Many games about the transgender experience are often from the perspective of an outsider watching the experience rather than having it, to promote awareness or empathy, but there are no games that offer the ability for a player to explore their gender. Giving players the freedom to create various scenarios and identities to investigate and experience, GRAVIT-e can help affirm transgender individuals, and also promote empathy

## **SECTION II- GAMEPLAY AND MECHANICS**

### **Gameplay**

Scenarios can be played individually or part of a progression that begins with exploring the virtual body and then living and experiencing generally painful scenarios inside of the customized virtual body. There are no real “objectives” as far as missions or puzzles to solve. It will be simple tasks, such as picking out and buying an outfit, going out to eat with friends or having a doctor’s visit. The game should be played in conjunction with a counselor or therapist to assist in breaking down and understanding the interactions and provide feedback as well as comfort if the player has distress.

## Play Flow



Upon the first time playing, the game will open with the avatar customization. Then the option to progress through scenarios as above or once a scenario has been completed, the option to replay it.

## Mechanics

### **Movement**

Movement will be as realistic as possible and relative to the physical world. All objects, clothes, and other items will move under the assumption of real-world physics. The player avatar will be able to interact and move various objects to not only interact

with the objects relative to the playable scenarios but also others to encourage a realistic environment.

The player will teleport to select locations around the level to interact with the environment or continue the narrative of the level.

## **Rendering System**

### **Overview**

Unreal 4 has the ability to use Real Time Ray Tracing (RTRT) to render photorealistic images by using soft lighting and shadowing techniques we can create a higher visual fidelity. Because GRAVIT-e relies on the player perceiving the world as close to reality as possible, using sophisticated rendering is required.

### **Ray Traced Shadows**

Unreal 4's RTRT simulates soft area lighting for the environment. Based on the light's source size or source angle, an object's shadow will be sharper near the contact surface and softens out towards the edges.

### **Ray Traced Reflections**

Unreal 4's RTRT simulates a photorealistic environment by supporting multiple types of reflection bounces which will create real-time inter-reflection between reflective surfaces. This means that objects can even show reflections of surfaces the player can't see such as backs of books or other objects. It is vital to have sophisticated lighting and reflection to



create the most realistic environment possible, especially since much of the experience relies on the character seeing themselves reflected in surfaces and mirrors.

## **Camera**

### **Overview**

The camera will be a point of view from the player. It will be the standard Virtual Reality point of view. Due to height not being a common or possible trait to change, the camera will remain at the height of the player as standard.

## **Game Engine**

### **Overview**

The engine will be Unreal VR. Due to Unreal being able to support the Dax 3D models that we can customize for our Avatars. The Unreal engine has the support for VR plus various VR headsets and is updated regularly to be able to give the team the ability to properly

## **Lighting Models**

### **Overview**

To create a realistic scene, it is important that lighting looks as realistic as it does in the real world. By combining Unreal 4's Screen Based Global Illumination and Lightmass Global Illumination to create realistic dynamic lighting we can create a higher fidelity

environment. GRAVIT-e will also have proximity lighting available on interactable objects and locations within the experience.

### **Lightmass Global Illumination**

Lightmass creates precomputed light maps that will create a complex lighting and shadowing to a scene. However, all the lights are static and stationary as they are mapped and precomputed ahead of time.

### **Screen Based Global Illumination**

Screen Space Global Illumination (SSGI) aims to create natural-looking lighting by adding indirect lighting to objects within view. SSGI also makes it possible to have dynamic lighting from emissive surfaces, such as neon lights or other bright surfaces.

## **SECTION III- STORY, SETTING AND CHARACTER**

### **Story and Narrative**

There is no backstory or narrative- each scenario is simple to allow the player to insert themselves more fully into the experience. There is also no plot, just individual experiences meant to be played either individually or together.

The game progresses by completing each task or by the player exiting the scenario and once an experience has been played it may be repeated as desired

### **The Game World**

#### **Overview**

The game world is based in the United States. The exact location won't be named and any details, outside of the player and NPCs will be kept vague to increase the ability for the player to be able to fill in with their own details and place themselves more into the virtual world.



**Figure 12- Public Restroom within Restaurant Level, Artist- Jennifer Clark**

### **Customizable world and experience**

The world will change depending on the settings you put in. At the start you can customize your experience with your chosen pronouns, chosen salutations and

honorifics, and if you would like a kind, affirming experience or a more realistic experience that can have negative or transphobic interactions.

