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SUBVERTING NEOLIBERALISM THROUGH A DESIGN FRAMEWORK FOR TRANSFORMATIVE GAMES

by

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Master of Arts by Research in the field of Digital Arts

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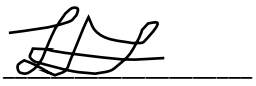
March 2022

A dissertation submitted to the Wits School of Arts, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Master of Arts

DECLARATION

I, LEIA FRENCH, hereby declare the contents of this research dissertation to be my own work. This dissertation is submitted for the degree of Master of Arts in Digital Arts at the University of the Witwatersrand. This work has not been submitted to any other university, or for any other degree.



24 June 2022

Leia French

Ethics Number: H21/07/14

ACKNOWLEDGEMENTS

It is time for me to thank:

My supervisor, Stephen Cloete: You have a way of asking the right questions. I couldn't have asked for better. You've been my light in the mist.

Hanli Geyser: For caring deeply — for all. For lighting up the beacons that kept me on my path.

My Film, Visual and Performing Arts lecturer, Doctor Benita De Robillard: Thank you for making the invisible, visible — and for inspiring this research topic.

Kieran Reid: "A truly great teacher is hard to find, difficult to part with, and impossible to forget". Thank you for always believing in me.

Our Digital Arts lecturers: Kieran Reid, Hanli Geyser, Stephen Cloete, Raymond Whitcher, Samantha Schoeman, Peta Goldberg, Henrike Lode, Timothy Flusk and Vuk Vucetic — thank you for pushing us to ask the fundamental questions. And to every tutor that crossed my path in Digital Arts, know that you didn't leave my life untouched.

Stephen Cloete (again) and Mitch Cox: For kickstarting an early love for Unity C#.

My game design reviewers: Kyle McLachlan, Saatwik Kambadkone, Erik Prinz, Sakhile Mogale, Stash Gomes, Joshua Jansen van Vuuren, Danny Day…Thanks to you, I ended up scrapping my first 100-page design document! I'm truly grateful for your invaluable advice, kindness and support.

My parents, Matthew French and Kim Morgan — for your *endless* support, for enduring the all-nighters and 2 AM breakdowns, for stressing about me more than I stressed about myself: Thank you. Eternally.

My partner, for enduring the same. For always listening. For your insightful perspectives. For every bit of support you've given me: Thank you.

My dear, dear participants/research assistants: What a collaborative rollercoaster we have been on! Today, I am filled with gratitude for the kindness of strangers…And for strangers who became friends. To the following play-testers/diary keepers (with your permission), my eternal gratitude:

1. Nhlanhla Langa
2. Joshua Goventer
3. Anele Mzaza
4. Princess Mampane
5. Kyle McLachlan
6. Jason Batzofin
7. Stephenie E'Silva
8. Michael Cambanis
9. Daniel Christodoulo
10. Talia Pillay
11. Harrison Barber-Scargill
12. Ayse Soyertas
13. Aden Wagner
14. Ntsako Mphahlani
15. Jason Westman
16. Tshegofatso Khonothi
17. Hannah-Lynne Wedel
18. Mila Ntushelo
19. Jenna Dunford
20. Tershen Naidoo
21. Lerato Lekoetje
22. Saidil Gokul
23. Liam kelly
24. Afeni Kere
25. Musawenkosi Madlala
26. Tamala Amelia Manda
27. Xanthe Roux
28. Leigh-Anne Rule
29. Saili Chola
30. Matthew James Rule
31. Thabang Dyasi
32. Matthew Howcroft
33. Benjamin Xaba
34. Sally Sekgobela
35. Sinaed Commins
36. Lucien James
37. Hlalele Lebesa (Maxwell)
38. Robin Roux
39. Mahuntsu Mhlongo
40. Mikaeel Dindar
41. Andrew John Van Wyk
42. Siyabonga Siluma
43. Sanah Hanif
44. Talitha James
45. Thabang Zulu
46. Achal Byroo
47. Kim Coetzee
48. Matthew Kucera
49. Helena Christodoulo
50. Wilmari McLachlan
51. Hifza Salman Hanif
52. Saatwik Kambadkone
53. Sasha-Lee Webster

ABSTRACT

Neoliberalism is the dominant order of our time. It has contributed to an age of escalating economic deregulation, privatisation, inequality, poverty and employment precarity – shifting the responsibility of governments to individuals while promoting a mindset of competitiveness, consumerism and individualism. Video games, as cultural artefacts, often reflect aspects of dominant neoliberal culture. Primed to immerse and persuade, video games can capture the attention of millions of players – and in positively mirroring neoliberal ideology, they can serve to unwittingly naturalise it. It is argued that if games can entice consent to the dominant order, it is possible that they can inspire resistance to it. However, studies show that persuasive games which engage with critical social issues in an explicit, literal manner are less likely to cause a change of heart than games that take a more indirect approach. This paper proposes a design framework for transformative games as a way of making more engaging, transformational games that can inspire critical reflection and player transformation without sacrificing player enjoyment. To demonstrate and assess the potential of this design framework, it was embedded in a purposefully created transformational game, *Double-Edged Chord*, aimed at subverting neoliberalism. This report details how an arts-based, transformative, mixed-method approach was used to develop and assess the potential of the design framework and its medium, the game. An analysis of pre-game questionnaires and guided post-game diary responses of 53 play-testers suggest that the framework and game hold transformative potential: Participant responses indicate that *Double-Edged Chord* resonated with the majority of players and demonstrated relative success in transforming awareness, knowledge and attitudes about neoliberal practices – helping players to re-imagine a world founded upon more humane values of equality, justice, empathy and cooperation. In this light, this study hopes to render visible and subvert neoliberalism's impact both in-game and in reality.

Keywords: Neoliberalism, Video Games, Transformational Games, Embedded Design

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INTRODUCTION

> *You cannot have that kind of power concentrated in so few hands and not recognize the need to fight back with multiple forms of resistance…educational, political, social, and cultural (Giroux 2019).*

Neoliberalism is the dominant order of our time. It is the belief that political, social, and economic "power should reside in markets and corporations – rather than in governments and citizens" (Giroux 2005, p. 2). Promoting a mindset of competitiveness, consumerism and individualism in the name of 'profit-over-all', neoliberalism has contributed to an age of escalating economic deregulation and privatisation, government expenditure cuts on basic services such education and healthcare and increasing inequality, poverty and employment precarity.

Bayliss et al. (2020, p. 17) contend that "inequality is built into the fabric of everyday life, emerging from the way in which basic needs are met". As the responsibility of governments is shifted to individuals, the structural and systemic causes are masked. Harvey (2005, p. 185) concurs that "for those left or cast outside the market system – a vast reservoir of apparently disposable people bereft of social protections and social structures – there is little to be expected from neoliberalisation except poverty, hunger, disease, and despair".

Even our education systems perpetuate this cycle of inequality. With the neoliberalisation of higher education, its focus has become entrepreneurship, employability and the teaching of transferable skills to competing students looking for a competitive edge in the graduate job market. "Once about developing intelligent, thoughtful elites and reproducing culture, and more recently, enacting a principle of equal opportunity and cultivating a broadly educated citizenry, higher education now produces human capital, thereby turning classically humanist values on their head" Brown (2015, p. 24). In so doing, higher education is erased as a critical space for understanding, handling and challenging the powers that govern us – including neoliberal rule. In the process, the tenets of democracy are undermined (Brown 2010).

Racho (2017) further demonstrates how neoliberalism nurtures obsessive consumerism, hyper-individualism and competitiveness – reformulating our personhood, our psychological life and our moral and ethical responsibility in the

process. Competition is coupled with meritocracy and the narrative that anybody, regardless of race, class or gender can succeed if they work hard enough. Failure is placed on the individual as neoliberalism convinces us that the disadvantaged and suffering are authors of their own distress (Houghton 2019).

This neoliberal narrative of hyper-individualism and competitiveness dominates our lives – pitting us against each other, creating an empathy deficit and an epidemic of loneliness. Social justice and solidarity, along with community and any sense of belonging, is undermined – growing a depoliticised citizenry who have neither the will to see and act against neoliberal systems, nor the social cohesion to resist them (Monbiot 2017).

While neoliberalism began as an economic theory, it often functions invisibly, pervading all aspects of our lives – including our language — where "words like innovation, entrepreneurship and creativity conceal and protect neoliberal agendas" (Leary 2018). Girerd et el. (2021, p. 2) note that "the influence of neoliberalism exceeds that of its policies" – rendering it an ideology that shapes individuals in accordance with its economic and political ideals. In this regard, Monbiot (2016) raises the very real concern that neoliberalism is so pervasive "that we seldom even recognise it as an ideology" – although we may unwittingly "internalise and reproduce its creeds".

This paper is grounded in the idea that video games too, as cultural artefacts, very often reflect aspects of dominant neoliberal culture. Kline, Dyer-Witheford and de Peuter (2003, p. 57) show how digital games embody one of "the most powerful economic, technological, social, and cultural forces at work" in neoliberal systems. Bailes (2019) agrees, arguing that video games are primed to immerse and persuade. They can capture the attention of millions of players — and in positively mirroring neoliberal ideology, serve to unwittingly naturalise it. By perpetuating the neoliberal assumption that everyone succeeds based on individual effort and talent, games often render invisible the role that gender, race and class play in benefitting some groups over others.

Against this background, it will be argued that if games can entice consent to the dominant order, it is possible that they can also inspire resistance to it.

BACKGROUND AND RATIONALE

Games are sites of social engineering and contestation. They constitute "ways of playing with culture and playing with politics – potentially without any kind of moral and ethical buy-in" (Murray 2018, p. 5). Bailes (2019, p. 3) concurs, noting that games are embedded with the culture and politics that created them – often reflecting and reproducing the ideologies of dominant cultures. Many computer games reflect neoliberalism's reach – where it is not collective human labour or ingenuity that brings wealth but rather trade, conquest and ruthless competition.

However, in a world where even creativity has long been captured by marketing apparatuses, there is still opportunity for game designers to resist. We have the tools at our disposal to craft games that resist and challenge neoliberalism's loudest message that "there is no alternative to the status quo, and that humanity has reached its highest level" (McChesney 1999, cited in Chomsky 1999, p. 15). In this light, there is an urgent need to attend to the values we embed in our work – and for whom (Giroux 2005).

If we, as game designers/developers, want to work towards a more humane and just world, we need to design games that can inspire collaboration, caring, empathy and social cohesion. Games that can activate and encourage resistance. Games that are *about* something, that challenge people and "show that we care about real things" (Hocking 2008, cited in Rusch 2017, p. xxii). Similarly, Rusch (2017, p. xx) believes that games can help us make sense of our lives because "games enable embodied experiences" – allowing us to see the consequences of our actions while experiencing those actions through the eyes of someone else. Games are thus primed to tackle the human experience in empathetic ways.

So how can we, as game designers, use our tools to subvert neoliberalism's colonisation of our lives – both in games and in reality?

RESEARCH QUESTION

If video games can construct spaces which reproduce dominant ideologies, how can they also create spaces to resist them?

THE PROBLEM

Studies show that games which engage with critical social issues in an explicit, literal manner are less likely to cause a change of heart than games which take a more indirect approach (Kaufman et al. 2016). Aside from players' psychological responses, the in-built formal constraints of games as a medium play a role too. It's often argued that games are supposed to be 'fun' and anything which is not 'fun' is inherently undesirable. Similarly, Polzer and Hlavacs (2017, p. 3) found that "an educational appeal might impair the quality of gameplay, and consequently reduce its interventional efficacy or transformative impact".

AIM

This paper set out to explore ways for making more engaging transformational games. More specifically, this study focusses on how a design framework for transformative games can inform the design of a transformational game aimed at subverting neoliberalism – setting in motion a transformative process that is "uncoerced and out of the recipient's own accord" (Rusch & Phelps 2020, p. 3).

To facilitate this aim, this study's four main objectives are to:

1. Better understand how neoliberalism's influence shapes the way we engage with the world.
2. Develop a framework of game design elements that might make for more engaging transformative games – games that can inspire critical reflection and player transformation without disrupting player enjoyment.
3. Embed this design framework within a transformational game that, ideally, will create an awareness and critical thinking in the player about the invisible influence of neoliberalism.
4. Use voluntary participants to gauge the transformational potential of the design framework and its prototype game.

Ultimately, through its design framework for transformative games and its chosen medium (*Double-Edged Chord*), this study hopes to show how, in some small way, we can design games which re-imagine a world founded upon more humane values of equality, justice, empathy and cooperation – in the process rendering visible neoliberalism's impact not only in-game but in reality.

See Appendix F for a download of Double-Edged Chord – as well as a video playthrough of the game and other related links.

SECTION OVERVIEW

Section 1: The theoretical framework offers a lens through which games are viewed in this essay – discussing the potential of games to be transformational catalysts for social change, capable of subverting neoliberal systems.

Section 2: The literature review critically explores how neoliberalism negatively impacts people's lives. It then discusses potential strategies for subverting neoliberalism in games.

Section 3: The methodology explains the process for realising the goal of subverting neoliberalism through a design framework for transformative games. In this regard, an arts-based, transformative, mixed-method approach is used to design, develop and assess the efficacy of the framework and the game in which it is embedded. This section further outlines how the necessary data was obtained through a three-part study: Study 1 draws on this study's literature review and a pre-game questionnaire to better understand neoliberal influence on people's everyday lives. Study 2, drawing on the findings from study 1, develops a transformative game design framework for subverting neoliberalism. This design framework is then used to design a transformational game, *Double-Edged Chord*. Study 3 analyses the transformational potential of the framework and its game from study 2 by comparing the post-game diary responses of 53 participants to the responses of their pre-game questionnaire.

Section 4: The design framework for transformative games is developed, drawing on the literature review. It also discusses the process of embedding the design framework in its medium – a purposefully-made transformational game (*Double-Edged Chord*) designed to render visible and subvert neoliberalism's influence.

Section 5: The results, analysis and discussion section reports on the findings of this study and presents an analysis of the pre-game questionnaire responses and post-game guided diary responses.

Section 6: The conclusion reflects on the goals, findings, implications and limitations of this study.

SECTION 1: THEORETICAL FRAMEWORK

1.1. Transformative Games

Transformative games seek to leave their players more reflective, insightful and informed with regards to the issues they present. Following Barab, Gresalfi and Ingram-Goble (2011, p. 1) videogames are a compelling medium that game designers can use to "create narratively rich worlds" for achieving transformational goals. In these worlds, players take on "the role of a protagonist" who can critically engage with complex social issues "to transform their problem-based fictional context and transform the player as well". Such transformational play can offer "depth of collaborative inquiry, opportunities for consequentiality, rich perception–action cycles, and exploration of situated identities" (Barab, Gresalfi & Ingram-Goble 2011, p. 1) Transformational games can therefore give players the space to build worlds that can transform people's lives both in game and in the real-world-through player transformation.

1.2. Video Games can be Catalysts for Social Change

With their sheer ubiquity, video games have amassed a culture, becoming what Hall (2006) calls "networks of meaningness" that allow us to interpret our environment and the people around us. This is especially significant when one considers a 2020 report by video game retailer GAME – which found that gamers have spent the equivalent of 19.2 million years playing only *ten* of the most popular online games. In her 2011 book

Reality is Broken, game designer Jane McGonigal convincingly argues that this power can be harnessed to solve real-world problems: Given that gamers are already great problem-solvers and collaborators, cooperating with other players to overcome challenges, they could potentially leverage this power in their own lives and communities. Drawing on games like *World Without Oil* (2007) – a simulation designed to brainstorm and find solutions to the challenges of a worldwide oil shortage – McGonigal demonstrates how gameplay can be used for socially-positive ends.

In their study, Nicholls and Ryan (2003, no pagination) go further, explaining how play itself is a "politically-engaged activity": Hovering between the real and virtual, its interactive nature offers an opportunity for learning how to interpret and interact with others and our environment. It allows us to push not only our own boundaries but society's as well. For Goins (2019) interactivity in games asks the player to negotiate meaning. That meaning is encoded into games by their designers – who design systems according to their own social, cultural and technological framework. Therefore, depending on the perspective of their designer, games can either reproduce questionable social orders or challenge them, leading to transformation in player thinking (Flanagan et al. 2007).

This potential to inspire players in the vein of challenging the status quo is demonstrated in SEGA's 2002 game, *Jet Set Radio Future (JSRF)*. Given that the game world is modelled on the real-world city of Tokyo, *JSRF* invites players to draw connections and perceive real-world space in a different way. This is boosted by its core mechanic – reterritorialization by graffiti. When graffiti writers (like those in *JSRF*) intentionally invest "social and symbolic significance" in their work, they incite new ways of seeing the city (Kindynis 2017, p. 522) – expressing the ability of marginalized groups to "challenge dehumanizing representations inside and outside of game spaces" while also inspiring social interaction and the creation of a sense of place and belonging (Gray & Leonard 2018, p. 1). In this way, it gives players the space to partake in the sort of "politically-engaged activity" that Nichols and Ryan (2003, no pagination) speak to – pushing back against in-game oppressive powers and virtually enacting social change in ways that encourage one to imagine how this could be possible in reality as well.

1.3. Lived Space: A Site for Social Transformation

According to Lefebvre (1974), space is produced to meet the needs of its society – to establish social organisation and maintain power structures. This, for Zieleniec (2016), means that *who* controls a space (and *how*) will drastically affect the everyday lives of its citizens. To this end, Lefebvre posited three spatial elements: Spatial Practices (perceived space), Representations of Space (conceived space) and Representational Space (lived space) (Lefebvre 1974). Zieleniec (2018) explains how space becomes political when conceived space influences the way perceived space is shaped and manipulated. Lived space (representational space) is the space of counterspaces and social change.

Games like *Disco Elysium* (2019) explore this space. *Disco Elysium* (2019) presents the world of Revachol – the inhabitants of which (from dockworkers to cops to vigilantes) are in conflict with the Coalition of Nations that brutally oppresses them (Walker-Emig 2019). The game allows the player character to engage with the game's political ideologies in lived space. Moreover, the player-defined political standing allows them to make characters' lives better or worse in many small human ways. Players can choose to empathize with characters or intimidate them, to trust their partner or remain guarded, to remain neutral like the moralists or side with the communists or the brutality of fascism. In so doing, their character inevitably comes into conflict with agents from opposing ideologies (McCarter 2019).

1.4. Games Can Shape Both Gamic and Real-World Space

> *The representational space of LeFebvre's triad is perhaps best described as a passive experience filled with sites of resistance where imagination can appropriate and change meanings (Goins 2019).*

If games and representational (lived space) are socially transformative, their powers can potentially coalesce in gamic lived space. As Dyer-Witheford and de Peuter (2009) explain, progression in games is driven by spatial traversal — whether you're travelling a game map or exploring the branches of a narrative. That same game-space is also inherently a deviation from reality – and exists as a means to 'step outside' it. This slippage between real and illusionary space is what makes gamic space so powerful. Jenkins (2005) sheds further light on this, noting that designers influence players by

drawing on assumptions of their pre-existing knowledge because players view games through their own lens of reality. Stockburger (2006, p. 77) explains further that games not only contain elements of existing spatial formation – but that they also introduce "different and new configurations of representational space".

This is reminiscent of Soja's Thirdspace (1996, cited in Stockburger 2006). Stockburger (2006, p. 81) describes it as a space of both "real and imagined places" — an extension of Lefebvre's lived space where the "material and ideological" collide. It constitutes a "container of difference, otherness and novel approaches". It is the space for marginalized voices to be heard and the realm of social resistance.

All this demonstrates the potential of gamic space to be a catalyst for social change. Hall (2006, cited in Everett et al. 2015, p. 1) shows how through space, games can become "networks of meaningness" which communicate information to players who interpret and then use it in reality. More than that, games teach us how to navigate those spaces, to re-imagine (and so contest) real-world space, to form empathetic connection and evoke "ethical engagement with lived-world challenges" (Everett et al. 2015, p. 1). *Disco Elysium* (2019) demonstrates this well: Edge (2018) notes how players lean on existing socio-political conventions to understand the game. Players traverse game space in similar ways to real space — navigating maps of choices and terrains with their own rules and constraints. In *Disco Elysium*, the rules have been re-imagined and then taught to the player through the game's distinctive narrative mechanics. It not only ingrains the world's rules in the player but allows them to act accordingly within it.

1.5. The Role of Players

For transformational experiences to occur and for subversive or transformative content to be effective, it should be noted that players need to exercise "a certain critical effort and engagement" (Cloete 2010, p. 46). In this regard, video game designers should maintain an awareness that we cannot force a player to imbibe a game's messages or to transform. We can only offer a space conducive to it.

SECTION 2: LITERATURE REVIEW

2.1. Effects of Neoliberalism

> *Neoliberalism is most commonly understood as enacting an ensemble of economic policies in accord with its root principle of affirming free markets. These include deregulation of industries and capital flows; radical reduction in welfare state provisions and protections for the vulnerable; privatized and outsourced public goods, ranging from education, parks, postal services, roads, and social welfare to prisons and militaries; replacement of progressive with regressive tax and tariff schemes; the end of wealth redistribution as an economic or social-political policy; the conversion of every human need or desire into a profitable enterprise, from college admissions preparation to human organ transplants, from baby adoptions to pollution rights, from avoiding lines to securing legroom on an airplane; and, most recently, the financialization of everything and the increasing dominance of finance capital over productive capital in the dynamics of the economy and everyday life (Brown 2015, p. 28)*

2.1.1. Deregulation, Privatisation and Marketisation

Dovemark et al. (2018, p.3) succinctly explain the concepts of deregulation, privatisation and marketisation to help us grasp their impact on our lives: Deregulation is seen as "the removal or reduction of state regulations in the economy and elsewhere". Privatisation refers to the outsourcing of public sector services such as health, education and law enforcement "to private firms or non-profit organisations". Marketisation is the restructuring of "public enterprises and institutions to operate more like market-oriented firms through adoption of private sector management practices and funding schemes emphasising market behaviour" (Dovemark et al. 2018, p.3).

Deregulation and privatising of public services allow corporations to demand payment for essential services – charging rent for them from both governments and citizens. This 'rent' constitutes an unearned income – and can have disastrous effects (Monbiot 2016). For instance, according to Smith (2018) water rates went up by 400% in Nelspruit[1] after privatisation. In KwaZulu-Natal[2], replacing a communal tap with a prepaid metering system resulted in "a cholera outbreak that claimed 300 lives as people searched for alternative water sources" (Smith 2018). In the United Kingdom, "the privatisation of water services resulted in the loss of 10 000 jobs in 10 years" (Smith 2018). In the US,

[1] Nelspruit is a city in South Africa close to the Kruger National Park (a tourist attraction and nature reserve).
[2] KwaZulu-Natal is one of the most populated provinces in South Africa (South Africa's Provinces, 2022).

deregulation is associated with increased homelessness resulting from rising housing costs (New Economic Thinking 2016). In education, Schlicht-Schmälzle et al. (2011, p. 1) found that it is "higher social classes that benefit more strongly from deregulation, which increases the degree of educational inequality". With deregulation and privatisation has come declining subsidies for higher education, increased tuition fees, student debts and youth unemployment.

2.1.2. Public Health, Wellbeing and Security

With privatisation and deregulation has come the collapse of public health, wellbeing and security nets. Even the once-free NHS[3] couldn't escape the clutches of privatisation, devolving from a "humanitarian health system – free at the point of use – into a privatised, profit-making corporation by stealth", undermining the quality of care (Mould 2018, p. 25). A 2013 study found that a hospital run by the Mid-Staffordshire Hospital trust, for example, had suffered multiple failures including "unnecessary deaths, abuse of patients and horrific safety and sanitary conditions" because "inadequate management had put profits before care" (Mould 2018, p. 24).

In South Africa too, health care is divided into public and private care. While only 16% of people have medical aid, 80% of doctors work in the private sector (Hoffman 2020). Prohibitive costs make decent health care inaccessible for most people (Hoffman 2020). Amidst the global COVID-19 pandemic, we are witnessing how vaccines and effective care for the infected are beyond the reach of impoverished people – even as the disease ravages families and communities and disrupts the economy (Sullivan 2020).

Mental health too has been captured – reduced to the idea that mental illness can be cured (regardless of context) with drugs or gamified mental health treatments. In the process, any socio-political or economic connection to one's poor mental health is concealed (Bettache & Chiu 2019, p. 9). The gamifying of mental health care reflected in games like *Habitica* (2013) and *eQuoo* (2018) – while well-intentioned and beneficial in some contexts – may unwittingly serve as an extension of neoliberal governance,

[3] The NHS (National Health Service) is the healthcare system in the UK (Henderson, 2019). While it claims to be publicly funded, there is evidence to suggest it has been stealthily privatized during the ongoing COVID-19 pandemic (Fisher, 2021).

encouraging "the further quantification and control of life under metrics of utility, productivity, and competitiveness" (Russel 2018, p. 1).