### **Realistic Sense of Presence in the World**

Virtual Reality will already provide a sense of presence with music, perspective, and interaction, however, to provide a greater sense of presence and realism, you will be able to see your avatar's reflection in mirrors, when you look down at your feet, you will see your virtual body, which will also have physical reactions to touch and motion. These additional steps will create a greater sense of existing in a world within that body.

## **The Physical World**

### **Overview**

The Physical World will be broken up into 5 primary locations. Most primary locations will have additional branching locations available to explore and interact with. Each location is meant to be as realistic as possible without using photography or 360 video. All details of locations such as names, brands of clothing or food/drink will be kept vague to allow the player to fill in details themselves and create a sense of attachment and presence to the locations.

### **Key Locations**

There are 5 main levels/locations for the player- each location can be played at any time and can be available at any time- as this is to be played with the assistance of a therapist based on each players unique needs.

1. Player Bedroom/Attached Bathroom.
2. Clothing Store
3. Restaurant/Public Bathroom
4. Doctor's Office- Waiting Room/Hallway/Examination Room
5. Office Building- Lobby with Admin/Office with Job Interviewer



Figure 13- Concept Art of Bedroom Level, Artist- Jennifer Clark

## Travel

Players will not be able to travel freely between the main locations. However, once in the location players will be able to move freely within the location. Markers will be available to teleport between interactable locations.

## **Scale**

The scale of objects will be as close as real world as possible. Everything needs to be as realistic as possible to create the proper sense of presence within the world.

## **Objects**

There will be no inventory, so you won't be able to pick up and keep things with you. However, you will be able to interact with your environment.

You can check your computer and see IM's emails and social media that will shift and change based on what experience you are looking for.

Grooming will be a big part of levels. You will be able to interact with razors, clippers, makeup, and other personal hygiene items. You will also be able to pick up and interact with small objects, pens, forks, photos, pamphlets. You will be able to interact with clothing, picking it out, holding it up. Changing itself will be fade to black.

See the "Objects Appendix" for a list of all the objects found in the world.

## **Time**

Time will be set and static within each level. It will be daytime, you may be able to see the sunshine and outdoors through windows, but there will be no time cycles.



## The World Layout

### **Overview**

The world is divided up into 5 main locations, 4 of which will have a branching location or two available. Each location is sectioned off on its own with its own story to complete. The player will be able to teleport to different areas around the location

### **Player Bedroom with attached bathroom**

It will be a small bedroom, with a bed, closet with full mirror, computer, and attached bathroom. The player will begin on the bed, and be able to teleport to the following locations:

#### ***Computer***

The player will be able to check emails, social media, and any instant messages- these may change depending upon which mode is being played

#### ***Closet***

The player will be able to see their avatar in the mirror and change their clothes. The clothes available will be able to be edited by the player in feminine, masculine, and unisex categories, the player can select any and all categories.

#### ***Bed***

The player can return to the bed at any time, but there will be no interaction available.

### ***Door***

The player can use this for the option to exit the level.

### ***Bathroom***

The player can enter the bathroom

### **Bathroom**

#### ***Sink/Mirror***

The player can groom themselves (apply make-up, shave, etc). The player can also examine their avatar's nude body, include some interaction.

#### ***Shower***

The player can again groom themselves (shave legs/underarms). The player again can interact with their nude body.

### ***Bedroom***

The player can return to the bedroom.

### **Clothing Store**

Boutique style store with men's and women's clothes. Fitting rooms will be on either side with a cashier in the back.

Each section will have 3 racks, and a shelf as well as underwear section. The player will be able to interact with each clothing rack in a similar manner. Examining each rack's clothing options. The player will be able to teleport to each rack.

### ***Fitting Room***

You can teleport to the fitting room to try on clothing of your choice. This will be a fade to black and examination in the mirror on the door of the fitting room.

### ***Cashier Counter***

You can speak to the NPC as well as pay for any clothes.

### ***Exit***

To leave the level

Player's will also be able to interact with NPC's

- Kristen- Cashier
- Shopping Woman- will excuse herself to go around you. Otherwise no interaction.
- Shopping Man- will say "Hello Miss/Sir/Cap'n [other honorific for non-binary]"

### **Restaurant**

The level is you having a dinner with a few friends. As the meal goes on you will interact with the waitress and request access to the restroom. There will be a men's, women's and gender neutral/family option. In the less affirming mode, the waitress will accidentally refer the player to the incorrect bathroom, apologize, correct herself, and continually apologize for every interaction calling attention to the player's transgender status.

### ***Hostess Stand***

You will interact with the hostess to get to your table. This interaction is brief and will not be changed.