For example, Habitica (2013) reduces healthy habitual practices to experience points – where players gain experience for recording good habits and lose experience for recording bad ones. It then encourages players to compete with one another, allowing users to create habit-based challenges (for example, a 'Get Fit' challenge). Throughout these challenges, competition is encouraged. Anyone can see and compare their stats to the stats of other participants and at the end of each challenge, a winner is determined by the creator. Effectively, the progression of one's health and lifestyle is reduced to numbers while placing the responsibility for it squarely on the shoulders of the individual – ignoring socioeconomic factors and contexts (Maturo, Mori and Moretti 2016): The player living in a middle class home with all the resources they need to 'get fit' has a distinct numerical advantage over the player working three jobs to pay their medical bills.

2.1.3. Poverty and Inequality

> *Neoliberalism has led to intensified inequality in which the very top strata acquires and retains ever more wealth, the very bottom is literally turned out on the streets or into the growing urban and sub-urban slums of the world, while the middle strata works more hours for less pay, fewer benefits, less security, and less promise of retirement or upward mobility than at any time in the past half century (Brown 2015, p. 28).*

As the battle to control the world's resources intensifies, inequalities between the rich and poor grow wider (Roy 2017). Privatisation, tax cuts, inflated rent, deregulation and destruction of trade unions mean that economic growth has slowed for everyone — except the rich (Monbiot 2016). Only the top 20 percent of the income scale really benefit from neoliberalism — with the justification that "higher profits will lead to more investment, better allocation of resources and therefore more jobs and welfare for everyone" (George 1999). Millions of people cannot meet their basic needs. India, for example, is celebrated for having one of the world's fastest-growing economies. Yet, as Arundhati Roy notes, India also has the world's largest number of malnourished children and an epidemic of suicide among debt-ridden farmers (Boston Review 2019). As Azevedo et al. (2019, p. 12) argue, when governments increase tax cuts for the rich

and decrease funding for public healthcare or other services, they are effectively "determining which members of society are well-situated to thrive and which are not".

Ultimately, "wealth begets more wealth": The more money you have, the greater access you have to education, well-paying jobs, better health and security. Studying and working hard has not changed the reality of unemployment for Black people or the disparities in wealth that exist between Black and White households (Hamilton 2019, p.2). Unsurprisingly, this economic inequality deeply affects "social problems, including mental illness, violence, imprisonment, lack of trust, teenage births, obesity, drug abuse, and poor educational performance of school children" (Wilkinson and Pickett 2009, p. 1).

Such inequalities are also perpetuated by the game-making industry – which, as Dyer-Witheford and de Peuter (2009, p. xxix) describe, "blurs the lines between work and play, production and consumption, voluntary activity and precarious exploitation, in a way that typifies the boundless exercise of biopower". This is especially evident in the 'Do What You Love' mentality that permeates creative work (including game development) which encourages workers to willingly sacrifice free time, pay and stability for the sake of recognition, exposure and passion. Ultimately, it not only conceals exploitation – but makes it attractive to the exploited. Even fans, who pour hours of creative labour into fanfiction, mods or artwork for an existing game, may extend into the realm of free labour (Wong 2017).

2.1.4. Inequalities of Race, Class and Gender

Neoliberalism perpetuates not only economic inequality – but inequalities of race and gender as well, using "racism, caste-ism, sexism and gender bigotry in intricate and extremely imaginative ways to reinforce itself, protect itself, to undermine democracy, and to splinter resistance" (Boston Review 2019).

In South Africa, the White minority (around 9%) live off the economic privilege gained under apartheid's oppressive policies – while "few black South Africans have seen substantial change in their material lives" (Baker 2019). These same policies have left behind the ruins of unequal access to employment, education, health and housing based on race (Baker 2019).

As neoliberal ideology attempts to erase inequalities rooted in socially-constructed identities (like race, gender, class and sexual orientation), it redirects the focus to individuals and their choices as the root of social problems (Grzanka et al. 2020). As Monbiot (2016) notes, the rich (regardless of socio-economic privilege) become convinced they earned their wealth by hard work or merit – while "the poor begin to blame themselves for their failures, even when they can do little to their circumstances".

These ideas are mirrored in popular game culture. *Grand Theft Auto: San Andreas* (2004) for example, bears a diverse range of races and nationalities. However, each is homogenised through involvement in criminal acts steeped in stereotypes: "Asians are suit-wearing triads, Italians are mobsters, and the people in the backwoods of San Andreas are skinny, slack jawed yokels" (Higgins 2006, cited in Dyer-Witheford & de Peuter 2009, p. 166). The game's Black districts are defined by violence and chaos. Areas of safety and conflict — where friends and enemies, reward and challenge can be found — are "coded by race". In this way, the socioeconomic dynamics of the city are gamified — establishing play along racial lines (Dyer-Witheford & de Peuter 2009, p. 167).

Neoliberal inequality also prevails in notions of gender. In the US, unemployment is twice as high for gender-nonconforming people as it is for the general population (Boncori, Sicca & Bizjak 2019). The financial gap between men and women is also well-documented – with men owning two times more of the world's wealth than women. Yet, the unremunerative care work of women is estimated at 10.8 trillion dollars a year (Oxfam 2020). This is compounded by "the shrinking and privatization of public infrastructure which supports families, children and retirees" – meaning that women disproportionately carry the costs of providing public services (Brown 2015, p.105).

This imbalance makes itself further apparent in the realms of virtual play. Here, 'ideal' industry persons are males – who are 'predisposed' to devoting their hours to game play and production. On the other hand, women are viewed as the 'invisible participant', the 'casual player' for whom gaming is subsidiary to domesticity. And, indeed, the typical hours of a game designer have especially little regard for care work, effectively imposing a 'glass ceiling' on promotion (Dyer-Witheford & de Peuter 2009, p. 62).

Female game designers competing in a male-dominated industry are also more likely to face harassment. For example, Kathy Sierra — a prominent programming instructor and game developer — withdrew from her career after facing death threats and doxing. This culture of gender-based hostility is nowhere more apparent than in the infamous Gamergate controversy – a harassment campaign targeted at women in the game design industry (Murray 2018).

Certain games, like any media, also still bear hyper-sexualized and demeaning representations of women (Murray 2018). As Heir (2014, cited in Murray 2018, p. 39) notes, the way we represent characters reaches beyond games, "impact[ing] how people treat each other in real life". So the fact that there was ever a demand for a commercial game called *RapeLay* (2006) coldly highlights how deeply cultures of sexism and misogyny have been entrenched in the industry. In this way, the division of society along gendered lines is easily exploited by our profit-driven, neoliberal order – not only putting women at a distinct disadvantage in industry but cashing in on their 'othering' and objectification.

2.1.5. Individualism, Competition and Commodification

> *Hyper-individualism, commodification, and market ideology—have begun to mediate how individuals relate to themselves and the world around them including a systemic decrease in empathy (Racho 2017, p.26)*

The neoliberal citizen is one who invests in themselves to compete with others for profit. This hyper-individualism feeds commodification and market ideology — where "the individual is constantly commoditised, shaped into a consumer and primarily focused on the self" (Racho 2017, p. 10). It rewards individuals for the work of many. It encourages profit over social and familial bonds — turning the home into a place of work and child neglect. It promotes competition as the driving force of profit, dissolving empathy and social cohesion as we quantify, compare and compete. It imposes a regime geared "to identify the winners and punish the losers" (Monbiot 2016).
In this environment, everyone is expected to be an entrepreneur competing with others for scarce resources. This competition is "the central principle of market rationality" – and a further excuse to remove state protections (Brown 2015, p. 64).

This entrepreneurial lens colours life outside of economic practice — where citizens have to risk-manage their own lives, futures and survival (Baeg 2014). Individuals feel pressure to self-brand, constructing themselves as human capital. Social media profiles facilitate this self-branding. Even in academia, the most 'valuable' are those who are 'entrepreneurial' with their research: Creating new ideas, branding their work, marketing it strategically and priming it for investment (Brown 2015).

Mould (2018, p. 18) contends that this 'enterprising self' – founded upon self-interest, market logics and competition – is facilitated by neoliberalism's individualisation of society, "promoting collective work but rewarding individual endeavours". For example, it is the genius of Steve Jobs – and not the army of Chinese workers – that is ostensibly responsible for Apple's success.

Neoliberalism also entrenches inequality in the arts, pitting those who are privileged (and educated or well-off enough to take the risks demanded by creative work) against those who are not (Aaronson 2016). Consequently, individuals are forced to adapt to the constant risk, insecurity and precarity previously borne by companies (Kalleberg & Vallas 2018).

As governmental responsibility for livelihood shifts, it turns wellbeing into an individual competition centred on status (George 2016). This dissolves solidarity, breeding isolation and forcing a dependency one one's own creativity and labour: Regardless of socio-political context, "we have no guarantee of security, protection, or even survival" (Brown 2015, p. 37).

It is assumed that everyone competes on a level playing field, erasing the impact of socio-economic factors. We internalise this idea, perpetuating neoliberal systems: The rich 'earned' their wealth — ignoring the advantages of education, inheritance, class, gender and race that helped them attain it. Unemployed? Forget impossible job markets; you're unenterprising. Broke? Forget housing costs; you're careless and wasteful. We believe we deserve our positions — and when we fall behind, we deem ourselves 'losers' (Monbiot 2016).

These messages, in the clutches of large corporations, can be perpetuated in everything from self-help books to education to the media. This means individualism is state-instituted. It breeds "self-harm, eating disorders, depression, loneliness, performance anxiety and social phobia" into epidemics (Monbiot 2016). It builds a depoliticised people that are apathetic and cynical, convincing us that our problems aren't collective. It makes us compete for our survival, creating the experience of "living on the edge of a precipice" (Brown 2015, p. 37). As our collective ability to solve collective problems is reduced, we lose the sense of collectiveness itself – and any idea that the problems we perceive as individual are actually *collective* (Aaronson 2016).

Additional manifestations of our precarious situation include unacceptable rates of suicide, depression and anxiety (along with an increase in narcissism and low self-esteem) all wrapped in "an existential angst experienced by generations of individuals trying desperately to ignore it" (Fitzgerald 2005, cited in Racho 2017, p. 2).

These values of competitiveness, individualism and commodification also manifest in games. For example, in *League of Legends* (2009), players become emotionally invested through dynamics of competition. They can also purchase cosmetic skins with real-world money, manifesting individualism in the need to stand out from the crowd, to brand oneself, to "look cool". As players purchase these commodities (skins), Riot Games profits from their emotional investment – thereby mirroring and exploiting real-world neoliberal dynamics (Faber 2020).

Similarly, games like *The Sims* (2000) teach us that, as individuals, we can find happiness through hard work and consumption — controlling every aspect of our lives without governmental support, aid, or security. All new Sims start entirely from scratch with little money. By finding a job, they can make money. By making money, they can purchase items — and the more expensive an item is, the happier a Sim will be. All this takes place in an environment which makes it fun and rewarding to be a neoliberal worker. In the process, "the exploitation of workers is erased and replaced with a pleasing tale of consumption without limits" (Wilkie 2003, p. 3).

Many games like the *Call of Duty* (2003) franchise rely on intense individualistic play styles and dynamics of competition over collaboration to drive play (Murphy 2016, p. 165). Micro-transactions are also becoming more popular — even in free games like *Candy Crush* (2012) which allow players to purchase in-game resources with real money to improve their chance of success. These exchanges "reinforce our relationships with scarce resources in our leisure time", unwittingly steeping us further in neoliberal ideals (Harvey 2005, cited in Jones 2016, p. 1).

2.1.6. Precarity and Exploitation

Labour has become precarious. Precarious work, as Gill and Pratt (2008, p.1) define it, refers to work that is "insecure, casualized or irregular": Rapidly, stable employment is disappearing in the age of homeworking, piecework, freelancing and gig labour. The precariat is under-employed and receive little to no pay. Workers are forced to work punishing hours – often in multiple jobs. Many are subjected to technologies that "monitor peoples' keystrokes, language, moods and tone of voice" — and some workers are even microchipped (Monbiot 2019). Amazon workers have even been forced to wear wrist bands that read worker movements and detect when they deviate (Solon 2018).

Creative and digital workers especially are the quintessential precariat – or the precarious proletariat – who signify both "an experience of exploitation" and a new potential for resistance (Gill and Pratt 2008, p. 5). They are "entrepreneurs of the self" – leaping between unstable forms of work, carrying risks and responsibilities normally borne by business and government (McRobbie 2016, p. 1). They have to be flexible and 'creative' in an environment where 'creativity' has been reclaimed and twisted by neoliberal governmentality. This has produced a 'creative dispositif' that romanticizes creativity — institutionally enforcing the idea that creative workers are 'entrepreneurs' who simply 'do what they love' with unique 'freedom' and 'flexibility' (McRobbie 2016, p. 8).

This is also evident in the 'Do What You Love' (DWYL) mentality at the core of the creative dispositif: It makes people willingly sacrifice their free time, work for little to no pay and jump from gig to gig all for the sake of recognition. Ultimately, it makes exploitation not only digestible but appealing to the exploited (Wong 2017, p.). It trains everyone to move from 'normal' to 'abnormal' work – creating new forms of work which

are project-based, short-term and temporary. Conversely, it also creates work that is hyper-specialised – where the livelihood of workers can be stolen the moment their speciality becomes obsolete. Our "hyper-specialized, hyper-individualized gig economy" reinforces neoliberal ideology, obstructing unity and solidarity among the workers of today (Roedl 2020, p. 1).

This precarity is also reflected in a game design industry served by neoliberal entrepreneurialism and immaterial labour. Globalisation of labour means, for example, that a Vietnamese programmer can be paid $4000 where a US equivalent would make anywhere between $70 000 and $100 000. QA testers, responsible for discovering game bugs, are infamously underpaid and exploited (Gallaugher & Stoller 2004, cited in Dyer-Witheford & de Peuter 2005). Work life invades the home as creative workers willingly give their free time, pushing themselves around the clock. Even fans working on existing games have begun extending into the realm of free labour (Wong 2017). This is especially apparent in the modding community – where modders can do anything from improving characters' appearances to designing entire new scenarios, levels and even games. Some of the most popular games like *Counter Strike* (2012) have been developed by remote-modding teams, creating whole 'virtual studios' (Dyer-Witheford & de Peuter 2005). As Terranova (2000, p. 38) notes, such "free labour is the moment where this knowledgeable consumption of culture is translated into productive activities that are pleasurably embraced and at the same time shamelessly exploited".

There is, however, a chance for this neoliberal creative dispositif to be disrupted — and *this* is why creative and digital workers (like us game designers) should care. As citizens who are paradoxically privileged yet at times exploited, we are primed for resistance. Our challenge, as precarious, individualised workers, is creating new forms of social protection not only for ourselves – but for our fellow workers: "Compassionate and socially reinflected job creation must become an imperative for young people" (McRobbie 2016, p. 189).

2.1.7. Surveillance Capitalism

Surveillance entails "the systematic monitoring of people or groups in order to regulate or govern their behaviour" (Simon & Whitson 2014, p. 2). Zuboff (2019, p. 14) details the disturbing picture of how Silicon Valley and other corporations are mining users'

information to predict and shape their behaviour – all in the vein of conceptualising and designing products for profit while "eagerly laying bets on our future behaviour". According to her, Google and Facebook know far more about us and our friends than we ourselves know. Every day, unaccountable companies are mining for information on "your laptop, your phone, a web page, the street where you live, an e-mail to your friend, your walk in the park… your interests and tastes, your digestion, your tears, your attention, your feelings, your face" (Zuboff 2019, p.137).

Technology has also been used for the surveillance and control of workers. Amazon employees, for example, wear accessories that monitor the speed of their movements and work (Solon 2018). Surveillance capitalism has also played no small role in undermining democracy (Kavenna 2019): For example, digital consultants to the Trump campaign (Cambridge Analytica) used improperly-obtained data and misused information from Facebook users to build voter profiles (Confessore 2018).

Online digital games have also been captured. Players' keypresses, chat and in-game movements are easily monitored — turning play into "fodder for surveillance" (Simon & Whitson 2014, p. 4). *Pokémon Go* (2016), for example, is "a surveillance capitalist's dream come true" — allowing for the constant charting of human movements across private and public spaces. It was built on the foundations of Google Maps (Zuboff 2019, p. 294). It became a means for behavioural control. The vice president for Google Maps, speaking of *Ingress* (2012), which laid the technological foundations for *Pokémon Go* (2016), noted that "if you want to turn the world into your game board, the places you want people to interact with have to have certain characteristics.... There should be a reason for the player to go there…The game is enabling them and nudging you to have those interactions" (Zuboff 2019, p. 312). This is one of the clearest indications of how video games may function not just as by-products of the cultures that produced them – but also as "engines that augment and reinforce the status quo" on their behalf (Jagoda 2020).

2.1.8. Globalisation and Nationalism

Empire ruthlessly drives globalisation, making it ubiquitous. It spreads free market economic ideals — including deregulation, privatisation and other principles of the Washington Consensus[4]. This is all enforced by the World Bank, International Monetary Fund (IMF), World Trade Organization (WTO) and kindred organizations (Mensah 2008, p. 1). If countries don't adopt these policies, they are tricked or bullied into it by corporations who push, often successfully, to remove their social and environmental protections (Monbiot 2016). India for example, withdrew "funding from rural development, agriculture, energy, transport, and public health" in compliance with structural adjustment. This has created a population of impoverished Indian farmers struggling with deaths from suicide and starvation (Roy 2004).

Corporations who profit off these policies, however, could never administer them "without the active connivance of state machinery — the police, the courts, sometimes even the army" (Roy 2002). It's how a big part of the world fell under right-wing rule: Trump in America, Modi in India, Bolsonaro in Brazil and Erdoğan in Turkey. It's how, "in conjunction with the elevation of preposterous and desperate men, the denigration of minorities and immigrants, political violence, mass surveillance and widespread mockery of liberalism and social justice" can continue (Monbiot 2020). The rise of global populism and right-wing populist leaders can also be associated with the "growing anger of a declining middle and working-class" who find they can blame their economic and political problems on the perceived 'other': "immigrants, minority races, 'external' predators and attackers ranging from terrorists to refugees." (Giroux 2019, p. 4). In this way, democracy is undermined on a global scale.

It should also be noted that while neoliberalism has played a role in many of the world's social ills, it is not the only ideology to push itself through games. For example, a group of players called the Red Army forces players to demonstrate their allegiance to China – by typing 'China number one' in chat — or face in-game death. In many online games, xenophobic and racist slurs are common. Entire games are sometimes imbued with

[4] The Washington Consensus is a list of economic policies. The most major of these "include maintaining fiscal discipline, reordering public spending priorities (from subsidies to health and education expenditures), reforming tax policy, allowing the market to determine interest rates, maintaining a competitive exchange rate, liberalizing trade, permitting inward foreign investment, privatizing state enterprises, deregulating barriers to entry and exit, and securing property rights" (Irwin and Ward, 2022).

nationalist propaganda. This includes *Resistance War Online* (2007), a war game with anti-Japanese themes partially funded by the Communist Youth League of China (Bloomberg 2017). In this way, games not only perpetuate and facilitate neoliberalism's market-driven ideology – but also the experiences of discrimination, xenophobia, racism and nationalism that accompany it.

2.1.9. Education

> *Without quality public education, we the people cannot know, handle, let alone check the powers that govern us. Without quality public education, there can be no substance to the promise of equality and freedom, no possibility of developing and realizing individual capacities, no possibility of children overcoming disadvantage, or of teens reaching for the stars, no possibility of being a people guiding their own destiny or of individuals choosing their own course. Above all, there is no possibility of being a self-governing people, a democracy (Brown 2010).*

Neoliberalism is clearly embedded deeply in education. Its agenda underpins educational policy in many countries. It manifests in the corporatized curricular changes being enacted across most schools and universities – which only keep knowledge perceived to be 'marketable' while stripping it of its capacity for social good (Giroux 2014).

In any democratic society, education should produce "individuals who are civically engaged and who take constructive social actions" (Shahsavari-Googhari 2017, p. 8). However, neoliberal ideology ensures education is no longer aimed at transformation, enlightenment and social awareness — crushing a key source of resistance. Rather, it perpetuates neoliberal ideals of 'entrepreneurship', preparing students for "abnormal work" that is precarious and de-specialised – pushing many to do unpaid work for the sake of exposure and 'doing what they love'. It trains students for merciless competition, individualism and a profit-uber-alles mentality, turning them into a kind of human capital (Letizia 2013). In the process, education fails to address the development of student as person, citizen and critical thinker – "reducing such development to the capacity for economic advantage" (Brown 2015, p. 23).

Through private funding of institutions and deregulation, art schools are being turned into business schools – and the once socio-politically critical artist becomes an individualised entrepreneur: Artists and creative workers are institutionally depoliticised as creativity becomes a process of self-romanticism and "passionate work" (McRobbie 2016, p. 14).

These schools are also the place where the creativity dispositif is activated. This creativity dispositif produces a new middle class of educated, young workers trained for relatively unprotected self-work: A risk class of creative entrepreneurs which is rapidly expanding. McRobbie (2016) argues that neoliberalism is currently succeeding in its mission: A huge, youthful middle class is moving from normal to abnormal work – bypassing trade unions[5], welfare and protection to become 'creative entrepreneurs'. But not everyone can afford to work this way – even as it becomes the norm. The people who benefit most from unpaid internships, for example, are already economically privileged people.

In this way, the education system perpetuates cycles of inequality. This is clearly visible in a South Africa still suffering the effects of racial inequality deeply entrenched by Apartheid. It was a system that discriminated at every level — providing different funding, curricula and schooling environments for different races (Spaull 2013).

While neoliberalism insists that education aimed at 'human capital development' will resolve economic and social inequality, it means little when so many Black South African students are still suffering the effects of systemic racism — still too impoverished without access to safe housing, healthy food and health care — to access the quality education they have a 'right' to. In this way, education had been made impotent and available only to those who can afford it (Kistner 2007).

Video games have also played a role in grooming its players for the neoliberal agenda. In the USA, for example, *The Stock Market Game* (1977) was created to engage students as

[5] Unionization is starting to make small comebacks in the game industry. In 2021, workers at Paizo (the developers of table-top roleplaying game Pathfinder) formed a union after being continuously underpaid and exploited in abysmal working conditions (Hall, 2021).

young as Grade 4 in free market economics, business and finance. Since its conception, it has reached over 18 million students (The SIFMA Foundation 2020).

However, it should be noted that some games can constitute critical forms of education themselves. Games like *Papers Please* (2013) and *Neo Cab* (2019) — which revolves around the struggle of a precarious worker in a neoliberal society — have been designed to contest the ideology of empire. In other cases, games have been subversively modded to contest dominant orders. For example, a group of activists modded *Half Life* (1998) to create *Escape from Woomera* (2004) — designed "to protest a controversial realworld Australian refugee detention center" (Lindner 2010, p. 78).

2.1.10. Environmental Destruction

Neoliberalism's profit-driven policies have resulted in ruthless environmental exploitation and ecological damage. Forests and oceans alike are decimated for profitable resources and exports – escalating soil erosion, pollution and global warming (Hamilton & Fischer 2003). Mining and infrastructure companies profit off the acquisition and burning of fossil fuels, driving millions out of land and livelihood while contributing heavily to global warming with destructive consequences (Zinn Education Project 2020).

Pope Francis (2015, p. 36) succinctly sums up the situation: "An ecological debt exists, particularly between the global north and south, connected to commercial imbalances with effects on the environment". This centres on excessive and extended resource consumption by a handful of wealthy countries – which often has repercussions on poorer and more vulnerable countries. African countries, many of which suffer warm temperatures detrimental to farming, have been hit especially hard. The dumping of solid waste and toxic liquids in developing countries (something never done in "the so-called first world") only worsens matters (Francis 2015, p. 37). These are only parts of our aforementioned 'ecological debt' – which leaves a trail of human and environmental grief in its wake: "unemployment, abandoned towns, the depletion of natural reserves, deforestation, the impoverishment of agriculture and local stock breeding, open pits, riven hills, polluted rivers and a handful of social works which are no longer sustainable" (Francis 2015, p. 38).

Video games also play a role in this climate disaster – with the environmental cost of hardware production and e-waste doing decades of damage (D'Anastasio 2020). The cost of simply running high-end hardware also has its role to play – and, if one is "counting PCs, laptops, and consoles, gaming hardware has the same carbon footprint as 85 million refrigerators or 5 million gas-guzzling cars" (James 2020).

Admittedly, there is some irony in employing a medium which perpetuates ideologies of oppression to *challenge* those same ideologies. However, the alternative is to leave a powerful platform occupied and manipulated exclusively by dominant systems: Until these systems are displaced, we cannot ignore the potential of using existing mediums to confront them.

Once we recognise neoliberalism's influence and impact on our lives, it must then be asked how we can resist the urge to fight back "with multiple forms of resistance…educational, political, social, and cultural" to combat the world's despair (Giroux 2019).

2.2. Strategies for Subverting Neoliberalism in Games

Clearly, the negative effects of neoliberalism are wide-ranging. To be resisted, neoliberalism's impact must be made visible. Games that seek to subvert the dominant order must draw connections between commerce and poverty and unemployment. They should engage with competitiveness, hyper-individualism, otherness, nationalism, refugees, xenophobia and environmental destruction – making visible the links between neoliberalism and the isolated human experience we live today (Shapiro 2018).

If video games can construct spaces which reproduce dominant ideologies, how can they also create spaces to resist them?

For Monbiot (2017), stories are codes by which we understand and traverse the world. He argues that the neoliberal narrative dominates our lives only because we have not yet created one to replace it – and that we cannot rip away someone's story without offering a new one. This story, Monbiot (2017) explains, should represent a journey – where original virtue (altruism, collaboration) is disrupted by disorder with tangible

causes and consequences (neoliberal impact) until restoration occurs. In a neoliberal context, he describes the focus of this alternative story as a 'politics of belonging' that is "built around our capacity for altruism" (Monbiot 2021). To mobilise people around it, this restoration story must demonstrate the qualities of wide appeal, empathy, compassion, simple presentation and realistic alternatives or courses of action (Monbiot 2017). Building on Monbiot's (2017) restoration story, this study suggests that engaging, transformative games which seek to render visible and subvert neoliberal ideology should include a narrative-rich restoration story.

For a true 'politics of belonging,' the game's story must encourage empathy and compassion to challenge our culture of competition and individualism. A study by Klimecki et al. (2013) on compassion and empathy training points to the difference between compassion and empathy: While empathy indicates resonance with suffering, compassion indicates benevolence, affiliation and the extension of care to our fellow human beings. Compassion increases positive affect without disregarding the reality of suffering.

For the game's story to be simply presented, accessible and easy to follow, Rusch (2017, p. 98) notes that nothing should detract from the game's key theme: "the core mechanics, the goal, the conflict, the setting, the characters, and the narrative" should all reinforce the game's message.

The restoration story (and its politics of belonging) should be further fortified with a foundation of anti-oppression principles. For Schrier and Gibson (2011 p. 253), anti-oppression principles are a framework for confronting "power imbalances between different groups of people in society". Anti-oppressive principles can help game designers craft transformative gameplay in a more informed way. To this end, Schrier and Gibson put forward guidelines for anti-oppression strategies in video games – calling us to disrupt stereotypes and attend to multiple and hidden perspectives while considering marginalised groups in game design and development. Jong (2020, p. iii) puts forward several ways in which marginalised people can be recognised – along with strategies for challenging "imperialism, colonialism, and patriarchy".

All this, however, begs the question of how we can implant these ideas in games.

As studies by Kaufman et al. (2016) and Polzer and Hlavacs (2017) show, games that engage with critical, social issues in an explicit, literal manner are less likely to cause a change of heart than games that take a more indirect approach. Gee (2009, cited in Podleschny 2012) further found that players mostly learn through 'entertainment' elements like commitment to game mastery and play. In this regard, Kaufman et al. (2016) put forward an embedded design model with psychologically-grounded strategies that allow designers to deliver messages in subtle, nuanced and effective ways without reducing player enjoyment.

Haven (2007, p. 100) also moves away from the direct approach. They suggest story as a means of internalising a particular message – noting that the human brain has been "evolutionarily hardwired and programmed to respond to story structure first", allowing us to comprehend and to remember in terms of story.

However, even if resistance/transformational games ease players into their message, they can still carry an explicit call to action that may be activated in reality. In this regard, we can learn from *World Without Oil* (2007) – which imagined a world on the other side of the oil crisis. It hoped that the collective imagination of players would unveil the hidden consequences of the oil crisis – and inspire them to act on it. McGonigal (2011) notes that several players positively changed their fuel-related habits after playing the game.

Rusch (2017) shows how this kind of transformative and empathetic gameplay requires us to be in tune with the emotional valences we wish to evoke in players. This means becoming more conscious of our own experiences and of others', allowing us to "systematically identify the source systems of our abstract experiences" (Rusch 2017, p. 47). She suggests experiential gestalt, experiential metaphors and allegorical games as tools for making games that appeal to the human condition and can resonate with players – offering a platform for encouraging empathy while countering the hyper-individualism that characterises our neoliberal age (Rusch 2017).

Kerpitsopoulou (2016), citing De la Hara (2014), finds that persuasion can also occur on the levels of signs, system and context. Signs are entities that represent or 'mean' something within a certain context – encompassing the realms of linguistic, visual and sonic persuasion. 'System' refers to the digital space that communicates a game's message – giving meaning to its signs on the levels of procedural, narrative and cinematic persuasion. 'Context' is where "the player meets the system and undergoes interaction in order to generate meaning" – where a player's pre-existing ideas can interfere with or enhance the strength of a game's persuasive message. This can be managed through affective persuasion – which involves convincing players of certain ideas by affecting their emotions or moods (Kerpitsopoulou 2016, pp. 7-8).

This persuasive power is bolstered by the fact that games are inherently designed to teach. In this regard, Farber and Schrier (2017, p. 6) state that simply playing a game allows players to learn its "system, its rules and boundaries, its constraints and possibilities, and its way of addressing and communicating its values and worldviews". This means that games can change player awareness and behaviour through gameplay. Several theories for designing games for learning have already been conceptualised – including studies from Baker (2017), Podleschny (2012) and Barab et al. (2010).

El-Nasr et al. (2010) speak to the power of cooperative games and their ability to encourage collective over individual success through in-game collaboration. They present a wide range of strategies for implementing cooperative gameplay which could result in greater immersion and enjoyment.

Murray (1997, p. 126) offers insight into yet another persuasive tool: agency. She defines agency as "the satisfying power to take meaningful action and see the results of our decisions and choices". Agreeing, Farca (2014) suggests agency as a means of enhancing a game's transformative power – noting that meaningful agency allows for "the player's cognitive transformation into the player-character". Since games allow players to make choices that influence their outcomes, they are primed for agency. Dechering and Bakkes (2018) warn, however, that giving players too much control over a game can morally disengage them – and that constraining agency can be more powerful than haphazardly affording it. For example, allowing players to 'win' a game about the experience of poverty by making the 'right' choices and acquiring wealth may

reduce the experience of poverty itself and the futility that accompanies it – thereby recreating and perpetuating neoliberal ideology in virtual space (Farber and Schrier 2017).

However, no amount of transformative design strategy will matter if players aren't engaged with the game: Schoenau-Fog (2011) contends that encouraging players to play one's game or 'hooking' them early on in a game means little if they don't play long enough to receive the game's full message. They detail the player engagement process, suggesting several elements for keeping players engaged. These include objectives, activities, accomplishments and affect.

Brown and Cairns (2004) describe engagement as the first stage of immersion. Farber and Schrier (2017, p. 11) expand upon this – noting that by immersing a player and encouraging their suspension of disbelief, we can encourage their "willingness to accept the author's vision of a time, place, world, or characters" and inspire deeper empathy.

Several immersive theories should also be considered in the designing of transformational games: Farber and Schrier (2017), for example, cite Gerrig's (1993) transportation theory – which suggests that immersed players enter a transported state and often emerge with changed attitudes or beliefs. Csikszentmihalyi (1990) describes flow state as a balance that should be kept between boredom and anxiety to achieve optimal immersion. This means, as Baker (2017) explains, that balancing a game's difficulty is critical for immersion. Podleschny (2012) further notes that breaking immersion at critical points, so thinning the lines between fiction and reality, can also have transformative effects.

In summary, a review of the literature reveals fifteen potential elements that could be integrated into a design framework for transformative games subverting neoliberalism.

These include:

- Embedded Design
- The Restoration Story
- Wide Appeal
- Empathy
- Compassion
- Simple Presentation
- Modelling the Human Experience
- Incorporation of Anti-Oppression Principles
- Persuasion
- Teaching the Dynamics of Resistance
- Real-World Call to Action
- Cooperative Gameplay
- Agency and Choice
- Engagement
- Immersion

These elements will be further discussed in *Section 4*.

SECTION 3: METHODOLOGY

> *The influence of neoliberalism exceeds that of its policies. Indeed, neoliberalism relies on and promotes an ideology that upholds such an economic and political vision that shapes individuals to be well-functioning neoliberal subjects (Girerd et al. 2021, p. 2).*

Monbiot (2016) notes that neoliberalism is so pervasive "that we seldom even recognise it as an ideology" – although we may unwittingly "internalise and reproduce its creeds". Video games too, as cultural artefacts, often reflect aspects of dominant neoliberal culture. Primed to immerse and persuade, video games can capture the attention of millions of players – and in positively mirroring neoliberal ideology, they can serve to unwittingly naturalize it. It is argued that if games can entice consent to the dominant order, it is possible that they can inspire resistance to it.

In this context, this paper seeks to:

1. Better understand how neoliberalism's influence shapes the way we engage with the world.
2. Develop a framework of game design elements that might make for more engaging transformative games – games that can inspire critical reflection and player transformation without disrupting player enjoyment.
3. Embed this design framework within a transformational game that, ideally, will create an awareness and critical thinking in the player about the invisible influence of neoliberalism.
4. Use voluntary participants to gauge the transformational potential of the design framework and its prototype game.

This section further outlines how the necessary data was obtained through a three-part study: Study 1 draws on this study's literature review and a pre-game questionnaire to better understand neoliberal influence on people's everyday lives. Study 2, drawing on the findings from study 1, develops a transformative game design framework for subverting neoliberalism. This design framework is then used to design a transformational game, Double-Edged Chord. Study 3 analyses the transformational potential of the framework and its game from study 2 by comparing the post-game diary responses of 53 participants to the responses of their pre-game questionnaire.

3.1. Rationale and Approach

Designing and developing a transformational interactive digital game with interactive fictional dialogue is, for the purposes of this study, "an art-making process and likewise a way to analyse and understand research data" (Liao 2017, p. 36).

In this vein, an arts-based, transformative, mixed-method approach was adopted to explore the transformational potential of a design framework for transformative games – and a demonstration game (*Double-Edged Chord*) was designed based on its principles.

A key objective of both arts-based research (ABR) and transformative mixed-method research is to make sense of social complexity and to find ways around barriers to social justice in a neoliberal world (Archibald & Gerber 2018; Denzin 2012).

The following brief discussion on ABR and transformative mixed-method research will shine a light on why these two methods align with this study's objectives.

3.2. Arts-Based Research

> *We live in capitalism. Its power seems inescapable. So did the divine right of kings. Any human power can be resisted and changed by human beings. Resistance and change often begin in art, and very often in our art – the art of words (Le Guin 2014).*

3.2.1. ABR Challenges Dominant Ideologies

Arts-based practices can draw on any art form – including games. By engaging with knowledge outside of dominant ideologies, it can pose a challenge to dominant and oppressive worldviews like neoliberalism. In this way, it creates diverse counter-narratives – exploiting the ability of art to, as Foster (2016, p. 1) puts it, examine "the everyday in imaginative ways" while critically engaging with "the cruelties and contradictions inherent in neoliberal society".

3.2.2. ABR is Inclusive

ABR attends to multiple perspectives. It challenges binary thinking common in objective research practice: The kind of thinking that engenders unnuanced superiority/inferiority dynamics in dichotomies like male/female, Black/White, empowered/disempowered. Instead of proposing an objective, 'universal' truth, it acknowledges difference and diversity at the same time as it reduces inequalities between them (Foster 2016).

3.2.3. ABR is Collaborative

Collaborative research "is about teaming up with artists, poets and performers; making links between the academy and communities; and crucially, engaging with audiences" (Foster 2016, p. 10). This is critical for challenging the individualism embedded in neoliberal ideals. Collaborative research lends itself to criticality, understanding and empathy while ensuring information produced from research is more accessible to wider audiences. Structured well, it challenges traditional hierarchies of power between

researcher and subject by situating the subject as participant and participant as co-creator (Foster 2016).

Arts-based research also makes itself more accessible to a broad range of people by freeing itself from academic jargon and boundaries while also lending itself to distribution in more public venues. It engages at all levels from participants to research audience – often performing research collaboratively with communities such that they become co-generators of knowledge (Foster 2016, p. 127).

ABR therefore helps to "democratise meaning making and decentralise academic researchers as 'the experts'" (Leavy 2017, p. 10).

This study is built on a foundation of collaborative design. All participants from design reviewers to play-testers were viewed as collaborative research assistants.

3.2.4. ABR Cultivates Empathy

Leavy (2020) notes that art often serves as a window into the interior lives of oneself and others. In the process, it can facilitate empathy, unsettle stereotypes, challenge dominant ideologies, and thereby inspire transformation. Many games like *Neo Cab* (2019) and *World Without Oil* (2007) do precisely this. This too is what *Double-Edged Chord* sets out to do.

3.2.5. ABR Cultivates Resistance

Finley (2018, cited in Denzin et al. 2018, Chapter 13) sees the potential of critical ABR as "creating aesthetic spaces for resistance politics". Foster (2016, p. 2) agrees – noting that research is inherently political and "it is here that there are possibilities for small but significant acts of resistance". This study's transformational design framework along with its demonstration game (*Double-Edged Chord*) was developed with Gouveia's (2019, no pagination) advice in mind: "Play is a fundamental activity that helps us to better understand the world we live in, who we are, and how we engage with others". Therefore, "play and games can serve as forms of social resistance and have a profound impact on the narrative construction of playful identities" (Gouveia 2019, no pagination).

3.3. Transformative Mixed Methods

Opponents of mixed method research (MMR) argue "that qualitative and quantitative methods rest on different paradigm assumptions and hence cannot be easily combined" – while others argue that there is a "pervasive post-positivist bias with the MMR discourse" (Denzin 2012, p. 3). There is, however, another way of conducting mixed-based research: The transformative mixed-method paradigm provides a framework that helps researchers address social justice and social change issues using mixed-method designs that align with their goals (Mertens et al. 2016).

What Mertens (2007, p. 7) calls "the basic beliefs of the transformative paradigm" can be viewed as a guide for researchers. These beliefs are briefly outlined below:

- "There are multiple realities that are socially constructed". In other words, transformative researchers must maintain an awareness of how societal values, backgrounds and privilege influence the reality that "holds potential for social transformation and increased social justice" (Mertens 2007, p. 7).
- "To know realities, it is necessary to have an interactive link between the researcher and the participants in a study". Being aware (and respectful) of the social, historical and cultural context of knowledge is essential (Mertens 2007, p. 7).
- "There should be an interactive link between the researcher and the participants in the definition of the problem": Modifying methods when cultural complexity arises is key – along with acknowledging and taking responsibility for power issues, discrimination and oppression (Mertens 2007, p. 7).
- "Three basic principles underlie regulatory ethics in research: respect, beneficence, and justice". There should be a clear link between methodological procedure, the results of research and "the furtherance of a social justice agenda" (Mertens 2007, p. 7).

3.4. Multiple Ways of Seeing

It can be said that together, ABR and transformative mixed-method research offer what Greene (2007, p. 20) calls "a mixed methods way of thinking" – which entails "multiple legitimate approaches to social inquiry" and "multiple ways of seeing and hearing, multiple ways of making sense of the social world, and multiple standpoints on what is important and to be valued".

This approach makes it antithetical to the evidence-based, positivist approaches which dominate our neoliberal world. For positivists, there is only one universal truth – and "positivist research methodology (methodological individualism) emphasizes micro-level experimentation in a lab-like environment that eliminates the complexity of the external world" – removing socio-economic, emotional or psychological context (and then prescribing solutions without it) (Kaboub 2008, cited in Leong 2008, p. 343).

3.5. The Researcher

This study endorses the standpoint which assumes that researchers "bring their subjectivity (their views, perspectives, frameworks for making sense of the world; their politics; their passions) into the research process". This is considered a strength instead of a flaw (Braun & Clarke 2013, p. 5).

The methodology used in this study aligns with the transformative assumptions of ABR and transformative mixed-method research. This includes addressing the issues of social justice, human rights, discrimination, oppression and power imbalances – all of which are associated with the negative impact neoliberalism has on our lives. Moreover, such an approach aligns with this study's goals of working collaboratively with participants and using mixed data collection strategies to understand how they frame their world (Forsey 2010).

3.6. The Participants

Following the collaborative approaches of transformative mixed methods and ABR, this study worked with two groups of participants – all of whom were viewed as research assistants. This facilitated an accommodation of participants' viewpoints, concerns and cultures – while acknowledging their role in producing new knowledge. It was also in

recognition of the unique insights these participants (most of whom were University students with game-playing experience) could offer towards the game and its design.

The first group of participants were recruited following a convenient sampling procedure courtesy of The WITS Faculty of Humanities – which sent out an email to the university's student body. This email requested volunteer play-testers for a study exploring "the potential of video games to inspire and drive transformation in players".

Throughout the study, attempts were made to avoid references to the terms neoliberalism/capitalism – or anything else that might reveal the stance of this research.

Many students readily responded. Noting that the game to be tested was a multiplayer game requiring a partner, some of the volunteers asked if they could bring in partners who were not students/did not attend their university. This was agreed to since it helped broaden the sample of participants – making it much more diverse than it would have otherwise been. Participants were then given a choice: To choose their partners or have one randomly assigned by a basic algorithm programmed for this study.

Ultimately, 110 volunteers completed the online pre-game questionnaire (a prerequisite for participation in the study) between September-November 2021. Twelve volunteers did not submit their required consent forms and were therefore eliminated from the study. Fourteen participants withdrew in January 2022 due to time constraints. Thirty-one dropped out in February – largely due to a lack of internet/data access or connection problems. 37 participants chose to be randomly assigned and 16 chose their partners. One participant offered to play twice when another's partner dropped out.

The second group of participants comprised 7 design reviewers. Design reviewers provided feedback on the game's transformational design framework – assessing whether the goals of the study were being met. Given the nature of the game (with its focus on player transformation and teachable moments) the following participants were recruited for their skills in the required fields:

- Three MA (Digital Arts) students.
- One MA (Psychology) student
- One teacher
- One game developer

In all cases, questionnaires were stored on Google Forms or a local hard drive. Since communication occurred over email, participants were made aware that their identity would be known to the researcher – but that they would be anonymous in the published research and referred to with a pseudonym. With their consent, however, they were added to the list of acknowledgements.

See Appendix D for Participant Information Sheets
See Appendix E for Consent Forms

3.7. Data Collection

This section outlines the data-gathering process as it relates to each of this study's aims. Adopting arts-based research practices, this report details how data was collected using an arts-based, transformative, mixed method approach to design, develop, and assess the transformational potential of *Double-Edged Chord*.

3.7.1. The Qualitative Phase

Qualitative research, like this study, is centred on the fundamental assumption that there is no absolute or "correct" version of reality or knowledge – but rather that "there are multiple versions of reality and that these are very closely linked to the context in which they occur" (Braun & Clarke 2013, p. 4).

3.7.1.1. Study 1

To better understand how neoliberalism's influence has shaped the way people "interpret, live in and understand the world" (Harvey 2005, p. 1), this study drew on two sources of data.

- *This study's literature review (which draws on a broad array of different sources in itself)*
- *A pre-game questionnaire (open-ended questions)*

3.7.1.1.1. The Literature Review (and its relevance to study 1)

The literature review sought to investigate the negative impact of neoliberalism on people's lives: How its invisible influence is embedded in our everyday practices and how games can perpetuate dominant neoliberal ideologies – along with potential strategies for subverting neoliberalism in games.

The literature unveiled five tentative *a priori* themes that were deemed strongly relevant for addressing the aim of exploring the extent to which neoliberalism has influenced people's beliefs, feelings and behaviour. The following themes formed the basis for the pre-game questionnaire and post-game diary[6] development:

- Re-configuration of the role of the state to serve the interests of capital
- Insecurity and Precarity
- Shaping of individuals into neoliberal subjects
- Marketisation of education
- Erasure of inequalities rooted in socially-constructed identities (e.g. race, gender, class, sexual orientation)

3.7.1.1.2. Pre-game Questionnaire (open-ended questions)

A pre-game questionnaire composed of open-ended questions was developed. Due to COVID-19 restrictions, the 84 volunteer participants were asked to complete it using Google Forms.

Based on the 5 *a priori* themes, an analysis was developed as follows:

3.7.1.1.3. Template Analysis

The questionnaires were analysed manually using Template Analysis – a kind of thematic analysis. Thematic analysis is a qualitative method which extracts patterns (or themes) from a dataset to answer a research problem. It typically includes six steps: Becoming familiar with the dataset, coding the data, building themes from the codes, reviewing those themes, finalising and naming the themes and finally, producing a

[6] See study 3 for more information on the post-game diary.

report. The reliability of the analysis is dependent on the researcher contextualising their interpretations by clearly detailing their favoured paradigms and assumptions.

Template analysis, like thematic analysis, is a way of thematically identifying themes/patterns and analysing qualitative data (Brooks et al. 2015; Braun & Clarke 2013). It offers the advantage of flexible yet structured analysis – where the coding process may be started with tentative *a priori* themes (like the aforementioned ones identified in this study's literature review). It also allowed for the adding, discarding or modifying of themes during the coding process – in which the *a priori* themes identified in the literature review guided the identifying of sub-themes in the questionnaire responses until a finalised template was developed for analysis. The findings of the pre-game questionnaire are reported on in *Section 5.*

See Appendix B for the pre-game questionnaire.

3.7.1.2. Study 2

Study 2 had two goals:

- Developing a **design framework for transformative games** (as detailed in *Section 4*).
- Designing and developing a **transformative game**, *Double-Edged Chord*, in accordance with the aforementioned design framework.

To this end, data was collected from the following sources:

- This study's literature review
- The findings from the pre-game questionnaire
- Fiction-based research
- Design reviewers

3.7.1.2.1. The Literature Review (and its relevance to study 2)

As previously outlined, this study identified strategic elements in the literature that could potentially contribute towards the development of a design framework for more effective transformative games – without relinquishing "players' enjoyment or the game's inherent replayability" (Kaufman et al. 2016, p. 75).

3.7.1.2.2. Findings from the Pre-Game Questionnaire

The findings from the pre-game questionnaire (specifically relating to the themes and sub-themes on neoliberal ideology) aided in bolstering the elements identified in the literature review.

3.7.1.2.3. Fiction-Based Research

In its development of the design framework for transformative games, this study also drew upon fiction-based research – where data is gained through primary and secondary sources such as interviews, social media, novels and short stories. Fiction-based research, as Leavy (2013) explains, embodies the goals of social research to present nuanced portrayals of lived experience – evoking empathy and self-reflection while challenging dominant ideologies.

3.7.1.2.4. Design Reviewers

In line with this study's collaborative approach, the draft game design document of *Double-Edged Chord* was given to recruited design reviewers. These design reviewers provided feedback on the game's design– assessing whether the goals of the study (to subvert neoliberalism in games without sacrificing player enjoyment) were being met. This feedback was used to improve both the design of the game and the framework itself.

See Appendix A for the open-ended questions given to collaborative design reviewers.

3.7.1.2.5. Finalising the Design Framework for Transformative Games

Ultimately, taking on board findings in the literature review, the pre-game questionnaire responses, fiction-based research and feedback from design reviewers, the tentative transformational design framework of strategic elements was finalised and development of its demonstration game (*Double-Edged Chord*) began. These elements, listed below, are detailed further in *Section 4*.

- Embedded Design
- The Restoration Story
- Wide Appeal
- Empathy
- Compassion

- Simple Presentation
- Modelling the Human Experience
- Incorporation of Anti-Oppression Principles
- Persuasion
- Teaching the Dynamics of Resistance
- Real World Call to Action
- Cooperative Gameplay
- Agency and Choice
- Engagement
- Immersion

3.7.1.2.6. The Game

As detailed in *Section 4*, these strategic elements were embedded in a purposefully-designed transformational game: *Double-Edged Chord*. It was hoped that using this framework as the game's foundation would aid in creating awareness and helping players to "recognise how uncritically accepted and unjust dominant ideologies are embedded in everyday situations and practices" (Brookfield 2009, p. 6).

Through play-tester diaries given to participants, the game served as a medium to analyse and understand the relevant research data.

3.7.2. The Transformative Mixed-Methods Phase

3.7.2.1. Study 3

This study encompassed the transformative mixed-methods phase. It had two goals:

- Assessing the user experience of the game – and the efficacy of the design framework for transformative games embedded within it.
- Assessing transformational shifts (if any) in play-tester attitudes and awareness after playing the transformational game. This involved comparing responses from the pre-game questionnaire and post-game diary.