### ***Table***

You will sit with your friends, join in light conversations. And order here.

### **Women's Bathroom**

There will be one woman in the bathroom who you won't really be able to interact with beyond a hello. In the less affirming mode she will stare and keep her distance, but will not say anything.

#### ***Stall***

You can enter the stall; the screen will fade and you will be outside once finished.

#### ***Mirror/Sink***

You can see your avatar's reflection and wash your hands.

### **Men's Bathroom**

Two men will be in the room at the urinals when you enter. They are friends and will have a conversation. If you are in less affirming mode they will whisper about you and snicker behind your back.

#### ***Stall***

You can enter the stall; the screen will fade and you will be outside once finished.

#### ***Mirror/Sink***

You can see your avatar's reflection and wash your hands.

## **Gender Neutral/Family Bathroom**

No one will be in this bathroom and you will not interact with anyone. The screen will fade to black when selecting this option and you can return to your table when finished. However, in less affirming mode this bathroom will not be available as many public places do not offer this as an option.

- Player's will also be able to interact with NPC's
- Hostess
- Madison- Waitress
- Bathroom Woman
- Bathroom Man 1
- Bathroom Man 2
- Friends of various genders and races to be at your table.

## **Doctor's Office**

Everybody has to have check-ups and so it is important that the player has to experience being in a Doctor's Office.

The player will begin at the entrance, check in, and then wait. Once called, go into the examination room where the Doctor will check a few vitals and begin to discuss health issues depending upon the biological sex and gender of the player.

### ***Check in Desk***

The Player will be able to check in. In less affirming modes the Clerk with double check with a dead name.

### ***Waiting Room***

The player will be able to sit. They can pick up and look at pamphlets. There are two people in the waiting room. In the less affirming mode, they will stare and make negative comments.

### ***Doctor's Examination Room***

When called you will get up and enter the doctor's examination room via a hallway. There will be interaction with Doctor Corwen who will have different options depending upon biological sex, gender, pronouns etc. In the less affirming mode, Dr. Corwen is neutral, but can use medically based transphobic language.



Figure 14- Concept Art of the Doctor's Examination Room, Artist- Jennifer Clark

## Job Interview

One of the most difficult things you can do, along with visiting a doctor and perhaps dating, is being an openly trans person during a job interview. The player will begin at the entrance to an office suite. An administrative assistant will check you in and let Mr. Chambers, the interviewer

## Game Characters

### Overview

The main focus will always be the player character. How you look and how all the NPCs interact with you. The world will be inhabited by NPCs: friends, cashiers, waiters, but also random citizens who may have something to say about you.

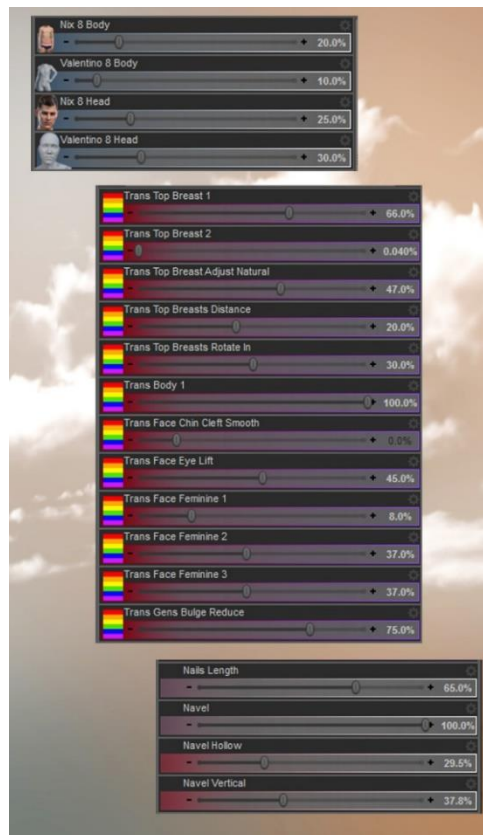


Figure 15- Example of Slider Scales to Create Player Character- retrieved from Daz3D Transgender Shapes for Genesis 8

## Creating a Character

The character creation is the largest and most important piece. Everything should be customizable- but still realistic.

Facial features will start with base features that can be customized with sliders. Much like in the Sims 4 or Fallout 4. Including sliders and options for facial hair, beauty marks, acne, and scars.



Figure 16- Example of Possible Character Creation Option



Hair will offer the option of various styles, traditionally masculine, feminine, androgynous and alternative styles. Variety will be important to make sure as many gender expressions can be represented.