3.7.2.1.1. Guided Play-Tester Diaries

Diary methods were used to assess player engagement and immersion in the transformational game – along with any consequential change in perception, feelings, mindset and behaviour regarding the effects of neoliberalism.

As Hyers describes in their 2018 book *Diary Methods: Understanding Qualitative Research*, diary research involves participants recording their in-the-moment feelings, thoughts and insights about something in a diary. This diary can take any form – including traditional methods like paper, or digital methods like cell phone notes, audio or video. The diary method's value lies in its immediacy and ability "to capture the details of otherwise time-sensitive and context-specific phenomena" while accounting for fluidities of experience and identity (Hyers 2018, p. 42). It acts as a transformative agent, encouraging greater self-reflection, awareness and discussion of lived experiences (Hyers 2018).

Owen, in their 2016 article *Better Games from Diaries and Data*, expands upon the benefits of diary research with regards to game analysis. In this regard, they suggest that diaries are suited for capturing players' feelings in the moment. At the same time, they allow players to play a game at their own pace – and in their natural, everyday environment – because observations can be captured moment-to-moment regardless of whether a game is played in one sitting or multiple. In turn, this often leads to more in-depth feedback – and even one diarist can produce a large amount of data. Most importantly, diary research can capture not only what players did but how they felt or how their decisions were informed – as opposed to traditional play-testing methods which often lean towards "cold, impersonal metrics as the sole method of 'understanding' their players".

In conducting such diary research, this study employed the following process:

- Planning and Preparation: Developing the study, recruiting participants and choosing data-gathering tools – as well as preparing instructions and writing consent forms.
- Pre-study Brief: Introducing participants to the study, outlining their roles, providing instructions and imparting diary-keeping materials along with consent forms.

- Logging Period: Having play-testers log their experiences in the dairy – which will employ a series of short open questions to guide their information capture.
- Data Analysis: Employing coding and thematic analysis strategies.

The *a priori* themes identified in the literature review, coupled with the results of the template analysis from the pre-game questionnaire, were used to direct the development of the closed and open-ended questions for the guided play-tester diary – thereby transitioning from a qualitative mode of inquiry to one that was mixed.

Guided questions were geared towards:

- Assessing any transformational shifts in play-tester attitudes after playing the transformative game by comparing the pre-game questionnaire and post-game diary responses. In this vein, the pre-game questions were repeated in the post-game diary to make tracking changes in participants' attitudes less challenging.
- Assessing the user experience of both the game and the design framework for transformative games that was embedded within it.

3.7.2.1.2. Playtesting and Template Analysis

In the first week of February 2022, 84 participants were given a prototype of *Double-Edged Chord* to playtest – along with the aforementioned diaries containing guided, open-ended, closed-ended and free text questions to record their assessment of the game. The responses to the open-ended and free text questions were analysed (like the pre-game questionnaire) using template analysis – searching for themes and patterns that would shine a light on any transformational changes in participants' attitudes after they played the game. At the same time, it sought to assess the efficacy of the transformational game and embedded design framework for transformative games as a medium for player transformation.

The starting point for analysing themes began with the initial *a priori* themes used in the development of the *pre-game* questionnaire. New themes/sub-themes that emerged from the responses of the post-game diaries were coded and aligned with this tentative template. Closed questions were quantitatively analysed – aggregating responses and aligning them according to the template as well. The results were then collated, allowing qualitative responses to be aggregated into quantitative results – thereby establishing

"meaning and relevance in terms of analysis" (Knox 2015, p. 5). The pre-game questionnaire also served as a baseline point of reference for comparison purposes with the post-game diary – allowing for the tracking of changes in participant attitude and awareness after playing *Double-Edged Chord*.

See Appendix C for the post-game diary
See Appendix F for a download of Double-Edged Chord – as well as a video playthrough of the game and other related links.

SECTION 4: DESIGN FRAMEWORK FOR TRANSFORMATIVE GAMES

This section draws on the literature review to develop a framework of strategic elements for transformative game design. It further discusses the process of embedding this design framework within a transformational game made for the purposes of this study: *Double-Edged Chord*. In line with the goals of this framework, *Double-Edged Chord* was developed with a view to rendering visible and subverting neoliberal influence.

4.1. Double-Edged Chord

4.1.1. Synopsis

Double-Edged Chord centres on two rival musicians forced to cooperate when they find themselves trapped in a series of deadly nightmares – as seen in Figure 1. It takes place in a world where old magic has run out, forcing its citizens to rely on *artificial* magic extracted from music. Leviathan, the pioneer of artificial magic, has founded a corporate empire on its usage – lending global influence to its exploitative policies. As main characters Francium ("Anci") and Clef battle their way through the nightmares, they find other trapped musicians – all of whom (like them) have suffered at Leviathan's hand. But caution must be exercised – for in dreams, at the heart of the subconsciousness, their words will have sweeping effects. Their choices influence not only how these characters perceive the world – but what they decide to do about it.

As they solve puzzles, fight musical battles and make choices, Anci and Clef find themselves unwittingly deciding the fate of the world around them – and are forced to question the role they play within it...

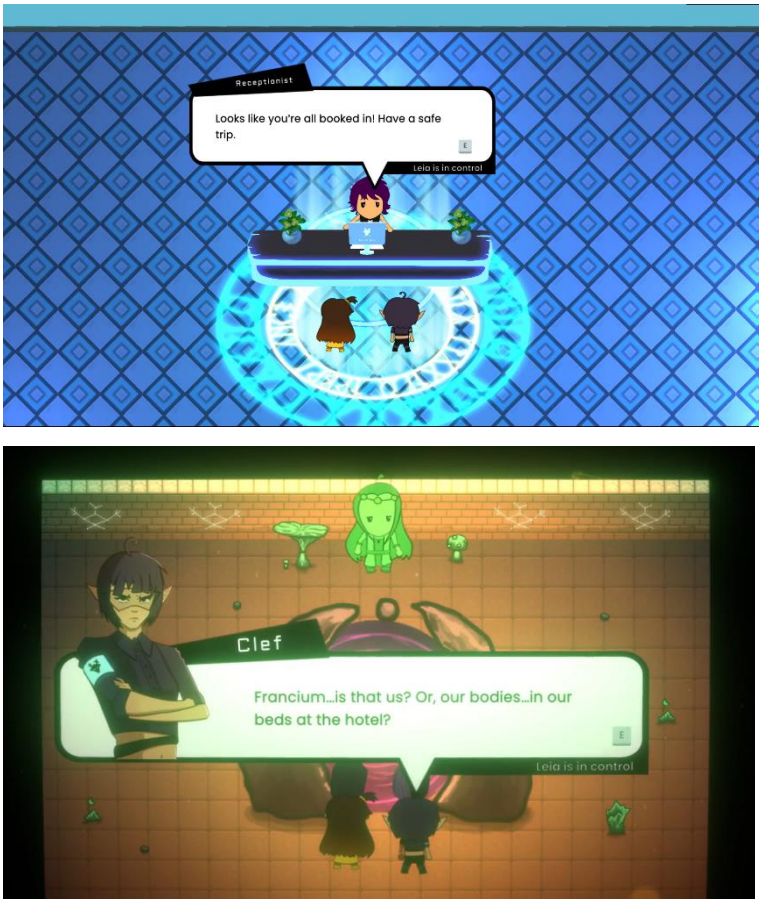

Figure 1 – The daytime realm (top) versus the nightmare realm (bottom).

4.1.2. Target Audience

Double-Edged Chord is targeted at young people aged 16-24. This target audience was chosen because young adults are mercilessly bombarded with neoliberal ideology on every level from social media to the education system (McRobbie, 2016). Young adult genres also lend themselves to subverting and demystifying neoliberalism because they are geared to redefining more mature themes for a younger audience (8 Popular Book Genres: A Guide to Popular Literary Genres, 2021). In this regard, the main characters' ages are within the target age range. Most other major characters fit within this range as well. The key themes and genres are furthermore commonplace in literature targeted at young adults – including dystopia, supernatural elements, mystery, identity and romance (Genres and forms for young adult and young fiction, n.d.).

Note: Development on Double-Edged Chord is still ongoing – with findings from this study going towards its improvement. Some of these are discussed in Appendix G – with reference to the following design framework.

4.2. Subverting Neoliberalism Through a Design Framework for Transformative Games

4.2.1. Embedded Design Model

While games can be powerful tools of enculturation, most persuasive games make the misguided assumption that player beliefs are best shaped in a direct, fact-driven manner. These games are built on the belief that simply informing players will result in their emotional, mental and behavioural change (Kaufman et al., 2016). As such, they may seek to inform the player with straightforward facts like *ElectroCity* (2007) — which hoped to educate players about energy use. Other games like *Darfur is Dying* (2006) take a different approach, trying to build empathy by informing players about the circumstances of real-world people — though still in a rather overt, fact-driven manner. The game uses a straightforward, two-fold structure where the player character is either helping to sustain their refugee camp or outside, foraging for water (Vargas 2006). We don't hear directly from the characters themselves, but rather the written narration goes "to great lengths to make sure that players are immensely aware of the terrible situations that refugees face every day" (Knowlton 2009, p.9). The game attempts to engender empathy for the refugees it represents — but, at the same time, these characters are static placeholders shown to us from a safe distance. Consequently, the game — which only takes about 15 minutes to play — "seems too real and not real enough at the same time" (Vargas 2006).

In this regard, Gee (2009) questions the capacity of such 'direct' persuasive games to be successful learning frameworks – noting that players mostly learn through 'entertainment' elements like commitment to game mastery and play. Unfortunately, these elements are almost never found in persuasive games – but rather in the same commercial games we see produced and shaped by neoliberal ideology.

Kaufman et al. (2016) agree that more 'direct' games are less likely to transform players. However, they argue that games which 'embed' messages in content or context (rather than forcing players to face them directly) can still be highly persuasive. In this light, they unravel players' psychological responses to explain why the direct approach

usually backfires: “It is a basic human tendency to resist persuasive communications that are perceived as too forceful or forthright in their intentions” (Kaufman et al. 2016, p. 175). For example, psychological reactance — or “an aversive state of arousal” is triggered by the sense that one’s freedom of thought or action is under threat (Brehm 1966; Brehm & Brehm 2013, cited in Kaufman et al. 2016, p. 74). In response, psychological defences are raised — even if the person’s own values align with the message (Worchel & Brehm 1970, cited in Kaufman et al. 2016). The bias blind spot — or the dismissal of one’s own susceptibility to certain biases — only compounds the problem (e.g., Pronin, Lin & Ross 2002, cited in Kaufman et al. 2016). This implies that overtly exposing people to a system’s societal flaws can have the unintended consequence of encouraging conformity to it. Direct approaches can therefore “limit not only the potential efficacy of game-based interventions, but also players’ enjoyment of them” (Kaufman et al. 2016, p.74). As Rusch (2017, p.47) suggests, more literal approaches will detract from the core theme or ‘essence’ of a game’s message. She notes that directly simulating an experience is one thing – but it’s “an entirely different thing to try to model salient aspects of the human experience — the things that profoundly move us, and how we feel and think about them”.

This, as shown by *The McDonald’s Videogame* (2005), is an important distinction: The game simulates “the abject corruption required to maintain the profitability and manageability of a large global food company” – forcing the player into shady business practices as costs increase. However, instead of becoming enraged at the explicit corporate corruption, many players found themselves empathizing with the corrupt executives themselves – lamenting how hard it is to be the CEO of a big company. This may be because agency is located in the player character (a CEO), possibly encouraging players to over-identify with their role and align with its goals. A perceived ‘win’, then, would mean running the company in a profitable manner – rather than an ethical one (Bogost 2021, p. 33).

In this regard, persuasive games would likely benefit from more subtle and nuanced communication of their messages. To this end, the embedded design model – developed by a design and research team at Tiltfactor Laboratory – presents psychologically-grounded strategies for making transformative games that deliver messages in a more subtle and nuanced fashion. In this way, it seeks to trigger “a more receptive mindset for

internalising a game's intended message and do so without sacrificing players' enjoyment or the game's inherent replayability" (Kaufman et al. 2016, p. 75).

4.2.1.1. Risks

If employed without care for players, embedded design may run the risk of becoming a form of manipulation akin to the kind used in neoliberally-situated games. We, as designers, also then run the risk of becoming the very thing we seek to oppose.

At the same time, however – as Gilliam et al. (2018) put it – the holistic approach of embedded design "considers feelings, emotions, affects, social relations, and connections to broader communities" – factors all closely aligned with subverting neoliberalism. In this light (if used with awareness on the part of the designer) embedded design may best be used as a tool for encouraging safe, empathetic and engaging exploration of a topic.

In this light, *Double-Edged Chord* tries not to skirt around its message or its intention – but rather attempts to cushion uncomfortable subject matter with (hopefully) engaging fantasy and metaphor. Throughout play, it tries to give the sensation of knowing what it is and where it stands ideologically – but aims to do so as empathetically as possible. For example, at one point, Clef suggests that another character (Marsh) is in poverty because he simply hasn't worked hard enough to escape it. It isn't long before she realizes she doesn't have a full idea of his situation. While they argue and Clef comes out of the situation feeling a bit embarrassed, the game doesn't try to paint her as an irredeemable villain for holding this opinion – nor shame her when she changes it (as seen in Figure 2). Rather, it attempts to make its ideological standpoint clear (the impoverished are *not* the creators of their own suffering) while also situating the topic in the context of a fantasy setting and fictional characters, thereby creating a safe space for the player to engage with it (embedded design). In this way, embedded design is not employed to trick the player – but rather to present them with the topic at hand in a gentle and empathetic manner.

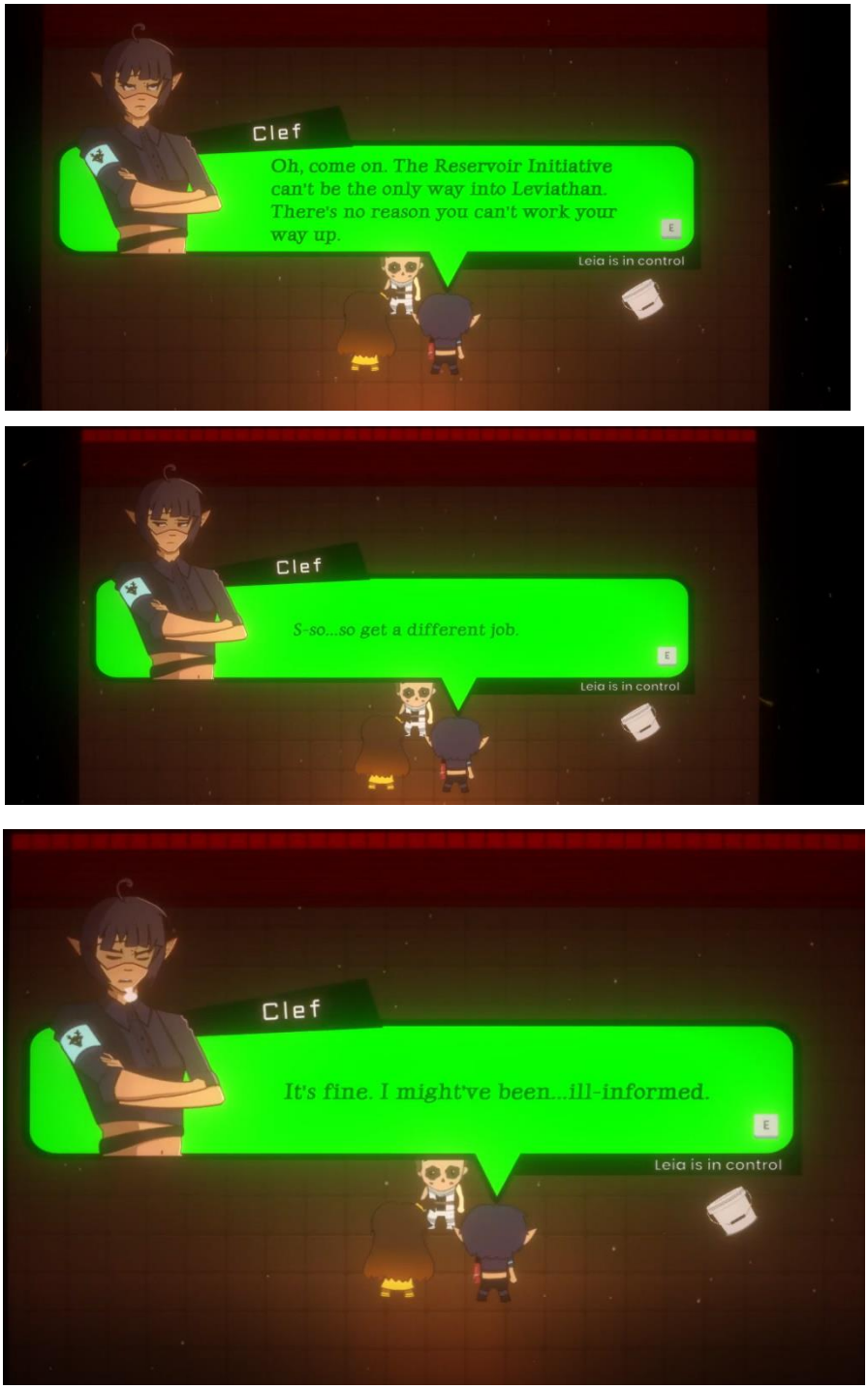

Figure 2 – Clef at different stages of realising she was wrong.

In this regard, some players noted that Clef's words echoed sentiments they'd heard from others before – sentiments they disagreed with. At the same time, they also indicated that they empathized with, identified with or liked Clef by the end of the game. Participant 30, for example, stated that "those with a higher quality of life (like Clef) fail to understand the struggles faced by those that have lower socio-economic standards at no fault of their own." However, he also referred to her as "an open-hearted caring

person." Other players noted their appreciation for the way issues were handled unprompted – for example, Participant 50 commented that issues were handled "tactfully" and Participant 8 noted that they "like[d] how all people were represented. It did not feel forced at all, which is the downfall of many stories". At the same time, most players indicated that they understood the game's message

4.2.1.2. Methods of Embedding

4.2.1.2.1. Intermixing

Intermixing means balancing content that relates to the game's message with content that does not — so making the actual message more approachable or easing players into it. This is often achievable by offsetting the serious tone of the message with "levity or humour" (Kaufman et al. 2016, p.6) In this light, *Double-Edged Chord* attempted to lace moments of levity throughout its narrative – in the vein of both intermixing and tension control.

4.2.1.2.2. Obfuscating

Obfuscating means rerouting player expectations and attention away from the game's message through context or genres which typically would not seek to change player attitudes. This creates a safe space for players to engage with the game's more serious message. In this regard, *Double-Edged Chord* presents itself as a rhythm game – where players wouldn't typically expect to be exposed to serious messages. However, it does not hide its nature as a dialogue-driven game either – again in the vein of encouraging some level of transparency.

4.2.1.2.3. Distancing

Distancing means growing the mental gap "between players' identities and beliefs, and the game's characters and persuasive content" by communicating key issues through fiction and metaphor (Kaufman et al. 2016, p.5). This makes it feel safer for players to change their beliefs or behaviour – offering them a space that resonates with real-world issues without presenting exact replicas of them. *Double-Edged Chord* attempted to employ a number of metaphors in this regard. For example, magic producers are exploited, work in dangerous conditions and have their movements tracked – drawing a parallel to Amazon warehouse workers.

4.2.1.2.4. Hypotheticality

Rather than attempting to reproduce players' real-world experiences, designers can centre games on 'what-if' scenarios. This introduces a safe gap between the player's real-life experience and their in-game one, allowing them to explore even sensitive topics in a non-threatening way. *Double-Edged Chord* attempts to confront the players with a number of 'what-if' scenarios. For example, what if magic was a commodity? In this case, it would be monopolized by a corporate giant – resulting in the widespread exploitation of magic-producing workers. Or, what if you could see the effects of your choices and perceptions far into the future? In the game, those futures attempt to demonstrate that complacency to an oppressive regime (like neoliberalism) is enough to doom people – even if they don't actively or knowingly perpetuate it.

4.2.1.2.5. Fictionalising

Presenting real-world issues through symbol, fantasy or metaphor distances the player from their own beliefs and identity as they allow themselves to be transported to a safe space for engaging with the topic at hand (Kaufman et al. 2016). Fictionalising may also be an effective strategy because the human brain "has been evolutionarily hardwired to think, to understand, to make sense, and to remember in specific story terms and elements" (Haven n.d.). Stories, for hundreds of years, have been the way we learn and express our experiences to one another. It is one of the most effective means of doing so because of how closely they reflect our own internal processing. Story offers the four keys of learning: "meaning, context, relevance and empathy" – allowing it to create bridges between the external world and our own, human internal ones (Haven 2007, p.125). In this vein, *Double-Edged Chord* attempts to employ the tenets of storytelling typically used in conventional narrative media – drawing loosely on principles from common frameworks like *Save the Cat! Writes a Novel: The Last Book On Novel Writing You'll Ever Need* (Brody 2018) and *The Anatomy of Story: 22 Steps to Becoming a Master Storyteller* (Truby 2008). This is discussed further under the heading *Narrative Persuasion*.

4.2.2. The Restoration Story

> *Stories are the means by which we navigate the world. They allow us to interpret its complex and contradictory signals. We all possess a narrative instinct: an innate disposition to listen for an account of who we are and where we stand (Monbiot 2017, Chapter 1).*

More often than not, when we try to understand a complex issue, we don't just look for the facts. As Monbiot (2017, Chapter 1) expresses, we look for a "consistent and comprehensible story". In this regard, he argues that the neoliberal narrative (of extreme competition, hyper-individualism and isolation) dominates our lives. He feels this narrative domination is possible because we have not yet created another narrative to replace it – arguing that one can't "take away someone's story without giving them a new one" (Monbiot 2017, Chapter 1). In order to visibly subvert the neoliberal narrative, then, it must be replaced with a new story.

Monbiot terms this story "The Politics of Belonging" (Monbiot 2017, Chapter 1). This story would have to explain not only the neoliberally-rooted trauma of our current society – but also how to escape it. It would need to have wide appeal and call on our innate urges of cooperation, altruism and empathy. It must aid in reviving our sense of community and forging a new sense of belonging. It must build participatory democracy that allows us to exercise our political choices. It must embrace "social diversity of all kinds" (Monbiot 2017, Chapter 1).

Through its narrative design, *Double-Edged Chord* attempts to reflect Monbiot's alternative story. It draws inspiration from its story structure – where **original virtue** is disrupted by **disorder** with tangible **causes** and **consequences** until **restoration** occurs. It seeks to inspire compassion, empathy, perspective-taking and the embracing of diversity through cooperative gameplay – centring itself on the building of solidarity and resistance.

4.2.2.1. Structure of the Story

Monbiot (2017) suggests that the restoration story has five stages: original virtue, disorder, causes, consequences and restoration. On a basic level:
Humans are social creatures with the capacity for altruism, kindness and empathy (original virtue). But we have become competitive, individualistic creatures in societies

which undermine all sense of community (disorder). This stems from politicians, corporations and figures who embrace and promote neoliberal ideology (causes). The result is an age of loneliness, despair and inequality where psychological and physical suffering abound in a cycle of alienation and reaction (consequences). We can only break this cycle by reviving community, altruism and democracy (restoration).

4.2.2.1.1. Part 1: Original Virtue

Monbiot (2017, Chapter 1) suggests that humanity's "original virtue" is altruism – noting that evolutionary biology even points to us as "supreme cooperators". As Hawkley and Cacioppo (2010) note, this trait helped us survive years of evolution despite being physically weaker than many of our predators and prey.

In *Double-Edged Chord*, the underground Reservoir is suggested as being a space of original virtue – a place of magic, strong community and mutual aid.

4.2.2.1.2. Part 2: Disorder

The 'original virtue' of altruism has been disrupted. Loneliness and isolation, once-deadly enemies of our ancestors, have become an epidemic (Monbiot 2017). At the same time, we fill the hole with rampant consumerism – which rapidly exacerbates "the depletion of resources" and "environmental degradation" (Brown 2001; Brower & Leon 1999; Gardner & Stern 2002, cited in Emerald 2004, p. 19). Consequently, we "rip the Earth's living systems apart" as planet, people and social structures are brought to ruin in the name of profit (Monbiot 2017, Chapter 1).

In *Double-Edged Chord*, the underground Reservoir is invaded by surface dwellers who exploit its magic for the creation of fantastic inventions. The planet is taken briefly into a golden age – before magic dies out to rampant consumerism. The world is thrown into chaos. It only returns to some level of functioning when Leviathan finds a new way to make magic through music, monopolizes it and founds a corporate empire on its usage. The result is a world in disorder that closely resembles our own.

4.2.2.1.3. Part 3: The Causes

Our culture of profit-over-all encourages us to overlook the damage we do to ourselves, our environment and our fellow humans. At the core of this are the ideals of competition and individualism. With these come an idealization of the entrepreneur – and a gaping excuse for governments to totally relinquish responsibility for their citizens in the name of 'freedom'. Everyday life becomes a battle between winners and losers where inequality and poverty are viewed as natural, expected and acceptable (Brown 2015). Yet, we place the responsibility fully on ourselves – rather than examining the circumstances and societal contexts which dictate our lives (Monbiot 2017)

In this regard, *Double-Edged Chord* begins in a gameworld steeped in suffering at the hands of a similarly consumerist and hyper-individualistic culture.

4.2.2.1.4. Part 4: The Consequences

As we increasingly envision ourselves as individuals in constant competition, we stop seeing ourselves as people capable of unifying against common suffering. The effect of this is a world characterized by individualism – but also one with critical problems too all-encompassing for any single individual to tackle alone (Monbiot 2017).

In *Double-Edged Chord*, competition and isolation are rife. Anci suffers because she keeps trying to change her world alone (and keeps failing). Clef suffers because she's so jaded and individualized that she doesn't try to change it at all – and finds herself steeped inescapably in her own loneliness.

4.2.2.1.5. Part 5: Restoration

> *Togetherness and belonging allow us to become the heroes of the story (Monbiot 2017, Chapter 1).*

If we wish for a return to our original altruistic roots, we need to be "better than we are told we are, better than we are induced to be". We need to acknowledge and express our capacity for compassion and empathy. In this way, we would make a return to original virtue – or undergo a 'restoration' (Monbiot 2017, Chapter 1). [7]

[7] This isn't too far removed from the commonly-employed *Save the Cat* model – which posits an initial state of unrest that eventually transforms into a newer (and often) preferable state (Brody 2018). In this

In *Double-Edged Chord*, a culture of community and mutual aid develops between the characters over time. They start taking steps towards a more compassionate and empathetic world – dealing blows to Leviathan that force it (and the government) to exercise greater care and responsibility for the planet's citizens. While they acknowledge that their work towards this world is never truly done (even at the end of the game) the neoliberal story they've been forced to live has begun to change.

Note:
In the process of telling the restoration story, it is important that the desires of its participants are not judged or dismissed: "Wanting security, personal fulfillment, healthy relationships, and entertainment are understandable and valuable" – and as human beings, it shouldn't be wrong to want these things. The biggest problem is that our means of attaining these desires have been corrupted and subsumed by neoliberal ideology. Rather, it should be "possible to think about thriving in a way that does not reinforce this status quo, and playing video games can help us do so" (Myers 2019, p. 214).

Characteristics of the Restoration Story
Monbiot's (2017) description of the restoration story suggests a number of characteristics that underpin it – including **wide appeal, empathy, compassion and simple presentation**. These, through the aid of several other sources, are discussed below.

4.2.3. Wide Appeal
To be politically transformative, the restoration story should appeal to people across political lines – evoking the sense of togetherness and belonging that humans, regardless of political alignment, usually seek out. It should bridge party lines and resonate with people's needs and desires (Monbiot 2017).

To this end, using the medium of entertainment may be useful because (in its various shapes and forms) it occurs almost universally across cultures. Using story-driven entertainment may further enhance the appeal of a particular narrative because

light, the restoration story may be compatible with conventional models of storytelling in modern media (which is favourable for embedded design).

storytelling has, for centuries, been "one of the most compelling methods for richly communicating knowledge" (Lidwell et al. 2003, p. 228). This is because stories, when successfully employed, leave space for audiences to identify with them, for anyone to make connections between their own personal context and the events, worlds and characters presented onscreen. This allows the audience to "experience and recall the events of the story in a personal way" such that it becomes a part of them – "a phenomenon unique to storytelling" (Lidwell et al. 2003, p. 228). The capacities of entertainment and storytelling gel well with the medium of games – which bear a power of appeal evident in sheer numbers: The average gamer spends about 7.1 hours playing video games a week. Given that there are over 2.5 billion gamers in the world, that means gamers spend roughly over 17 billion hours a week playing video games (Koksal 2019).

In this vein, *Double-Edged Chord* employs storytelling methods conventionally used for entertainment purposes to get its message across. At the same time, it attempts to make its ideological standpoint clear – without painting characters who disagree with it as villains (but rather as humans with potentially misinformed ideas, worldviews and ways of living).

4.2.3.1. Risks

It should also be acknowledged that many persuasive games tend to take a 'one-size-fits-all' approach – trying to please everyone and so, pleasing no one. Rather, persuasive games will likely be more effective when designed with the background and culture of its target audience in mind (Khaled et al. 2006). This particularly applies when the restoration story has at its heart one of the most immense sources of human conflict: the clash of individualism and collectivism. Researchers have even demonstrated that "the dimensions of individualism and collectivism account for most of the variance in global differences" (Hofstede 1996; Triandis 1995, cited in Khaled et al. 2006, p. 213). However, this evokes a paradox: To persuade an individualist culture, we have to *appeal* to it – and yet, by appealing to it, we risk *affirming* it.

To this end, it may be better to view individualism and collectivism as two ends of the same continuum – rather than as separate entities (Khaled et al. 2006). With this in mind, *Double-Edged Chord* attempts to allow space for shifts in its story – taking the

player on a journey from an individualistic headspace to a communal one in a way that (ideally) feels both compassionate and non-judgmental. In this regard, it situates the player characters on different ends of the spectrum – with Clef being more individualistic and Anci more communally-focussed. Over the course of the story, Clef learns from Anci – finding a sense of belonging and connection that helps her overcome her own isolation (which serves as a larger metaphor for the isolation ingrained in us by neoliberal ideology). She gradually learns to care for Anci – and then for others. In this way, the game attempts to position her individualism as human and understandable – while also demonstrating its adverse effects on Clef and the people around her. Anci too learns from Clef – never losing sight of her communal focus but also learning to recognize her own value and accept help herself.

4.2.4. Empathy

> *Empathy, in the sense of seeing things from another's perspective and walking in their shoes, is a hallmark of good game designers (Rusch 2017, p. xxiv).*

Feshbach & Feshbach (cited in Kidd 2015, p. 7) found that empathy can "increase social understanding, lessen social conflict, limit aggression, increase compassion and caring, lessen prejudice, increase emotional competence, and motivate pro-social behaviour". Moreover, in their study of four prosocial games, Wulansari et al. (2020) found that video games can trigger perspective-taking and empathy. Mark (cited in Wulansari et al. 2020) further notes that "a book or movie can show us what it is like to be in a character's shoes, but it is the video game that can put us into those shoes".

This is particularly important for executing transformation in a neoliberal system – where fixations on competition and individualism have contributed to an empathy deficit: As a species, we have survived this long largely due to our capacity for mutual aid. However, our culture of competition and individualism often leads us to suppress these tendencies. For a true 'politics of belonging,' empathy must be embraced (Monbiot 2017).

As a game designer, this means empathising with players to make games that resonate with them beyond our own limited horizons. Games where participants actively inhabit and influence an experience offer unique and potent affordances for empathy. This can

be seen in the game *Elude* (2010): As a game, *Elude* is able to not only show what depression *is* but model what it *feels* like: Through the game's mechanics and interactions, players are forced to submit to the characteristic sensations of sinking into despair and constrained agency (Bertoli 2017). By modelling these *inner worlds* of people and "making them tangible through rules and mechanics," we can create games that allow players to empathise with the perspectives of others (Rusch 2017, p. xxv). This empathy is what makes players care about what the game is saying and encourages them to transform their thinking not only in-game but in reality. Brain scans even revealed that players' empathetic accuracy increased after playing the unreleased *Crystals of Kaydor* – an empathy-training game which attempts to teach players how to recognize emotions and gauge their intensity (Kral et al. 2018).

Engendering such empathy means that players need to be engaged in empathy-related skills. Many of these, as outlined by Farber and Schrier (2017), will be delved into under the later headings of *Cooperative Gameplay* and *Immersion* – along with *Agency and Choice* (all of which contribute to empathy). Other critical elements, however, include perspective-taking and identity – as well as building relationships with non-player characters.

4.2.4.1. Perspective-Taking and Identity

Perspective-taking involves "taking on another's views such that we can better understand them, even if we ourselves do not hold these views or agree with them" (Farber and Schrier 2017, p. 18). Games, as mediums that can be persuasive while also enabling players to role-play or experience the world from new perspectives, are primed for perspective-taking. Perspective-taking "has been shown to help reduce bias and improve attitudes toward people who initially seem different from yourself" – reducing the sensation that they are part of an 'outgroup' (Todd & Galinsky 2014; Darvasi 2016, cited in Farber and Schrier 2017, p. 17).

Perspective-taking is often induced through a game's avatar and point of view: Having an avatar or player character gives players the space to roleplay as that character. Players may attempt to take on the identity of that character – or find themselves negotiating between their own identity and that of the avatar (Farber and Schrier, 2017). The educational *Mission US* (2008) series of games, for example, allow students to

see historic moments from the perspective of a fictional character who lived within that time period. Researchers found "that the game enhanced skills such as historical empathy, interpretation, argumentation, and perspective-taking, including the consideration of views from multiple historic roles" (Schrier et al. 2010, cited in Farber and Schrier 2017, p. 19).

In this vein, *Double-Edged Chord* attempts to encourage perspective-taking via the player characters – who undergo the most transformation in the story to overcome the neoliberally-rooted trauma they face. Most notably, when players were asked who they empathized and identified most with, the majority listed one of these characters.

4.2.4.1.1. Risks

Designers should be aware that perspective-taking can also backfire if players over-identify with representations of their own perspective, have low self-esteem, are playing in a hyper-competitive or conflictual environment, or perspective-take so much that they become consumed with a single perspective and lose sight of the 'big picture' (Darvasi 2016, cited in Farber and Schrier 2017, p. 18).

4.2.4.2. Relationships with Non-Player Characters

Some games allow for players to bond with NPCs – which contributes to the player's suspension of disbelief and "can possibly evoke similar empathetic emotions as one might experience when building relationships with real people" (Harth 2017; Isbister 2016, cited in Farber and Schrier 2017, p. 20). These relationships help the player to define their character and themselves in relation to others (for example, a player's choices may result in their character being seen as 'friendly, 'brave' or 'smart'). Relationships can also encourage empathy in players by affecting the gameplay (e.g., players may be rewarded with allyship or in-game power for developing friendly relations in the game-world). Interdependent relationships may be especially powerful since they encourage attachment and empathy out of a necessity for mutual aid – as with Lee and Clementine in *The Walking Dead* (2012). Above all, it is most important that sufficient time is given for players to attach to characters (Farber and Schrier 2017).

In *Double-Edged Chord*, the player's choices affect the fates of certain characters – as well as how those characters see the players. In the future (where playtime can be extended beyond what is practical for this study) the game would ideally allow more space for the player characters to meaningfully build relationships with other notable characters *(See Appendix G for future improvements to the game)*.

4.2.5. Compassion

Short-term compassion training has proved transformative – increasing how often subjects extend help to others (Leiberg et al. 2011). Compassion is different to empathy: While empathy indicates resonance with suffering, compassion indicates benevolence, affiliation and the extension of care to our fellow human beings. fMRI analysis (after exposing participants to compassion and empathy-training programs) further demonstrates that compassion is accompanied by a positive affect powerful enough to counteract the negative affect usually associated with empathy. Even when participants were exposed to "equally distressing video material", heightened positive affect still occurred in those with compassion training (Klimecki et al. 2013, p. 5). Another study revealed that similar compassion training generally improves positive affect in daily life (Fredrickson et al. 2008). Yet another demonstrated that it encourages more frequent helping behaviour – which appeared to increase with greater exposure to training (Leiberg et al. 2011). It can increase positive feelings towards otherwise neutral strangers (Hutcherson, Seppala & Gross 2008). It can reduce racial bias (Hunsinger, Livingston, & Isbell 2014). It has even been specifically shown to "promote the enforcement of fairness-related norms in economic interactions" (Weng et al. 2013, cited in Klimecki 2019, p. 11). All of this points to compassion as a unique emotional regulation strategy which *doesn't simply* decrease negative affect – like suppression or reappraisal (Gross 2002): Rather, it increases and enhances positive affect without encouraging the denial of suffering or negative reality – which may be "a crucial prerequisite for the development of prosocial motivation and helping behavior" (Klimecki et al. 2013, p. 6).

This then begs the question of how one would actually train compassion. Often, meditation-based techniques are used. These focus on increasing one's sense of compassion and kindness – often towards a selection of people which may include "oneself, a close person, a difficult person, strangers, and common humanity" (Klimecki

2019, p. 11) In compassion training, one would wish them freedom from suffering. In its close sister, loving-kindness meditation, one would wish them health, safety and happiness. Mindfulness meditation (which focusses on living in the moment) may also gel well with the aforementioned techniques since it seeks, in part, to increase a sense of acceptance and kindness towards oneself and others (Klimecki 2019).
However, we must then ask how we can train compassion in *games*. As psychologist Daniel Goleman notes, games may have a meditative quality – and their repetitive actions may encourage a state of mindfulness (Neill 2020). This is possibly best likened to the concept of 'flow' – suggested to balance players between boredom and anxiety such that they are perfectly immersed in and attuned to the events of the game (Csikszentmihalyi 1990). Contextualised well, this can contribute to a state of 'spiritual wellbeing' – as with the welcoming gameplay and aesthetic of *Animal Crossing: New Horizons* (2020). The game experienced a massive surge in popularity at the start of the COVID-19 pandemic as players sought out "a blissful simple world to answer our contemporary dystopian disorder" where they could connect with and befriend others (Neill 2020). In this regard, it is possible that the meditative qualities of video games – when contextualized for compassion – could create the space for compassion *training*.
In this vein, *Double-Edged Chord* attempts to include some level of meditative quality in its gameplay. For example, players should (ideally) feel a certain sense of flow in tapping arrows in cooperative combat – and a certain sense of contemplation in puzzle-solving. Many scenes are visually 'soft' or dreamlike, employing calming music to both ease tension and engender peace. Within this atmosphere, the game's story attempts to uphold the importance of compassion, community and mutual aid.

While games may offer potential for compassion training, they would likely still need an in-game space which caters to the *expression* of compassion. This may be possible by exploiting the link between compassion and empathy: As Navarro-Remesal (2016, p. 3) notes, "the idea of compassion implies that we see others as capable of suffering in the same way we do" – meaning we can feel for their plight. In this way, exploring our *own* suffering is what allows us to realise that everyone suffers, which encourages the expression of compassion. This is particularly relevant for games, which (as a medium) are *supposed* to make the player suffer in some way – to present meaningful challenges in the name of engagement through mechanics, narrative and consequence. As a result, games are perfectly primed to engender suffering in meaningful ways – where

"compassionate play" would ask one to acknowledge their own suffering as player, as well as the suffering of others (be they fellow players or in-game characters). By exploiting the game's ruleset and contextualizing it in a series of appropriate circumstances, games effectively offer a space for both the training and expression of compassion (Navarro-Remesal 2016, p. 1).

In this regard – while the story of *Double-Edged Chord* puts the player characters through considerable suffering, bringing them together through it, it also acts to remind them that they aren't the only people who are suffering. Everyone is suffering at the hands of the game-world, but that shared suffering is a galvanizing point for compassionate communal support. This is further supported by the game's mechanics where the player characters effectively struggle together. Being hit by the enemy causes both characters to lose health and can even kill them. The challenge of beating the enemy in itself may constitute its own kind of meaningful suffering – where 'winning' not only allows both player characters to live but also frees the 'enemy' from a painful trance where they're being forced to relive their worst memory. When the characters are exposed to this memory, they and the player gain a glimpse into *new* experiences of suffering and are offered the opportunity to make a compassionate choice in response.

When games offer us an avatar, especially, "we start by caring about it, and this compassion can extend to the others" (Navarro-Remesal 2016, p. 4). In *Pikmin* (2001) for example, the player character is an alien trying to return to his home planet. These pikmin are charming, endearing and helpful for the player character – but capable of both feeling and vividly expressing pain. While it's the enemies who actually *kill* the pikmin, the player is the one who forces them into danger – and mastery of the game is determined by how many pikmin you have left alive at the end of a particular mission or task. As a result, the game's "ludic goals become intertwined with compassion: the better the player performs, the less pikmin she will lose". In this way, games may reward players for being compassionate – or encourage reflection on common suffering, its impact and what the player can (or cannot) do about it (Navarro-Remesal 2016, p. 5).[8]

[8] It should be noted, however, that the resource-management aspect of the game may desensitize certain players from its more compassionate elements. In this regard, it is important to recognize that different players may experience games in different ways – often beyond the control of the designer. Those who play the game because (for example) they find the characters and narrative endearing may have a more compassionate experience than those interested only in the underlying mechanics.

In *Double-Edged Chord*, players are required to work as a team to beat the game. In this regard, expressing compassion and a willingness to help each other is essential. Moreover, expressing compassion for characters in the choices one makes may also reward the players in story outcome (and hopeful futures for the characters in question).

4.2.6. Simple Presentation

The game, and so its content, should be accessible and easy to follow (Monbiot 2017). Gameplay elements should harmonise coherently – with both mechanics and subject matter gelling in a way that feels natural and easy to understand (Baker 2017). As Rusch (2017, p. 98) suggests, nothing should detract from the game's key theme: "the core mechanics, the goal, the conflict, the setting, the characters, and the narrative" should all reinforce the game's message. In line with embedded design, she points to metaphor as a means of cutting cleanly and simply to the core of a game's message without distracting from it.

Spirits of Spring (2014), for example, has themes of bullying its core. The player character must protect the in-game season of Spring from cruel and vicious crows – just as one must protect the emotional climate of their environment from bullying. When the crows attack, feathers remain stuck in the characters' clothes and fur the same way bullying 'sticks' with its victims – and 'shaking it off' (as one does in reality) is an actual mechanic in the game. In this way, the theme tightly guides the mechanics, objectives and narrative in a simple and coherent manner: As Rusch (2017, p. 98) remarks, bullying is not 'about' "stealing a lunch box or interfering with the organization of a comic book fair or crashing a poetry reading. It's about threatening emotional balance and making you feel powerless to do something about it".

In this regard, *Double-Edged Chord* attempted to make clear connections between the characters' suffering and their neoliberal backgrounds. Within this context, it uses fantasy and metaphor to (try) and cut to the core of what collaboration in the face of neoliberal suffering is *'about'* – how it feels (not just how it looks). This is discussed in greater depth under the heading *Modelling the Human Experience*.

However, in the vein of simplicity, it is also important not to make sure that these metaphors are not so simplified or distanced from reality that the message loses its meaning (Craig n.d.). The results of this study's post-game diary point to some level of success in this regard: While a couple of participants noted that the game's messages might have been too subtle, the large majority (when asked what the game was about) cited the neoliberal themes of suffering at its core – despite the game (on a superficial level) being about two rival musicians working together to escape a series of nightmares.

4.2.7. Modelling the Human Experience

Experiential gestalt, structural metaphors and allegory can make us more conscious of both our own experiences and others. This allows us to "systematically identify the source systems of our abstract experiences" – so making games that appeal to the human condition and resonate with players. By being in tune with the emotional valences we wish to evoke in players, we can ideally engender transformative and empathetic gameplay (Rusch 2017, p. 47).

In this light, a game that models a human experience won't simply show how that experience *works* but how it *feels* – making their abstract emotional essence tangible in gameplay. For this to be possible, designers have to pinpoint the core emotional systems of those experiences, recreating the way they feel by demonstrating each of their essential elements in gameplay – along with appropriately meaningful relationships between them (Rusch 2017).

Rusch (2017) suggests that examining and understanding human experiences will allow us to become familiar with their core systems – and so translate these systems to games. As grounded psychology has shown, methods (like these) that "mirror the way our brains make sense of the world around us in everyday life" are geared for engendering emotion (Isbister 2016, p. 7. This may be because one compares their in-the-moment, in-game experiences to past experiences – so producing a correlating emotional response. Even when we watch a film, for example, we are willingly deluded into thinking the events presented are actually taking place. This willing delusion is what "allows us to experience alternate situations and ways of being human, which in turn informs our own experience of being human" (Isbister 2016, p. 8). In games, then, these techniques

may allow for the visceral immersion of players in alternate ways of being that are opposed to typical neoliberal experience.

4.2.7.1. Experiential Gestalt

Real-world, physical experiences are often translated to games. In a snowboarding game, for example, the player is viscerally made to feel like a snowboarder: The controller, sounds and visuals mimic the vertigo of movement on snow. The mechanics ask the player to make in-the-moment decisions about their moves and speed – all while carefully considering their own ability as a (virtual) snowboarder (Isbister 2016). These real-world experiences may best be recreated in games by breaking them down into their core components and patterns. On a basic level, we find these patterns in schema: Cognitive frameworks and concepts that help us interpret the world around us. Social schemas, for example, encompass how people behave and act in social situations. The social schema for a date typically follows the pattern of trying to be respectful, showing your companion a good time or even paying for their meal (Cherry 2019). In this way, schema allow us to understand how an experience or concept works based on previous regular activity or patterns (Rusch 2017).

These defining patterns of a schema are called *experiential gestalts*. The gestalt is not an experience in itself but rather a means to recognize and classify experiences – and can be shared between them. An experiential gestalt can be broken down into five dimensions: Participants, Parts, Stages, Linear Sequence and Purpose.

For example, cleaning is an experiential gestalt: It has participants (the cleaners), parts (tools for cleaning and objects to be cleaned), stages (e.g., laying out utensils, wiping them down and then putting them back where they belong), linear sequence (one wouldn't wipe down the utensils before laying them out) and purpose (make dirty objects clean). Though each cleaning experience follows this pattern (a person/actor uses cleaning tools on objects until all dirty objects are satisfactorily clean) no cleaning experience is the same (Rusch 2017).

4.2.7.2. Structural Metaphors

This all then begs the question of how one can understand *abstract* experiences like loyalty or love. Rusch (2017, p. 53) suggests that, "like physical concepts, abstract concepts also have internally coherent structures that define them." Just like we have conceptual structures for how we understand physical concepts (like a date) we have them for abstract concepts too (like love). This is because abstract experiences, even though they can't be directly observed, can be *understood* in terms of something concrete – usually by way of *metaphor*. For example, we can understand love in terms of other emotions ('love is madness') or through something more tangible ('love is war') (Rusch 2017).

An example of this exact metaphor can be seen in the manga *Kaguya-Sama: Love is War* (Akasaka 2015). The manga details the adventures of two geniuses who are too proud to admit their love for each other (even if they're somewhat aware of the other's feelings). As a result, each is determined to get a confession from the other instead – be it by trying to impress each other through intellectual challenges or ensuring that they end up in romantic situations together.

Here, the abstract experience of 'love' is mapped onto the physical experience of 'war'. War – on a superficial level – looks like a battleground where winners (those who live) and losers (those who die) are decided by ability and tactical prowess in combat. In the manga, 'love' is pictured as an *internal* battleground of "increasingly ridiculous mind games" where winners (those who charm) and losers (those who confess) are decided by ability and tactical prowess in the art of seduction (Goslin 2019).

Both cases (physical and abstract) can be mapped onto the experiential gestalt of *war* at their core. They both have participants (those involved in the war), parts (tools used to win the war), stages (in which the war escalates), linear sequence (the order in which the war escalates) and purpose (to overcome one's opponent).

With this in mind, there is potential for games to employ similar methods – mirroring how an experience *feels* rather than simply how it *works* (Rusch 2017).

4.2.7.3. Experiential Metaphors

The aforementioned *structural* metaphors focus on accurately representing how an experience *works*. *Experiential* metaphors focus on representing how an experience *feels*.

Rusch (2017, p. 74) explains experiential metaphors to be "an analogy between gameplay and real-life experience evoked by what the moment-to-moment gameplay feels like, whether these analogies were intended by the designers or not". This occurs when an in-game experience evocatively reminds us of (and feels like) a real-world experience. In this way, experiential metaphors can give us deeper insight and meaning into an experience – particularly by allowing players a means to engage with that experience and its sensations 'first-hand' (or at least, close to it).

Hofmeier's *Cart Life* (2010), for example, attempts to recreate the absurd and painful experience of how neoliberal work *feels* through abusive game design. The game is played in real-time, evoking the real-world sensation of working under time pressure. Labour involves purposefully repetitive mini-games, evoking the sensation of painful mundanity – running on an (in-game) daily cycle of purposelessness and frustration (Gavin 2017). To this end, it is 'boring' in the most realistic way possible — so much so that it invites critique and reflection beyond sensationalism (Donlan 2013). In this way, Hofmeier meaningfully recreates the pain of how neoliberal mundanity *feels* in the mechanics of his game – rather than just how it works.