The body can also be modified: The options will encompass those who may want surgery, only hormone therapy, or none. This will include breast tissue enlargement/loss via hormones, implants or mastectomy. Gendered features can also be adjusted and changed, jaw line and overall feminization/masculinization of the body with muscle mass change, body hair change, etc. Customizable genitals will also be an option including options effected by hormone therapy or full sexual reassignment surgery.



Figure 17- Example of Character Creation Option



Figure 18- Example of Possible Character Creation Option

## NPCs

This is a game about interacting with the world around you, specifically the people. There will be a few NPC's that there will be long interactions with, but most will be small. Each NPC's age and profession will determine some of their interactions with the player, both in positive and negative experiences. Sometimes the NPC will not view their language or behavior as transphobic. Either while being affirming or dotted with negative language, these interactions are meant to be seen as insignificant to the NPC.

## **Notable NPC's**

### ***Dr. Corwen***

One of the scenarios has one of the routine tasks for cisgendered people, visiting a doctor for a check-up. Dr. Corwen is a female general practitioner in her late 30's. Dr. Corwen is not outright hostile or judgmental, but if the harder setting is chosen, will use language that can be considered transphobic in her desire to explain all health concerns.

### ***Mr. Richard Chambers***



**Figure 19- Example of Design for Mr. Chambers, retrieved via Daz3D examples of Characters**

The player will have a job interview at an office with the manager of the department, Mr. Chambers. He is mid 50's, and fairly rude. Although gruff, in affirming

mode, he will still refer to the player by all requested pronouns and honorifics. In the harder setting, he will be outright negative and slightly hostile. Constantly referring to “someone like you” and “making clients uncomfortable”. Will intentionally misgender the player.

***Madison, Waitress***

She will be sweet but overly anxious. When selecting the more difficult mode, the player will request the location of the bathroom. Madison will present directions to the incorrect one. Then overly apologize about it in every interaction afterwards and will slowly and deliberately make exaggerated efforts to show how accepting she is.

*Kristen, Cashier*



**Figure 20- Example of Design for Kristen- in both Negative and Affirmative Mode**

Dismissive and unenergetic, in affirming mode she will use all correct pronouns and honorifics. In the harder settings, she will be negative, dismissive, but not outright hostile. Will stare at the player constantly as if the player is strange and will also secretly film or photograph the player. If confronted, she will pretend not to do these things and maintain distance.

*Your Friends*

While at the restaurant your friends will always be friendly, accepting, and affirming. They will be a diverse group and you can have small conversations with them.

## SECTION IV- INTERFACE

### Overview

Overall, the interface will be very sparse and kept to a minimum to increase presence within the world and make the player feel as if it is real.

### Conversation

Most of the interaction between the player and NPC's will be through dialogue. To provide a more realistic experience, dialogue options for the player will be given in a multiple-choice format.

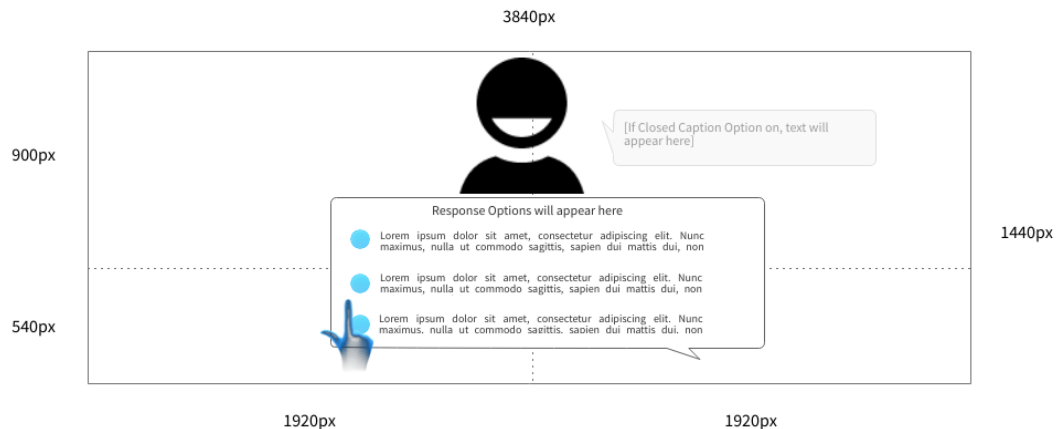


Figure 21- Mock- Up of GRAVIT-e Dialogue System

While this may break immersion slightly, it does give the player the option to actually role play and react to situations as intended.