To aid designers in breaking down complex experiences like this, Rusch (2017) draws on the grappling hook mechanics from *God of War II* (2007) to show how one can express the *feeling* of a complex experience (breaking up and moving countries) through game mechanics – even if those mechanics don't necessarily show how it *works*. In this regard, she refers to a scene where the player has to traverse a broad, open area by swinging across pillars with a grappling hook: The player chooses a grip point, attaches the grappling hook to it and swings. Mid-swing, the player must then release the hook and attach to a new grip point in order to move forward. This means that between one pillar and the next, "there is always a dizzying and enervating moment of free fall". Releasing too early means going in the wrong direction or attaching to the previous grip point. Attaching too late means falling to your death (Rusch 2017, p. 75).

Rusch (2017) compares this to her move between countries during a breakup – and how there was a moment where everything was uncertain (or 'up in the air'). She didn't want to stay in her current position – but wasn't sure where she was going either. Ultimately, even if the game mechanics were far removed from how her experience *worked*, they were still an uncanny reflection of how it *felt*. This, as Rusch (2017) argues, is because they both use the same experiential gestalt of *transition*.

The participant is the subject in transition (Kratos/Rusch). The parts include an unsatisfying position A (old pillar/old country), better position B (new pillar/new country), the "need to let go of A in order to move to B" and the sensation of uncertainty while moving between the two (Rusch 2017, p. 75). These parts have an inherent linear sequence, and the purpose is successfully reaching position B from position A. With this experiential gestalt as a link, Rusch's abstract experience was made concrete and directly accessible – allowing her to become more deeply aware of it. The grappling hook sequence became an experiential metaphor – a "phenomenon of understanding a gameplay experience as a physical (however, virtual) manifestation of abstract ideas such as emotional processes or mental states" (Rusch 2017, p. 76).

4.2.7.3.1. Risks of Experiential Metaphors

In this way, experiential metaphors can be powerful tools for communicating the core essence of an experience to players and making them more aware of it. However, Rusch cautions us that modelling a source system from a different point of view can change "its experiential gestalt dramatically to something that is unrecognizable or (worse) something that feels completely different, possibly undermining or, at least, interfering with the game's theme and message" (Rusch 2017, p. 75).

Furthermore, while experiential metaphors are effective tools for expressing a designer's intention, it is also important to acknowledge that players will always enter into a game with their own pre-existing perceptions and experiences. No designer can dictate how every player interprets the message of the game – but rather the interpretations of players should be respected and hold weight in their own right beyond the intention of the designer.

4.2.7.4. Experiential Metaphors in Double-Edged Chord

Double-Edged Chord attempts to address the experiential gestalt of teamwork. This manifests largely in the game's combat. Here, players are faced with an enemy: A person being forced to relive their worst memories, causing them to unknowingly lash out. Breaking the memory loop means defeating them in musical combat – as seen in Figure 3. In musical combat, arrows scroll up the screen. Players have to hit the matching arrow keys in time to the music. Every time a beat is hit, power builds up in an orb. When all the beats have passed, the power orb is flung towards the enemy, dealing damage or lowering defence according to the amount of power the players have built up. The enemy then does the same on their turn. The players and enemy take turns in this manner until one side's health is depleted.

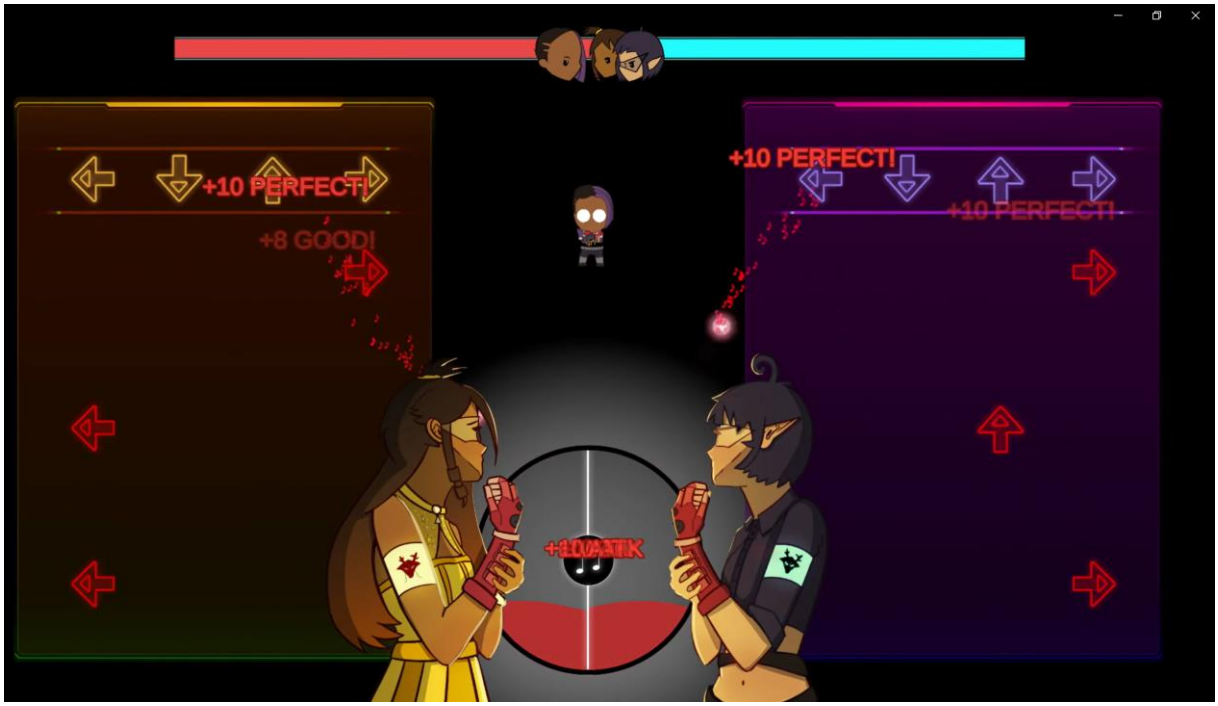

Figure 3 - Musical combat in progress.

The experiential metaphor results from the idea of teamwork as being 'in-tune' with another. This was in the vein of combatting the individualism typically perpetuated under a neoliberal order – especially because the notion of being 'in-tune' with someone is often strongly associated with the concepts of empathy, mutual support and teamwork.

The participants are the people 'tuning in' (music players/empathetic parties). The parts include the tools needed to tune in (instruments/empathy) and a *reason* why 'tuning in' is needed (the enemy/emotional distress). The stages involve 'syncing-up' (musically/emotionally) and using that experience of being 'in-sync' to offer support (tackling the enemy/providing emotional support). These parts have an inherent linear sequence. The purpose is successfully providing support to the other party. Most importantly (in the case of the game) neither player can survive *without* this support: The enemy affects both players and the players' decisions in combat affect each other – meaning they succeed and fail as a team. Players need to remain 'in tune' with each other, matching rhythms in order to overcome the enemy.

4.2.7.4.1. Improvements

This element of the game could be improved by introducing far more interplay between the players' game states – meaning that each player would need to focus more on the other's gameplay and stats in order to win. Due to time constraints, these were scrapped from the first draft of the game *(See Appendix G for future improvements to the game)*.

4.2.7.5. Allegorical Games

> *There is an exquisite pleasure in slowly uncovering a metaphorical game's hidden meaning, in putting the pieces together and trying to make sense of it all. Even if one never arrives at one coherent reading, if the game feeds you enough clues that you think the key to it all is just around the corner, this can create an enormous pull (Rusch 2017, p. 100).*

An allegory is a story that employs multiple symbols or metaphors to express a deeper meaning beneath its surface. Allegories can include multiple events or even characters that represent abstract experiences. By extending or combining our in-game metaphors, we can make allegorical games. Rusch (2017) argues that allegorical games allow us to make our inner processes tangible in games by extending experiential metaphors into recurring themes that lace themselves throughout the entire game. By contextualizing real, abstract experiences within the fictional and fantastic, we allow players to explore topics from a fresh perspective and so in a less biased way – similarly to Kaufman et al.'s (2016) embedded design model.

In this way, allegorical games can communicate complex, abstract experiences with more depth than single metaphors or experiential gestalts. *Journey* (2012), for example, portrays a literal journey towards a strange beacon in the desert – but also constitutes "a more general contemplation of the hero's journey, identity, growth, and search for meaning" (Rusch 2017, p. 92).

Rusch (2017) suggests three approaches for making allegorical games: Metaphor as mystery, metaphor as message and metaphor as muse.

4.2.7.5.1. Metaphor as Mystery: Simulating Curiosity

This approach involves posing the game as a puzzle or mystery to the player – providing clues that encourage them to solve said mystery and thereby uncover the deeper meaning of the game. *Silent Hill 2* (2001) is an example of this. On the surface, it is a horror game about searching for your wife in a monster-ridden town. However, it is also a coherent allegory about guilt. The game frames itself as a mystery and then solves that mystery by revealing that the town of Silent Hill (including its characters, events and environmental storytelling) is an allegorical representation of the main character's "private purgatory" – which he can't leave until he forgives himself for the murder he committed (Rusch 2017, p. 101). The more players dig, the clearer this becomes. In this way, it is the element of *mystery* which encourages players to engage with the game's deeper meaning from a curious and emotionally-connected standpoint.

4.2.7.5.2. Metaphor as Message: Achieving a Communicative Goal

This approach involves using metaphors to lure or "hook" players – rather than to obscure the true meaning of a game. In this case, many games will initially conceal their true meaning – but make it more and more overt as it progresses. *Papa & Yo* (2012), for example, centres on themes of abuse – slowly revealing its literal meaning as it helps us "make the connection between a monster and a father, frogs and alcohol". While this runs the risk of making players feel cheated of being smart or interpreting the true meaning themselves, it is also "a trade-off between limiting some player's enjoyment of their own cognitive abilities and risking a lot of people not getting it" (Rusch 2017, p. 102). In this light, it is sometimes useful to aid the game's comprehension – especially if its main aim is to get across a message.

4.2.7.5.3. Metaphor as Muse – What Does it Mean to Me?

This approach involves encouraging the player to explore the content of a game themselves and come to their own conclusion about its meaning – rather than uncovering a "prepackaged" meaning prepared by the designer. *Journey* (2012) is an example of this: On one hand, it presents the player with a literal journey. On the other, however, that journey can be representative of whatever the player wishes: "The desert is life's possibility space in which we make connections and experience things; the mountaintop manifests the very idea of destination; and the creatures and other obstacles that get in your way stand for obstacles and setbacks" (Rusch 2017, p. 102). In this way, the game clearly portrays a journey – but one abstract enough that players can project their own ideas onto it, turning it into a journey of self-exploration. It prompts questions – not just about the content of the game – but about the player themselves: Who am I? Where am I going? What is my journey?

4.2.7.6. Allegory in Double-Edged Chord

As Rusch (2017) points out, the above approaches are not mutually exclusive or principally different – but can be combined with different degrees and emphasis. As such, *Double-Edged Chord* attempted to employ a mix of all three approaches. However, it predominantly runs along the lines of metaphor as message.

This is because neoliberalism already has several mechanisms in place for rendering itself invisible – meaning a more blatant approach would likely be needed to express it clearly (Bettache & Chiu 2019). Moreover, for all the 'stealthier' approaches used in the game, the aim of these approaches was to offer players an environment immersive enough to encourage engagement with the presented issues – but distant enough for it to feel safe. As previously discussed, the game did not seek to 'trick' players into absorbing the game's messages – nor to leave them feeling tricked by the end of the game.

Within this approach, the game employed metaphor as mystery – where, as the mystery of the game starts to unravel, so too does the message of the game become clearer: At the start of the game, the characters start having nightmares from which they're unable to wake up. In these nightmares, they find other characters who have been trapped and forced to relive their worst memories on repeat. The rundown dreamscapes are also

filled with magical runes to suggest that someone has purposefully trapped them there – and is controlling the dream.

This (ideally) leaves the player with several questions: Who is controlling the dream? Why are they trapping people? Why those *specific* people? Why are they being forced to relive their worst memory? As the answers to these questions are revealed, the characters (and players) start to realise that every traumatic memory in some way links back to the suffering caused at the hands of corporate giant Leviathan – and so to the issues of neoliberalism it represents. Over time, this link gets more explicit.

Finally, the game asks the players to question what this journey means to *them* and how they perceive it through the choices they make. These choices allow players to offer advice to the characters in their dreams – who, after being repeatedly exposed to their worst memories, are more open than they might usually be to taking that advice. At the same time, each choice inherently asks the player to consider their *own* standpoint on the situation presented by the characters' memories – and to answer accordingly.

4.2.8. Incorporation of Anti-Oppression Principles

4.2.8.1. What is anti-oppression?

Anti-oppression is a framework for confronting "power imbalances between different groups of people in society" (Schrier & Gibson 2011, p. 253). It is rooted in principles of equity and ethical reflection on one's actions, assumptions and awareness of societal norms – encouraging us to reduce the power gap between oppressed and privileged peoples. When applied to games, it can ideally engender gameplay that confronts discrimination and amplifies marginalized voices – supporting transformation and social change in a meaningful, transparent way (Schrier & Gibson 2011).

4.2.8.2. The Basics of Anti-Oppression

Anti-oppression attempts to tackle a broad range of social injustices – encompassing "factors like race, gender, sexuality, age, class, ability, and religion" – through the lens of several perspectives. These include "feminism, critical race analysis and anti-racism, disability analysis and postmodernism" (Schrier & Gibson 2011, p. 255).

When engaging with anti-oppression, it is important to understand its perspectives on oppression, privilege and personal reflexivity (Schrier & Gibson 2011): Oppression constitutes "the exploitative exercise of power by individuals and groups over others" (Clifford & Burke 2008, p.16). Privilege, like oppression, inherently results from social differences and power imbalances – and the way these are woven into our everyday routines, rules and social practices (Clifford & Burke 2008). Anti-oppression encourages an awareness of these power imbalances – of "the power one holds and oppression one faces" (Schrier & Gibson 2011, p. 257). For this awareness to be possible, however, we need to develop a certain level of personal 'reflexivity' – the ability to ethically examine our internalized values, dichotomies of power, stereotypes, biases and prejudices as produced by societal structures (Schrier & Gibson 2011). This reflexivity is particularly important for addressing a citizenry that, under neoliberal order, has become institutionally depoliticised (Monbiot 2016).

4.2.8.3. Anti-Oppression and Games

> *Because video games have the ability to persuade or inspire people to critically examine mainstream norms and behaviors, we embrace the implementation of anti-oppressive principles, practices and ethics (Schrier & Gibson 2011, p. 258)*

Games give us the space to play roles different from our own: In tandem with anti-oppression principles, they can become the lens through which we understand how "social injustice is perpetuated by societal structural inequalities, particularly along the lines of race, gender, sexual orientation and identity, ability, age, class, occupation and social service usage" (Dumbrill 2003, p.57).

As shown, games have the capacity to unwittingly reflect and perpetuate the ideologies that created them – including neoliberalism and other oppressive ideologies. At the same time, "digital games, particularly those designed outside of the industry, are ripe for the incorporation of anti-oppressive principles": If applied to games, anti-oppression can become a lens for making games that are not only transformative – but can exact their transformation in the vein of confronting power imbalances and encouraging "players to contribute to equitable social change" (Schrier & Gibson 2011, p. 271).

4.2.8.3.1. Disrupt Stereotypes

Anti-oppressive games should avoid the perpetuation of stereotypes (especially of marginalized peoples) and, where at all possible, make conscious attempts to disrupt them in the "look, feel and play of a game" (Schrier & Gibson 2011, p. 268). This is especially important because stereotypes are often part of something bigger – constituting the result of power imbalances in which dominant orders may influence the perception of peoples and groups at the lower end of the power spectrum. However, if games can perpetuate these stereotypes, it may also be possible to subvert them (and the orders, like neoliberalism, that they represent). For example, dark skin has often been erased or vilified in media like games – as in the massively popular *Legend of Zelda: Ocarina of Time*, where the only people of colour[9] (and the game's main antagonist) come from a race of thieving, treasure-hunting people known as the Gerudo (Wallick 2014). However, some game designers have still made moves to subvert this sort of stereotyping. *The Walking Dead* (2012), for example, presents Black characters with immense narrative depth.

Conversely, it is also important to take care in attempted subversion. For instance, some games allow players to adjust their characters' skin colour across a range of skin tones – both dark and light. Executed without care, approaches like these risk being "tokenizing" or superficial, taking a "window dressing approach" to representation (Schrier & Gibson 2011, p. 269).

In this regard, *Double-Edged Chord* attempts to disrupt typical stereotypes presented in games (and other media) through its characters. It attempts to acknowledge the role their socially-constructed identities play in their character development while also not reducing their entire identity to it. Anci, for example, is a woman of colour – whose mother is coded as Indian and father as Coloured[10]. The game acknowledges that, as a woman, she has had to drop out of school to take care of her family (as is common for many women living in poverty) (Rueckert, 2019). It also acknowledges the culture of

[9] While the term 'people of colour' is occasionally used in this study to refer to any persons who would not be classified as 'White', this is done with an awareness that experiences vary deeply across all race groups (and that the term is not meant to be interchangeable with 'Black'). As such, the author tries to be specific (Black, Indian, etc.) wherever possible.

[10] 'Coloured', in South Africa, is used as a term to describe people generally considered to be of mixed race origin – an important segment of the population. It is employed here since the author is South African, as well as the real-life person on whom Anci's design (and race) are based.

shame surrounding her appearance and constellation-like runes (characteristic of Reservoir-dwellers – as seen in Figure 4), attempting to draw a parallel to the shame sometimes experienced by many people of colour.

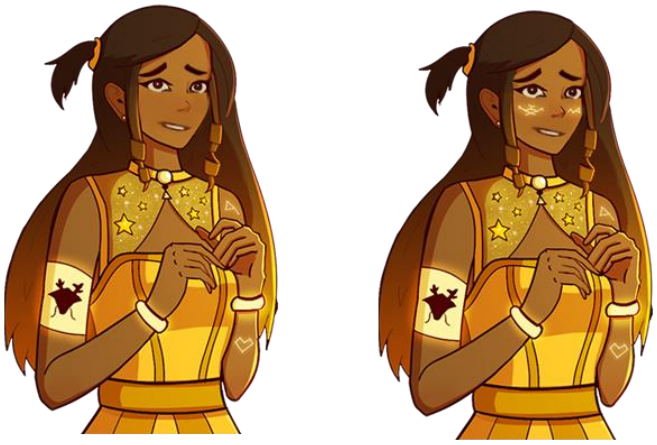

Figure 4 – Anci wearing makeup to cover her runes (left) vs Anci with her runes uncovered (right).

At the same time, her character attempts to subvert certain stereotypes. For example, in contrast to the 'meek, submissive and agreeable' woman stereotype, she has a streak of anger which she slowly learns to harness into a strength – allowing her to enact change in a world she's steadily opening her eyes to. In contrast to the 'stupid and 'lazy' stereotypes associated with many of people of colour, she is curious and hard-working. Rather than being relegated to tokenized background character, she is one of the main characters of the story. Rather than serving as a tool for the development of other (lighter-skinned) characters, she is her own person who both grows on her own, helps others grow and is helped by others to grow over the course of her character arc (developing confidence in herself and greater awareness of her world).

4.2.8.3.2. Consider Players and Communicate with Them

As designers, it is essential to consider "a game's target players and their unique experiences — the power they may hold and oppressions they face" – without assuming that all will think, play and experience in the same way (Schrier and Gibson 2011, p. 269). This requires active reflection on one's own assumptions about targeted players – in tandem with the conscious acquisition of knowledge about them from more informed sources. This especially includes communication with target players (Schrier and Gibson 2011).

Double-Edged Chord sought to take player perceptions into account during its design phase: Prior to development, two questionnaires were sent out to participants. The first went to a series of design reviewers – who reviewed the design of the story and offered their feedback. This round of feedback warned against making characters who felt too black-and-white or fell into cliches (which I sought to avoid in the redone concept). It also reinforced my desire to (try) represent gradually-developing, natural romance between two women. While there was initially some hesitance (lest the story get side-tracked into romance) the deciding factor was this comment from a design reviewer: "The stereotype of female to female relationships needs to be challenged, why do they always have to only hug or hold hands?"

The second questionnaire was a pre-game questionnaire administered to a series of potential play-testers. While this largely served as the baseline for measuring their transformation after playing the game, it also shone a light on potential areas of focus. For example (as Participant 30 stated): "Men are biologically stronger and fare better in jobs such as construction, whereas women are naturally more people-orientated (the average woman is more agreeable than the average man) which suits people-orientated careers". As such, a considerably 'ripped' woman was included in the game (one of the strongest contestants players face). Clef (a main character) is also one of the most disagreeable characters in the story – and struggles to relate to people. At the same, it was hoped that her related struggles with loneliness and isolation[11] would serve to humanize her.

4.2.8.3.3. Attend to Multiple and Hidden Perspectives

This requires us, as designers, to avoid the assumption that our perspective is the only one that matters and/or that we are experts on the experiences of others. In this light, it is important that we make space to engage with the ideas, opinions and perspectives of marginalized communities (Schrier and Gibson 2011, p. 270).
In the process of designing *Double-Edged Chord*, various source materials (fiction, non-fiction and personal experience) were drawn upon to gain an understanding of the impact of neoliberalism on different people's lives. Many of these are reflected in the

[11] These arise from her (distinctly neoliberal) grind to the top – and resulting fear of falling behind.

literature review. A number of story developments also arose from past personal conversations with others (e.g., the culture of shame surrounding Anci's race – and the way it manifests within her).

4.2.9. Persuasion

Persuasive games embed values in their design with the aim of "deconstructing stereotypes and convincing players of specific ideas" (Kerpitsopoulou 2016, p. 12). Games especially lend themselves to persuasive in-game environments via gamic lived space. As Aarseth (2001, p. 169) argues, gamespace can be thought of as an allegory for reality – noting that games "pretend to portray space in ever more realistic ways, but rely on their deviation in order to make the illusion playable". In this way, games not only allow us to escape reality but to safely relive it in persuasive ways – putting the player in positions they might never have experienced otherwise. In *Jet Set Radio Future* (2002), for example, the player takes on the role of a skater resisting an oppressive capital – along with their community. The player is virtually pulled into a skater subculture of communal resistance, begging questions about how the boundaries of power can be pushed not only in-game but in reality (Nicholls and Ryan, 2003).
In this same way, *Double-Edged Chord* aims to exploit the capabilities of its gamic lived space – contextualizing neoliberalism from different perspectives, ideally convincing players of its impact and triggering action. This is done with the words of Margaret Mead in mind: "Never doubt that a small group of thoughtful, committed citizens can change the world" (Keys 1982, p. 79).

4.2.9.1. Persuasion Through Signs

Signs are entities that represent or 'mean' something within a certain context. Signs refer to the small components which make up our methods of communication – including gestures, letters, words and images. They are the key components by which we organize, understand and describe the world (Hall 1997). In this regard, persuasion-by-signs can include linguistic, visual and sonic persuasion (Kerpitsopoulou 2016).

4.2.9.1.1. Linguistic Persuasion

Linguistic persuasion involves conveying meaning through written or spoken language, relying on connotation, denotation and convention to persuade players of a particular message (Kerpitsopoulou 2016). Linguistic persuasion is particularly important in the

tackling of broad societal concepts like neoliberalism because, at its core, language is "the means to interpret society" (Kloch 2012, p. 253). *Language* is what allows us to socially construct, communicate and persuasively convey the concept of 'society' – communicating needs, engendering belonging and constructing identities in relation to *society* as we understand it (Kloch 2012). In serious games, linguistic persuasion can occur through any word-based element that carries information related to its message – including its "title, descriptive texts, names of the characters and places, texts and paratexts" (Kerpitsopoulou 2016, p. 17).

As a dialogue-driven game, linguistic persuasion is highly important in *Double-Edged Chord*. In this vein, words were carefully chosen for each character – with attempts made to ensure each had their own unique speech-patterns and tones of voice. This was in the hope of making them (and their neoliberally-rooted trauma) feel human, real and distinct from other characters. Dialogue was structured with the goal of guiding the player through interspersed moments of joy and pain – administering the characters' suffering in small doses while also giving players time to digest and process their significance in relation to the game's message.

4.2.9.1.2. Visual Persuasion

Visual persuasion encompasses the way a game's visuals meaningfully affect its players. This can occur in every visual element of a game from art style to setting design. In this regard, interface and character design are especially significant – and are often the elements players will engage with most overtly. Interface design guides the player through the process of decision-making – encouraging them to reflect on their attitudes and ideas. Character design gives players an immediate impression of who an in-game character is – encouraging empathy and engagement with not only the character but what they stand for (Kerpitsopoulou 2016).

In this vein, *Double-Edged Chord* attempted to reflect the characters' experiences with neoliberal suffering in their designs in meaningful but appealing ways. *Appeal*, in this case, is referred to along similar lines as the twelve principles of animation: Not necessarily sympathetic or attractive – but rather charismatic, real and interesting (Thomas and Johnston 1995). Anci, for example, covers up the runes on her cheeks in earlier parts of the game – but reveals them as she grows more comfortable with herself.

Clef is never pictured without her visor (which allows her to play music) – expressing her inescapable and destructive relationship with her craft. Fife has a prosthetic arm – their real one lost to unsafe working conditions. This same line of design was applied across the game's characters – as seen in Figure 5.



Figure 5 – The game's major characters.

Row One (from left to right): Anci, Clef, Coda and Fife.

Row Two (from left to right): Zia, Marsh, Cherry and Tori.

4.2.9.1.3. Sonic Persuasion

Sound in film and other media usually serve to create a sense of realism and immediacy – almost unnoticeably weaving itself into the work in question. However, the key purpose of sound in games is often to offer support and facilitate *gameplay* – offering feedback on the characters' actions (Ekman 2008). This support is especially important when gameplay carries persuasive ideas. Since both sounds and their sources draw on the player's ability to semantically interpret what a game is trying to tell them, in-game sound is primed for persuasive messages (Kerpitsopoulou 2016).

Double-Edged Chord, as a rhythm game, relies heavily on sonic persuasion to convey its messages. Music in combat is (narratively) generated *by* the player characters – and was selected in the vein of making the experience feel exciting and fast-paced. This, ideally, aids in evoking experiences of joy and shared power while also mimicking the sensations of action and control found in more 'conventional' games. Between combats, music was used to guide tonal shifts in the story – thereby playing a strong role in supporting the game's linguistic persuasion.

4.2.9.2. Persuasion through System

'System' refers to the digital space that communicates a game's message: The abstract elements (including rules, story and editing) that together give rise to a meaningful, coherent experience. In this regard, persuasion through system can be enacted on the levels of procedural, narrative and cinematic persuasion.

4.2.9.2.1. Procedural Persuasion

Procedural persuasion involves using a game's inherent rules and processes to carry its persuasive argument through model rules (what players *can* do inside a game) and goal rules (what players *must* do inside a game to 'win' it). These rules can "lead the player to the end of an argument through many paths and unconsciously persuade him to have a certain idea or desirable attitude regarding an issue" (Kerpitsopoulou 2016, p. 20). The model rules and actions players can take in *Double-Edged Chord* were designed with the intent of subverting neoliberal ideals in players and/or encouraging them to reflect upon their own perception of those ideals (as detailed throughout this framework). The goal rules in *Double-Edged Chord* are designed such that there is no one way to win the game – but rather ways for players to obtain outcomes that might be favourable to them. Encouraging characters to remain complacent results in them experiencing a painful future – while encouraging them to resist can set the course of their lives (and the game world) on a brighter path. There is no *win* or *lose* – but rather the future the player hopes to see (and whether they are able to manifest it through their choices).

4.2.9.2.2. Narrative Persuasion

Narrative persuasion means persuasively structuring a game's series of events on the levels of story, characters and space – taking into account the control both designer and player exercise over a game's narrative. In line with Monbiot's (2017) restoration story

and Haven's (2007) story proof, several social psychologists have also noted that stories (whatever the medium) are one of the most effective and compelling ways to communicate and persuade (Kerpitsopoulou 2016).

In *Double-Edged Chord*, this is the key means of persuasion: As a story-driven game, it attempts to use its narrative in the vein of conveying neoliberal suffering with empathy and gentleness – offering a safe environment for players of varying beliefs to consider perspectives that may be different from their own. It tries to demonstrate its arguments through storytelling structures and conventions typically used for entertainment – including those from *Save the Cat!* (Brody 2018) blended with elements from *The Anatomy of Story* (Truby 2008). In this way, it hoped to present the (potentially) unfamiliar in familiar ways – offering a safe space for participants to experience, intake and enact new perspectives.

Brody's *Save the Cat!* (2018) is centred on translating Snyder's (2005) famed screenwriting techniques to novels. *The Anatomy of Story* is Truby's (2008) answer to the formulaic and predictable structure that sometimes results from methods like *Save the Cat!* (Brody 2018). Each author focusses on creating relatable stories that are engaging and entertaining while delivering meaningful (if not necessarily political) messages.

To this end, each author proposes certain story beats and key elements. Brody (2018) proposes a series of fifteen beats: The opening image (an initial 'snapshot' of the hero's life), theme stated (hints at the hero's character arc), setup (exposes the hero's flaws), catalyst (a life-changing event that presents a new space or perspective), debate (the hero debates their response to the catalyst), break into 2 (the hero accepts the call to action and begins to explore their new post-catalyst space), B story (new characters are introduced who help the hero learn a lesson), fun and games (we see how the hero is faring in their new space), midpoint (culmination of 'fun and games' into a false victory or false defeat), bad guys close in (things get increasingly worse for the hero), all is lost (the hero hits rock bottom), dark night of the soul (the hero has to process their new low), break into 3 (the hero realises how to fix their problems and fundamental flaws), finale (hero is proved to have learned their lesson) and final image (a closing 'snapshot' of the hero's new, improved life that mirrors the opening image).

In this regard, *Double-Edged Chord* presents an opening image (world in neoliberal despair) that differs from the final image (revolution against said despair) and bears events incited by a catalyst (meeting a ghost who exposes them to people's worst memories of neoliberal suffering).

Truby (2008) proposes a freer, more organic series of principles rather than a strict set of beats. Admittedly, due to time constraints, these were employed more loosely than the *Save the Cat!* method (Brody 2018). The character web, for example, involves defining key characters in relation to each other while positioning them in opposition to each other in interesting ways. The designing principle, also exercised in *Double-Edged Chord*, is the structure upon which the story hangs: A series of connected events with logical order (like destinations on a journey, a hunt for scattered magical artefacts or tracking a character's growth over their years at school).

Double-Edged Chord largely attempted to employ Truby's character web – which includes a hero, a main opponent, an ally and a fake-opponent ally. Anci and Clef are both the main characters of the story. Both are heroes but also 'main opponents' – or characters with vastly different (but complementary) personalities, desires and flaws. The allies (who serve as sounding boards to allow for the expression of the hero's values and feelings) are the people Anci and Clef save within their nightmares. The fake-opponent ally (who highlights the characters' flaws by dealing with similar problems in different ways) is Forte. Like Anci, Forte is overly keen to play saviour to the world – but handles it with oppression rather than compassion. Like Clef, Forte harbours an obsession with staying 'at the top' – but does so out of her need for control rather than because she has been forced into it. *Double-Edged Chord* further employs Truby's concept of a designing principle by structuring the story around a series of deadly nightmares.

4.2.9.2.3. Cinematic Persuasion

In both film and games, cinematography has a large role to play in influencing the emotions and mindset of their audiences – since its core goal "is to control the viewer's perspective and affect his or her perception of the events represented" (Burelli 2016, p.1). In games, cinematic persuasion involves using cinematic techniques to persuasively communicate a game's message through framing, camera movements and editing. These

give the designer an opportunity to choose how moments in the narrative or gameplay are revealed and contextualised – "taking into consideration all the objects of the scene and the relationship between them, with the final aim of communicating a message" (Kerpitsopoulou 2016, p. 23).

In this regard, *Double-Edged Chord* (outside of combat) uses a top-down perspective to evoke the nostalgic familiarity of older top-down games – again with the aim of constructing a safe environment for players to engage with the issues at hand. During combat, camera movement is also used to emphasise impact – following attacks back and forth between players and enemy to support the sensations of rhythm, movement and action employed through the aforementioned sonic persuasion.

4.2.9.3. Persuasion through Context

'Context' is where "the player meets the system and undergoes interaction in order to generate meaning" – where a player's pre-existing ideas can interfere with or enhance the strength of a game's persuasive message (Kerpitsopoulou 2016, p. 8). This 'slippage' between reality and in-game illusion is what makes games such a powerful medium (Stockburger 2006). It allows designers to influence players by drawing on assumptions of their pre-existing knowledge (Jenkins 2005): Because players view games through their lens of reality, games can evoke cultural connections and embedded narratives from the player's reality to inform their design (Goins 2018). In this regard, metacommunication refers to the ability of a game "to influence the perceptions and beliefs of the player, not only in the game world but also in the physical world context that it intersects" (Kerpitsopoulou 2016, p. 8). This makes it a particularly important tool in the subversion of neoliberal ideology. Such contextual persuasion is often facilitated through *affective persuasion*.

4.2.9.3.1. Affective Persuasion

Affective persuasion involves convincing players of certain ideas by affecting their emotions or moods. Kerpitsopoulou (2016) draws a distinction between the two – noting that emotions are strong feelings with a clear external source, while moods are less intense and may occur without a definable trigger. Empathy can be a transformative agent in this regard – since it is capable of affecting emotions and moods which could potentially extend to one's attitudes and ideas. In this regard, "contemporary research

has brought to light that decision-making is based on emotions and not exclusively on cognition as was believed in the past" – suggesting that the power of affective persuasion could effectively transform players towards particular ideas and actions (Davindson, Sherer & Goldsmith 2003, cited in Kerpitsopoulou 2016, p. 24).

Much of the affective persuasion in *Double-Edged Chord* has been discussed under the heading *Empathy*. However, it should also be noted that every other element of persuasion employed by *Double-Edged Chord* (linguistic, visual, sonic, systemic and cinematic) ultimately have affective persuasion at their core – in each case with the goal of engendering transformative empathy within a safe space for players.

4.2.10. Teaching the Dynamics of Resistance

Games inherently teach. By simply playing a game, players learn its "system, its rules and boundaries, its constraints and possibilities, and its way of addressing and communicating its values and worldviews" (Farber & Schrier 2017, p. 7). This means that games mould player behaviour through gameplay – potentially allowing game designers to transform players according to their desired goals (Farber & Schrier 2017). In this way, even games that aren't specifically made for educational purposes could "conceivably be used, modified, or contextualized" for educational, empathetic and/or transformative purposes (Farber & Schrier 2017, p. 8). In a well-balanced design, the game's key mechanics should align with the designer's intended transformational learning goal.

The quality of agency (characteristic of games and interactive media) especially lends itself to teaching in games (Murray 1997). This is because players can make decisions that affect how the story unfolds within a given context, allowing them to take on a meaningful role in problem-solving. In contrast to typical written or filmic teaching materials, this has the unique advantage of creating "a setting that learners can act upon (and change) in personally-valued and socially-significant ways" (Barab, Gresalfi & Ingram-Goble 2010, p. 525). At the same time, "failure is tolerated and risk taking is encouraged" – giving players a safe space to reflect upon and experiment with their own perceptions in relation to the context of the game (Barab, Gresalfi & Ingram-Goble 2010, p.526). Many of the benefits of agency (and its relation to *Double-Edged Chord*) are discussed under the heading *Agency and Choice*.

These agency-based strategies are employed alongside a model from Sara De Freitas that detail learning processes in serious games, allowing them to become vehicles for "the transfer of learning from virtual environments to abstract and real-world situations" (Freitas & Neumann, cited in Baker 2017, p. 15). This model includes the cyclical stages of experience, exploration, reflection and forming of abstract concepts. In this vein, *Double-Edged Chord* allows players to *experience* the key issues presented by the game (through characters' memories of neoliberal suffering), then *explore* them (by having conversations with characters about those memories), and then *reflect* upon them (by making choices within that conversation). This decision-making also allows players the space to form abstract concepts and generate new ideas from what they've learned in the context of characters' memories – and then test these concepts in virtual situations (which means seeing the impact of their choices on the game world). Ideally, what they learn from the results of their choices will be transferred to the real world.

4.2.10.1. Transformative Learning

Transformative learning may be effective for teaching dynamics of resistance to players. Transformative learning involves transforming one's existing perspectives to be more inclusive, flexible and reflective – usually drawing insights from the socio-cultural experiences of others. It is about "awareness of underlying assumptions, questioning one's own frames of references and critical reflection thereof" – and about developing the ability to critically and freely partake in rational discourse (Mezirow 2000, cited in Podleschny 2012, p. 30). Games are "inextricably connected with cultural contexts and practices" and, as such, may be compatible with transformative learning tools (Podleschny 2012, p. 19).

Thus, transformative learning could be applied to teach the dynamics of resistance in games – demonstrating resistance within the game world to demystify activism. In the process, it could potentially encourage discourse, promote reflection and (ideally) lead to some form of real-world resistance (Jong 2020).

4.2.10.1.1. Fixed vs Unfixed Learning Outcomes

Podleschny (2012, p. 51), citing Mezirow (2000), proposes that games which employ transformative learning should not have a fixed or predetermined learning outcome: In

other words, the game would "not explicitly force the learner to see the world in the teacher's way". To this end, games could employ affinity spaces – which transform based on the player's actions. In *World Without Oil* (2007) for example, players were presented with a context: The world has reached an oil crisis. Against this background, players had to imagine the impact of this crisis – and then contribute stories and ideas in various forms of media. In this way, the imagined world and ways of navigating it were expanded and transformed by player decisions – allowing for learning and critical reflection without a forced, predetermined learning outcome.

In this regard, *Double-Edged Chord* presents a world that (as previously described) transforms according to the players' choices. Each choice, at its core, asks players to consider what the game's presented issues mean to *them*. At the same time, however, it should be acknowledged that the game is pre-scripted – and so relatively limited in the flexibility of its learning outcomes.

4.2.10.1.2. Knowledge as Socially Constructed

> *Transformative learning is emerging through the socio-technical network of players, game and surrounding context (Podleschny 2012, p. 59).*

Knowledge should not be produced by an individual learning player – but rather be generated from interaction with the technology and/or other players. This can be seen in *World Without Oil* (2007) – where original player stories and ideas were continuously added to the narrative. As a result, players could collaboratively make "meaningful and transferable knowledge" by sharing their practices and beliefs. This implies that it is "the situational context of the game and player who enters the magic circle[12] that determines how the message of the game is realized" (Podleschny 2012, p. 58). With this in mind, *Double-Edged Chord* was made for two players in the hope of prompting discussion and debate between them – offering space for potentially different perspectives to interact and turning choices into decisions founded upon collective, generated knowledge.

[12] The magic circle was coined by Huizinga (1938) in his text *Homo Ludens*, where he asserted that play occurs in a completely separate space to reality (or, the magic circle). This is detailed further under the heading *Immersion*.

4.2.10.1.3. The Effects of Transformative Learning

World Without Oil (2007), by employing these tenets of transformative learning, "impacted on the culture within the game, but also beyond" (Podleschny 2012, p. 55). Players began changing their beliefs and behaviours in accordance with what they had learned from the game, reporting transformations in their awareness and identity. The result was "a collaborative identity that was engaged, aware and active" (Podleschny 2012, p. 55). For example, blogger Joe Davis (2007, cited in Podleschny 2012, p. 55) felt driven to action by the game – even making moves to grow their own food and live off the grid, sharing survival tactics and techniques for other players should the situation ever come to pass in reality. He then proceeded to share links to sites he had found with survival tactics in the hope that other players might be able to benefit – demonstrating both the strength of the collaborative identity engendered by the game and its potential for social good.

In this way, the tenets of transformative learning might be evoked to teach the dynamics of civic action like resistance – and potentially encourage its enactment in reality.

4.2.10.2. Representing and Encouraging Resistance

> *Most of the time it's more important to live to fight another day than it is to go out in a blaze of glory (Jong 2020, p. 121).*

If games can teach the dynamics of resistance, it is then important for designers to understand how those dynamics might function in order to more accurately represent them.

In *Demystifying Activism: A 101 Guide to Getting Involved*, Carolyn Jong PhD offers guidelines for "starting or joining political organisations" – seeking to demystify the way activism works and what it actually means to "take action" or "organize" (Jong 2016). In this regard, her "personal experiences engaging in feminist community organizing" make her insights invaluable for addressing a world of institutionally depoliticized, neoliberal subjects (Jong 2020, p. iii): As Blee (2012, no pagination) notes, "…few people are involved in politics beyond actually voting. Most even avoid conversations about politics, especially those that might create disagreement or controversy".

Jong (2020) explains what goes into selecting an issue for engagement: Prioritising issues is important – rather than doing everything at once. Starting with the issues that "have a direct and immediate impact on your life" is often best – since one will likely have the understanding, motivations and connections needed to effect change (Jong 2020, p. 237). She stresses that showing solidarity with other causes "when it really matters" is still important, however – and that many social causes are often interconnected somehow. (Jong 2020, p. 237).

In this regard, the characters of *Double-Edged Chord* engage in resistance for a variety of different causes – hoping to represent the widespread, interconnected web of issues birthed from neoliberal ideology. More importantly, it hoped to demonstrate how this shared suffering could be the galvanizing point for shared resistance. At the same time, however, it tries to recognize that these issues need a tangible face or 'root' (in this case, Leviathan). While the ending attempts to express that these issues are not limited to one entity (and that the battle against them is always ongoing), the characters' immediate resistance is centred on Leviathan.

Regardless of whether one is starting or joining a group, Jong (2016) further notes that there are a few key considerations. For example, the group should not be for profit: As Blee (2012) notes, for-profit groups inherently open themselves up for people with corrupt motivations. This is especially in a neoliberal society where "profit takes priority over people, and the people who make the most profits are the people who call the shots" (Jong 2016).

The group should also be open to marginalized groups. Even if it's impossible for a group to be entirely inclusive, they shouldn't perpetuate the marginalization of minorities (even through silence/inaction) or refuse to change when their behaviour is called out. Moreover, it should be recognised that "the people who are the most invested in progressive social change, and who can teach us the most about how to move forward, are the groups that are harmed and marginalized by the status quo" (Jong 2016). Finally, those who are directly affected by the issue in question should be the ones in key leadership roles – or, if the affected groups can't be present, they should at least be consulted (Jong 2016).

In *Double-Edged Chord*, the characters forced into nightmares start to meet in real life, gathering at a central location (the Jam Joint). Gradually, they become a resistance group – one not for profit and open to people from all walks of life (including those marginalized within the game world). This becomes clearer the more you encourage resistance – and characters increasingly begin to support each other. If you *don't* encourage resistance, however, they largely remain isolated – never speaking because they aren't aware of the shared suffering they experience. A number of moments also attempt to demonstrate the importance of listening to marginalized peoples – particularly in the case of Clef: Although she is privileged and occasionally naïve in her understanding of the world (and makes mistakes accordingly) she is still open to listening – and then altering her perception when new information comes to light. Moreover, since the characters you help (many of whom are marginalised) are rooted in different facets of society, they are the ones who take on leadership roles needed to galvanize people from those particular facets.

Jong (2016) further suggests that "the best way to figure out what needs to be done is to talk to other people who care about the same issues you do." In this regard, self-criticism, reflexivity and a clear understanding of one's goals/motivations is hugely important: Your actions will have consequences for others. Solidarity and collective action can be immensely impactful "but once you've broken someone's trust, it can be very, very difficult to win it back, which is why communication and consent are so essential" (Jong 2020, p. 240).

In *Double-Edged Chord*, the fundamental driver of both story and resistance is conversation. The way players listen and respond to the concerns of others in conversation (as previously described) has sweeping consequences for the lives and welfare of other characters in the game.

At the same time, however, Jong (2016) stresses the importance of the "little things". As Blee (2012, no pagination) notes, "grassroots activism is usually depicted in times of great energy. These can be moments of excitement, when recruits are flooding in and plans are under way, or times of crisis and explosive tension". More unseen are the typically mundane experiences of meetings, emails, organizing food for members and cleaning up afterwards. Participating in these activities and sharing their labour as

equally as possible across all members is important for building up a community of mutual support. Direct action is imperative – but "behind every dramatic, headline-grabbing event that happens, there are countless people working behind the scenes trying to keep the wheels turning" (Jong 2016).

With this in mind, *Double-Edged Chord* tries not to portray resistance as 'glorious' or 'cool' – but rather as the result of ordinary people coming together through shared experiences. Meeting at the Jam Joint and hearing what everyone has to say brings the characters closer together. As more and more people start to resist, they'll grow even closer – planning meetups and discussing ways forward with people they might otherwise never have met. Over time, this shared connection does build into something somewhat flashy at the end of the game (turning their planned on-stage performances into a protest) – but this is impossible without the simple acts of listening, responding and kindness exercised between the characters throughout the game.

When the time finally comes to take action, however, Jong (2016) notes that evidence or strong arguments will rarely persuade groups that actually have the power to "tip the scales in your favour". Usually, things change when it seems more costly to continue upholding the status quo than it is to meet a group's demands – which is why activism-driven actions have to be as disruptive as possible to be effective. However, this kind of direct action (e.g., strikes, sabotage, boycotts) is usually a last resort if "official channels" of communication have already failed (Jong 2016).

In this light, all of the affected characters in *Double-Edged Chord* meet to discuss their predicaments with the CEO of Leviathan – who has the power to relieve much of the suffering they experience at the hands of her company (and the neoliberal issues it represents). Each time, they are shut down – and the main characters face increasing backlash and threats to their livelihood for encouraging efforts to speak up. Only when this method of communication fails do the characters attempt more drastic means of action.

On the other hand, threats to action may also come from within the resistance itself. Jong (2016) notes that maintaining an awareness of this is critical: Often, organizations are brought down when more moderate members turn against the more radical ones.

Trying to prove oneself or paint oneself as 'radical' or 'revolutionary' can also result in unnecessarily destructive activity and an emphasis on individual reputation over collaboration and solidarity towards a better world (Jong 2020).

The characters in *Double-Edged Chord* are not intended to be perfect. It isn't long before they're happy to attempt violent (and aimless) revolution – which they have to be talked down from. As soon as enough people have gathered, they also start arguing amongst themselves as to who should be in charge. They do eventually, however, learn to work together in a more organized fashion (after some initial flailing).

Burnout is also something to be cautious of – and is particularly common in activist communities. As Jong (2016) notes, it can be difficult to fight for anyone if you can't take care of yourself – and simply surviving is hard enough for many. In *Double-Edged Chord*, Anci embodies the problems that arise when one tries to take on everything by themselves – a tendency which (on separate occasions) resulted in her electrocution and being tricked into working for Leviathan. She is riddled with shame, anger and guilt at her inability to help her clan – at the same time also failing to realise that she can't do everything alone (a lesson she's forced to learn by the end of the game). This seeks to further reinforce the game's focus on being compassionate, while also attempting to demonstrate the importance of humility and accepting compassion from others.

Jong (2020, p. 106) further addresses the common pitfall of horizontal or "leaderless" organisation to the ends of creating more democratic and less oppressive organisation: Often, this results in communication occurring through informal side channels, people being left in the dark, and "paranoia, distrust, or resentment building up over time". This often leads to irresolvable conflicts, exclusion and people withdrawing from the group. While some sense of informality should be maintained, having an organisation that is "openly hierarchical" can make it easier to navigate particular power dynamics (Jong 2020, p. 107).

In *Double-Edged Chord*, no one person is responsible for action taken by the group – but it also attempts to acknowledge that some level of organization is needed amongst its members. Power (by the end of the game) is distributed between these members as evenly and transparently as possible.

When it comes to building up this sort of power, Jong (2020, p. 113) puts forward that "it helps to think about where power is currently concentrated in our society". The capitalist class attains power from capital for example – which is produced by human labour: Without that human labour the whole system would fall apart – meaning that the working class (composing most of the world's population) "has the latent ability to halt production in its tracks, provided workers can organize themselves and coordinate their actions, while evading the divide and conquer tactics of the bosses" (Jong, 2020, p. 113). In this regard, Steven Friedman's 1987 paper *The Struggle Within the Struggle: South African Resistance Strategies* highlights strategies for organizing people on the ground. With these strategies in mind, the key characters (and so, key activists) of *Double-Edged Chord* employed a strategy of forming area committees. From these area committees, a grassroots network of community, students and workers was formed[13]. These included magic-producers (society's critical-yet-unappreciated source of labour), residents of Dreamhaven (an impoverished community of people that comprise a large portion of the population's essential workers) and students (effectively the future of the in-game world) at the forefront of the resistance.

Finally, Jong (2016) notes that activism has been happening for a very long time – meaning that there is always something to learn from other books and resources. *Double-Edged Chord* was inspired by literature on resistance movements and personal stories from activists themselves. Many of the resistance dynamics in *Double-Edged Chord* stem from my attempt to reconcile my own understanding of my generation and the (much more hidden) ways it is impacted by neoliberalism with my grandfather's and mother's experiences as anti-apartheid activists. The experiences of empathy, community and protest are loosely inspired by the stories they lent me from their time as community activists in civic organizations, the UDF, the ANC underground and (in my mother's case) work at CODESA, the negotiations process and the Independent Electoral Commission. In saying this, I understand fully that I will likely never have to fear for my life because of my race, like her; never have to face imprisonment, like her; never know what it means to have friends and comrades killed, like her – and that the reasons I will

[13] In the current version of the game, this formation ended up being quite rushed (see section titled *Limitations* below).

likely never have to face these things are because of her, my grandfather and activists like them.