## Interactable Object Glow

Objects that the player will be able to interact with will have a faint outline glow. This small break in immersion will be necessary to communicate to the player what objects can be interacted with and which ones cannot.

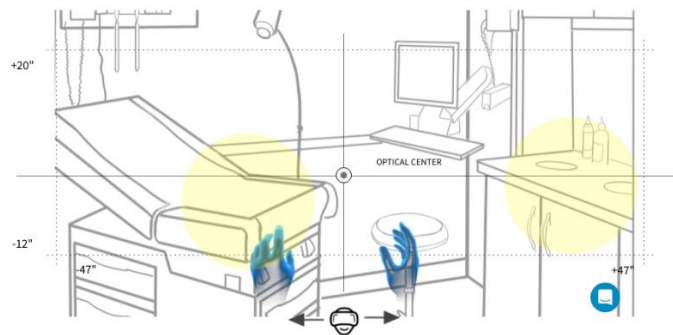
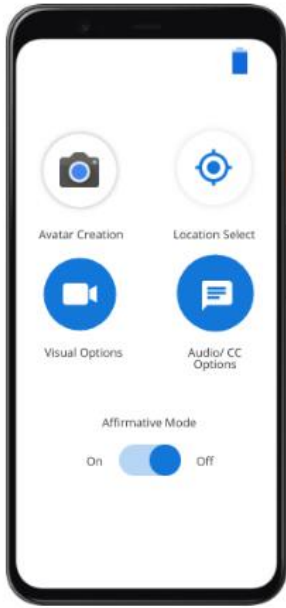


Figure 22- Mock- Up of UI Design with Interactable Objects

## Cell Phone

When a player wishes to adjust the game settings, visual settings, audio settings, turn on closed captioning, or exit a situation, she can use the cellphone icon in the bottom of the screen.





**Figure 23- Mock Up of Cell Phone Options Screen**

## APPENDIX B- LIST OF TERMS AND THEIR MEANINGS<sup>113</sup>

Assigned sex at birth- The designation made by medical professionals of a person's sex based on a visual examination of a child's genitals at birth.

Biological sex- A combination of chromosomal make up, outward genital appearance, and reproductive organs. Biological sex can be complex and complicated. Designated sex is often incorrectly conflated with gender.

Cisgender- People whose gender identity aligns with the assigned sex at birth.

Cishet- Shortened form of cisgender heterosexual- those who identify with their assigned gender/sex at birth and are sexually attracted to the opposite sex.

Egg- An internet nickname for the time period in a transgender person's life before that individual realized they were transgender. It is considered rude to call an individual an egg in the present.

Gender- The complex relationship between an individual's body, identity, and expression, all come together in various parts to comprise one's gender. Gender roles and expectations are constantly evolving over time and are different between cultures.

Intersex- The appearance of biological markers of both biological sexes in one individual, happens during fetal development. A condition that affects roughly 1% of the population.

Non-binary gender- An umbrella term for gender identities and expressions that are not exclusively male or female. Non-binary transgender people can feel that they are both male and female, neither, or something else.

Passing- The ability for a transgender person to appear as a cisgender person to the outside world. This is a very loaded term with a lot of history behind it. Passing can protect transgender individuals from violence and harassment, however, passing also denotes a sense of deception as though transgender people are not their gender and merely pass as another. Some transgender individuals view passing as the goal of their transition journey, others view passing as unnecessary, and further promotes a gender binary and pressure to act within stereotypical gender roles.<sup>114</sup>

Transgender- having a different gender identity than the gender assigned at birth. This

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<sup>113</sup> Brill, S. and Kenney, L. (2016). *The Transgender Teen: A Handbook for Parents and Professionals Supporting Transgender and Non-Binary Teens*. Cleis Press. Jersey City: NJ.

<sup>114</sup> Godfrey, C. (2015). "Transgender Men and Women Discuss the Politics of Passing" *Vice.com* <https://www.vice.com/en/article/wd7enm/passing-when-youre-transgender>

includes male to female, female to male, non-binary, genderqueer, gender non-conforming, bigender, agender, and any other loose definition of gender identity. In this paper, transgender is used in the broadest possible sense.

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## **BIOGRAPHY**

Stephanie Kane graduated from Osbourn High School, Manassas, Virginia, in 2005. She received her Bachelor of Arts from George Mason University in 2008. She has been employed with the Virginia Serious Game Institute since its inception at George Mason University's College of Visual and Performing Arts in 2013.