4.2.10.3. Limitations

In *Double-Edged Chord*, it would have been preferable to demonstrate the slow build-up of a resistance network over time. Without doing so, the formation and action of the in-game resistance feels somewhat rushed and its impact idealistic – with too many strings and too little time to give them weight. However, within the limits of playtime allowed by this study, it was difficult to represent more realistic resistance development without hastening the passage of time and giving players only a 'bird's eye view' of the game's events – which ran the risk of emotionally detaching players from the game itself. It is hoped that this can be remedied in the future *(See Appendix G for future improvements to the game)*.

4.2.11. Real-World Call to Action: Creating a Sense of Awe

> *It's no accident that Halo players are so inclined toward collective efforts. It's the direct result of the game's epic, and awe-inspiring, aesthetic (McGonigal, 2011, p. 113).*

Even if games distract from or ease players into their message, they would (at some point) likely need an explicit call to action for resistance to be incited in reality. These calls can "include donations, volunteering" or even calling political figures well-placed to enact change (Hundal 2017). *Darfur is Dying* (2006), for example, is designed to raise awareness of the violence, suffering and genocide faced by refugees in Darfur, Sudan. At the end of the game, links are provided for donations and contacting local politicians. Details are also provided on how participants could contact the American President to request changes in international policy (Hundal 2017). We can also see this in *World Without Oil* (2007) – which caused some players to change their fuel-related habits after playing the game (McGonigal 2011, p. 337): By making an explicit call to action, it may be possible to affect this sort of collective change in the real world.

In this light, *Double-Edged Chord* puts forward a call to action that is (hopefully) accessible for players – giving them the opportunity to exercise empathy and acknowledgement of privilege while at the same time subverting the individualism so

ingrained in neoliberal systems. In this vein, a recurring character appears in the *Jam Joint* who presents the characters with 'artifacts' from an extra-terrestrial people: earthlings. These artifacts are newspaper cuttings and notes that make reference to real-world stories of neoliberal suffering in the hope of drawing connections between the in-game events and reality. At the end of the game, this character appears on-screen and speaks directly to the players before taking them to a webpage with details on how to donate to the WITS foodbank.

In expressing the potential of players to rise to a call of action, McGonigal (2011, p. 109-111) makes reference to *Halo 3:* Players collectively dealt a staggering 10 billion kills against the *Covenant* – likely because the milestone was treated as an urgent call to duty. While these kills might not necessarily have explicit value (no actual threat has been eliminated or real lives saved) they do have *meaning* – or "the feeling that we're a part of something bigger than ourselves". This *meaning* is what stems from working alongside millions of players to achieve a common goal. McGonigal (2011) relates this to the experience of *awe* – apparent in the 'epic' scale of the game, its ability to impart a sense of belonging, and its capacity to make players feel like part of something bigger than themselves.

Keltner (2009, cited in McGonigal 2011, p.113) writes on this sensation of 'awe' in *Born to Be Good: The Science of a Meaningful Life*:

> *Awe is about finding your place in the larger scheme of things. It is about quieting the press of self-interest. It is about folding into social collectives. It is about feeling reverential toward participating in some expansive process that unites us all and that ennobles our life's endeavors (Keltner 2009, cited in McGonigal 2011, p.113).*

Awe, then, isn't just about feeling good – but wanting to *do* good. Or, as McGonigal (2011) puts it, "awe is a call to collective action" (McGonigal 2011, p. 113).

Double-Edged Chord attempted to inspire a sense of awe in players by putting the characters (and their players) through a series of trials in which they steadily gain support from the people they help. The resulting build-up eventually culminates in revolution. In this regard, *Double-Edged Chord* hoped to present the players with an in-game sense of awe – and then translate the effects of that awe to reality through a real-

world call to action. It attempted to achieve this sense of awe through the elements explained under the previous heading, *Persuasion*: Dramatic tension, 'appealing' character designs, a punchy soundtrack, rhythmic camera movements, and choices with far-reaching impacts that speak to a world in turmoil beyond the characters themselves. It was further hoped that the players would view themselves as part of a larger community of play-testers – and that this would contribute to their sense of awe. In this regard, the majority of participants (in this study's post-game diary) agreed that being part of a group of voluntary research assistants/play-testers, helping this study and playing with a partner gave them a sense of belonging.

4.2.11.1. Risks

At the same time as games offer a means to strengthen social connection, they may also leave space to disrupt it if designers don't exercise caution (Kassner et al. 2012). In attempting to develop a strong community of players who are willing to collectively work towards a particular cause, it is important to maintain awareness of the underlying group dynamics – and how in-game systems may make allowances for exclusion and implicit hierarchies. As Kassner et al. (2012) found, people in virtual worlds often enact the same social behaviour as they would in reality – including the sort of ostracism "that threatens fundamental human needs (i.e., belonging, control, self-esteem, and meaningful existence)" (Kassner et al., 2012, no pagination).

4.2.12. Cooperative Gameplay

> *Collectivity and other forms of togetherness are frequently figured as a necessary condition of social change (Myers 2019, p. 217).*

Cooperative games encourage collective over individual success through participation and collaboration. In this way, they might circumvent the individualism ingrained in us by neoliberal systems.

This is because cooperation lends itself to more empathetic and compassionate experiences by facilitating connection, communication and relationship-building between players. While players may still be exposed to new ideas and beliefs from NPCs, "communication and interaction with real people can also help to support perspective-taking, role-playing, reflection, agency, identity formation, and relationships" (Farber &

Schrier 2017, p. 24). This opens up a space to impart empathy skills on players – including modelling (observing others' behaviour, learning from it and enacting it), communication/discourse (talking with others, exploring others' perspectives, reflecting on one's own) and relationship-building (communicating and building relationships through attunement to others' emotions and social cues) (Farber & Schrier 2017).

In this way, cooperative games also have the potential to facilitate meaningful cooperation, collaboration and teamwork: By being inclusive, they give people a sense of belonging. At the same time, they offer players the opportunity to converse, communicate and debate. In this regard, Klein (2012) expresses the importance of talking to others – and of engaging with the viewpoints of others so that we might adapt and reflect upon our own. Nussbaum (2008, p. 347) further suggests that this sort of "critical, elaborative discourse" is key to ethical choice-making.

This has significant implications for the way players collaboratively interact with the moral decisions presented in *Double-Edged Chord*: Each player can make choices on their own – but those choices will affect the experience and outcome of the game for *both* of them. Therefore, in most cases, players would likely decide to consult each other before making choices. In this way, the game hoped to encourage a dialogue around the moral decisions it presents (for example, do you tell an impoverished person that he can 'make it' if he works hard – or do you acknowledge his pain, even if that means confronting the hopelessness of his reality?).

Cooperation has further been shown to result in greater immersion and enjoyment in players than working alone (Daggubati 2016). As Myers (2019, p. 225) notes, "socialization is a powerful attraction for players, since the game can become a way to create and maintain relationships between people". This results from the feeling of relatedness – or the experience of interacting with others which engenders a sense of connection. Daggubati (2016, p. 18) argues that relatedness increases a player's sense of immersion because "players are more embedded in the physical, emotional, and narrative aspects of the game environment if their needs are satisfied within the game" – including their need for interpersonal relatedness. This relatedness has been shown to enhance motivation – which "suggests that if people work together in teams, their involvement and motivation are enhanced" (Daggubati 2016, p. 18).

Double-Edged Chord attempts to encourage this interactive connection between players by (for example) requiring them to cooperate to win battles, giving them a shared inventory and driving the story through written dialogue (encouraging players to roleplay their characters – and so grow their connection alongside them). As Participant 30 noted in this study's post-game diary: "In the certain instances where the dialogue became emotional, reading it out loud made all the difference in feeling the emotions. Honestly, it was enjoyable playing with a partner. It almost felt like our relationship grew along with Clef's and Francium's."

4.2.12.1. Strategies for Implementing Cooperative Gameplay

El-Nasr et al. aimed to study a number of cooperative patterns in multiplayer games in their 2016 paper *Understanding and Evaluating Cooperative Games*. In this regard, they put forward a wide range of "effective cooperative patterns and lessons for future cooperative game designs" (El-Nasr et al. 2016, p. 3). This study focussed on the cooperative strategies of shared goals, special rules, interacting with the same object and shared puzzles.

4.2.12.2. Strategies Employed in *Double-Edged Chord*

El-Nasr et al. (2016) evaluated the success of their presented cooperative strategies along several dimensions – tracking the effects of these strategies in live playtest sessions with participants. The design of *Double-Edged Chord* focused on the dimensions of 'worked out strategy' and 'helping'. The dimension of 'worked out strategy' – in El Nasr et al.'s (2016) paper – measured the best cooperative methods for encouraging players to talk about overcoming shared challenges or otherwise consult with each other while navigating the game world. The dimension of 'helping' measured the best cooperative methods for encouraging players to help each other, save each other, or offer each other solutions to challenges. While 'worked out strategy' tracked moments where players mutually aid each other, 'helping' tracked moments where one player would help the other.

In focusing on these dimensions, *Double-Edged Chord* hoped to prompt discussion between players on how they could overcome the challenges offered by the game – ideally encouraging mutual aid and acts of helping as they navigated its neoliberal

world. This would ideally aid in subverting the culture of hyper-individualism (and the neoliberal experience associated with it) as it is presented by the game world.

According to El-Nasr et al., the following are some of the cooperative strategies best-suited to promoting this experience.

4.2.12.2.1. Shared goals

Shared goals require players to work cooperatively in order to succeed (El-Nasr et al. 2016). For example, in *Heroes of the Storm* (2015) players must work as a team to achieve the same victory condition: destroying the enemy team's core. In *Double-Edged Chord*, players have to work together to defeat enemies in rhythm combat and make choices in the vein of achieving favourable outcomes for the game's ending.

4.2.12.2.2. Special rules

Designers can encode constraints into their games which promote cooperation. For example, in most FPS games, friendly fire modes prevent players from taking damage to ally bullets (El-Nasr et al. 2016). In *Double-Edged Chord*, there are no ways for players to hurt each other in combat – and their cooperation is essential for emerging victorious.

4.2.12.2.3. Interacting with the same object

This strategy involves offering objects which can be affected by multiple player characters. In *Little Big Planet* (2008) for example, some objects can be moved or grabbed by both players (El-Nasr et al. 2016). Most NPCs and objects in *Double-Edged Chord* require both players to interact with them.

4.2.12.2.4. Shared Puzzles

Shared puzzles refer to challenges that can only be overcome by both characters working together. For example, in *Lego Star Wars* (2005), some puzzles may require one character to use the force while another presses a button (El-Nasr et al. 2016). In *Double-Edged Chord*, puzzles and the objects needed to solve them are scattered all over the map – meaning that players need to either stick together or communicate their findings to one another if they split up. In the future, however, the designer hopes to give each character a different ability which would aid them in both puzzle-solving and

traversal of the game world. This would ideally make working together to solve puzzles a requirement rather than simply an advantage.

4.2.12.3. Other Strategies

While these methods were not employed in *Double-Edged Chord* due to time constraints, they may prove useful for other designers – and for future improvements to the game. These are detailed in *Appendix G*.

4.2.12.4. Handling Obstacles to Cooperation

Designers should be aware of potential hardware and software limitations that might make it difficult for players with different technology and resources to play together. All players should be taught their roles as clearly and effectively as possible to avoid miscommunication – especially between newer and older players. The environment should be geared to be as safe and inclusive as possible (Myers 2019).

4.2.13. Agency and Choice

> *Through the fact that a player is granted agency, the ability to influence a game's story world and narrative arch in a meaningful way, and, consequently, enjoys the feeling of participating in a story, video games express one of their prime aesthetic characteristics (Farca 2014).*

Agency is "the satisfying power to take meaningful action and see the results of our decisions and choices" (Murray 1997, p. 126). Digital games, in their inherent interactivity, are primed for agency – allowing players a continuous sense of control over their actions and, potentially, the outcome of the game. This sense of agency is "a distinguishing characteristic of games as opposed to other media" (Farber & Schrier 2017, p. 13). Agency in games relies on several elements of design and play coming together, giving context to the player's decisions. This (in tandem with the player's personal background and beliefs) engenders decision-making and agency that is meaningful. This agency should produce noticeable results or transformations in-game (via control over actions and outcomes) and in reality (since players should have agency in their interpretations of a game's message).

In *Double-Edged Chord*, players can make choices in conversation with characters. Most of these choices present moral dilemmas – with some being more in-line with neoliberal ideology and others opposing it. Each individual choice has an effect on the characters in the game – sometimes even determining whether they live or die in the future. Collectively (depending on whether the player's choices lean more towards or against neoliberal ideology) they can change they future of the in-game world itself.

4.2.13.1. Why is agency important?

Agency is transformative. When we make choices in a narrative, they become part of our personal experience (Murray 1997). This effect is especially powerful because immersive games give us the sense of cognitively transforming into the player character: "we share our player-character's agenda and emotions – at least to a certain degree" (Farca 2014).

In *The Walking Dead* (2012) for example, responsibility is shared between the main character, Lee Everett, and the player "for both their actions and for Clementine" (Farca 2014). Lee (and so the player) is a father-figure to the young Clementine – meaning that the player decides how the world is presented to her. For example, when faced with killing a man, choosing to shoot or spare him will inform how Clementine perceives you and the world around her. The choice doesn't make a difference to the gameplay – but the narrative context and its weight upon the player lead them to critically reflect on their choice, transforming their thinking in the process. Many younger players further note that having greater control and choice in a game contributes to their enjoyment of it (Schrier & Gibson 2011). It was therefore decided that players should share responsibility with their characters for the decisions they make in *Double-Edged Chord*. The choices they make drastically affect the futures of characters they meet, either dooming them to neoliberal suffering or offering them a spark of hope – ideally prompting the players to question their own perceptions of neoliberal functioning given that (especially before the consequences are revealed) there isn't always a clear 'right' answer.

4.2.13.2. Creating Agency

4.2.13.2.1. Subtle Agency

Moral decision-making is one of the most common ways to offer players agency – but games also afford a number of other, more subtle opportunities in this regard. Virtual/simulated physical actions, for example, are a kind of agency afforded in many games – and can manifest in tasks as simple as picking up boxes or opening doors. The results of these actions are usually quite predictable (Short 2009). However, they can be imbued with emotional meaning if rooted in a particular context. In *Double-Edged Chord*, for example, hitting arrows is not just a test of one's rhythm – but is a physical action emotionally loaded with the idea that failure means death and winning means aiding another person in need.

Undirected exploration involves the player exploring a scene simply for exploration's sake – and uncovering information (Short 2009). At the same time as it gives players some sense of control over their path, it prompts a curiosity that may drive the story forward. In *Double-Edged Chord*, for example, players may find themselves picking up items or examining objects without being entirely sure what they're meant for. This ideally prompts questions like *what can I use this for?* Or *what does this strange marking on the door mean?*

Directed exploration occurs when the player has specific information they're looking for. This is often in the vein of finding answers to questions posed in undirected exploration (Short 2009). This aids in making agency feel satisfying or rewarding while also providing space to emotionally load the results. In *Double-Edged Chord*, for example, the players stumble upon a door with a strange marking – and then engage in directed exploration to find out what the marking means. They eventually find a light that reveals the marking in its entirety to be a rune. When Clef is able to activate the rune, even though she shouldn't be able to use magic, this prompts a narrative exploration of the emotional trauma behind *why*.

Expressive agency refers to the ways players may choose to emotionally express themselves in-game (Short 2009). While this wasn't heftily employed in *Double-Edged Chord* due to time constraints, it is hoped that this may be possible in the future *(See Appendix G)*.

4.2.13.2.2. Methods for Making Choice-Driven Narratives

Hocking (2013) further suggests several methods for creating choice-driven narratives. Branching dialogue trees, for example, occur when each player choice leads to a new branch in the narrative. *Double-Edged Chord* largely employs this method – where making choices opens up scenes that players would not otherwise have access to. Ideally, these scenes would change their perception of the choices they've made – and their effects on the neoliberal system presented to them.

Embedded meaning arises when new narrative branches are opened with a meaningful 'key' (Hocking 2013). For instance, using the red key on the red door in *Doom* (1993) will open up a new *spatial* area. Similarly, overthrowing a corrupt ruler with a nonlethal tool instead of a deadly weapon will open up a new *narrative* area in *Dishonoured* (2012). While not employed in *Double-Edged Chord*, this method could prove useful for other designers.

Finally, aggregating meaning refers to a system where choices add to a rating or score that determines how later events play out. In *Dishonoured* (2012), for example, the character has a chaos rating that tracks player behaviour and determines whether they "get the noble assassin ending or the coldblooded assassin ending" (Hocking 2013). In *Double-Edged Chord*, the number of people you convince to resist is tracked as a score that affects the way people talk to you and how much impact you're able to have on the world by the end of the game. [14]

[14] A 'friendship level' variable (which tracks how the player characters relate to each other through conversational choices) was also included in the original design of the game. This would influence the relationship between the player characters and heavily affect the ending of the game. While this was scrapped in the initial version due to over-scoping, it is hoped that this can be implemented in the future *(See Appendix G)*.

4.2.13.2.3. Components of Meaningful Agency

As Morrison (2013) notes, four components are needed for meaningful agency: Awareness (players must be aware that they can make a choice), gameplay consequences (the choice should affect both gameplay and aesthetics), reminders (players should be reminded of a choice's effects after making it) and permanence (the choice cannot be undone). In *Double-Edged Chord*, players are made explicitly aware that they can make a choice by the choice selection on-screen – and are unable to progress unless they pick one. These choices usually have drastic consequences – sometimes determining whether characters live or die; whether relationships break or heal. Players are reminded of these effects when they meet these characters in the waking world – knowing that everything happening in the present is leading up to a future of their own design. These choices cannot be undone.

It should be noted, however, that the results of this study may point to another critical component of meaningful agency: a clear *link* between the choices players make and their consequences. As Compton (2019) notes, players should be able to predict the outcome of a choice – at least to some extent: If a player cannot understand the consequences of a choice, they will likely be unable to understand why it matters, potentially frustrating them. In this regard, although all players made choices in *Double-Edged Chord*, and all were exposed to the resulting (quite drastic) consequences, some didn't think that their choices had an effect on the story at all. This is likely because, in attempting to make the narrative flow feel natural and coherent between branches, the link between choice and consequence wasn't made explicit enough (not to mention that some contextual lore was unwittingly left out of the game). This is a limitation of the study – and a pitfall to be aware of in future designs *(See Appendix G)*.

4.2.13.2.4. Moral Engagement

Dechering and Bakkes (2018) suggest that for agency to morally engage players, the player needs to feel immersed (transported into the gameworld) competent (has the knowledge and skills to act according to their moral beliefs) related to involved parties (is connected and directly involved in the dilemma such that they cannot withdraw without feelings of guilt) autonomous (has a sense of free will as an agent to enact their moral beliefs) and confident that one's actions are meaningful (which includes ensuring that players can, to some extent, predict the consequences of their choices). *Double-*

Edged Chord attempts to ensure players are immersed (see the heading *Immersion*), competent (relying on players' pre-existing worldviews to inform their decisions) related to involved parties (players would, ideally, feel connected to the characters they play via the writing) and autonomous (players have autonomy over the choices they make).

Designers should also be aware of morally *disengaging* players, however. This can occur by punishing an opponents' misconduct with disproportionate violence, dehumanizing victims, justifying particular moral actions and disregarding or distorting the effects of violence. An awareness and understanding of these elements and their consequences can be used to further moral engagement (Dechering and Bakkes, 2018).

4.2.13.2.5. The Expressed Self

> *Video games can make the player feel, think and reflect on his actions, in a way unprecedented in fiction (Farca 2014).*

Games should generate "not only a sense of agency, but also a response that more directly critiques the player's in-game behaviour" (Sarian 2019, p. 7). In this regard, we can look to the expressed self. The expressed self is a "rough proxy of the player" that presents itself through the collection of choices that the player makes throughout the game (Sarian 2019, p. 7). This expressed self is instantiated within the outcome of the narrative – creating an image of the player through their decisions and storing it in numerical values, flags and code which both determines the game's narrative outcome and imbues it "with a veiled commentary on the player's behavior" – as seen in *Papers Please* (2013) (Sarian 2019, p. 6). While a player won't exactly match their expressed self (since a game's provided responses won't exactly match responses they might make in reality) "players do often choose in a way that is informed by their real-world habits and values" unless the player employs fictionalizing strategies (Sarian 2019, p. 7).

In *Double-Edged Chord*, the expressed self culminates in the ending of the game. If the players' choices consistently slant towards neoliberal ideals, they are made aware that their chance to do any good in the game world has passed. The characters are confronted with the crippling realization that they've (inadvertently) doomed the people they've met to futures of despair. The game ends on a note of hopelessness – but

suggests things could have been different if the players had chosen differently. However, if the players make choices in opposition to neoliberal culture, the game ends on a note of revolution.

4.2.13.2.6. Ethical Reflection

Sicart (2009, cited in Sarian 2019, p. 6) further argues that games like *Papers Please* (2013) encourage "ethical gameplay not in choices but in how these choices are interpreted" – in the space given for players to reflect on their actions (and the consequences thereof). This allows agency to be used as a tool for reinforcing a game's message on an emotional and empathetic level by "triggering a kind of personal response not to be found in non-participatory media" (Sarian 2019, p. 7).

This ethical reflection can be encouraged in several ways:

Moral Dilemmas

Farca (2014) suggests moral dilemmas as a means of prompting ethical reflection. Moral dilemmas involve decisions that aren't clear-cut. Each solution to a particular dilemma has its ethical pros and cons.

In *Papers Please* (2013), for example, players assume the role of a border control officer who decides which people are allowed to pass through the border. Those with correct papers and identities may pass; those without may not. This seemingly simple decision hinges itself on gameplay geared towards creating moral dilemmas. The game's ruleset encompasses a system of statistics and resources in a tenuous balance. Allowing government-approved people through the border maintains your salary, allowing you to care for your family, but sometimes means approving a suicide bomber who simply happens to have the correct paperwork. Passing anyone else causes you to lose money – even if that means separating spouses across the border or forcing someone to return home where certain death awaits them. The rule that denies entry and keeps your family alive is the same rule that sends someone home to a firing squad.

The Walking Dead (2012) also presents a variety of moral dilemmas. In the first episode of the game, you are given the choice to give an infected woman a gun so that she might commit suicide. If left alive, she would suffer a gruesome death and could potentially

become a severe threat to the people you're protecting – including a young girl to whom you've become a father figure. At the same time, "handing over the gun implies surrendering to a grim and desolate world, an abandonment of hope" (Farca 2014). The 'right' answer isn't clear, creating a situation of moral ambiguity which causes the player to *question* their decision. This uncertainty is further exploited with "adjusted dialogue that, in the aftermath of the choice, scrutinizes and questions the player's course of action" (Farca 2014). In this way, games are geared for inciting guilt, remorse and (perhaps most significantly) responsibility-taking on the part of a player.

In *Double-Edged Chord*, moral dilemmas are employed by hanging decisions on the line between optimism and complacency. For example, players are confronted with a worker who's been severely exploited by Leviathan. Telling him he's being exploited and that he should speak up for himself feels dismissive of the work he's done – but at the same time encourages a greater awareness of the position he's been trapped in (and a desire to resist it). Telling him you respect the grind might feel like the more reassuring option – a ray of optimism amidst the game world's grim reality – but at the same time, implies a surrender to that reality (leading the worker into a cruel future by way of complacency, his temporal march towards it undisrupted).

Note: Although the following methods were not used in Double-Edged Chord, they may prove useful for other designers.

Juxtaposing Ludic and Narrative Victory

In some games, a ludic victory does not necessarily result in a narrative victory – prompting players to critically question both their own beliefs and the embedded meaning of a game's systems. This can, for example, be seen in *Undertale* (2015) – which relies on player's familiarity with gaming conventions (like experience/EXP) to encourage ethical reflection: Each time the player character kills an NPC, they gain experience. At the end of the game, the player finds out that EXP doesn't stand for 'experience' but rather 'execution points' – or, as the game puts it, "a way of quantifying the pain you have inflicted on others" (*Undertale*, 2015). Acquiring a high level of EXP might be considered a ludic victory. Narratively, however, the character is told (by an NPC called Sans) that they are a bad person who wanders around meeting and killing people for their own gain. Sans then proceeds to fight and attempt to kill them in what is

likely the game's most difficult and intense fight. The player character (who is largely expressionless and never speaks) is effectively the expressed self of the player. As a result, this judgement is experienced as a judgement of the player themselves – leaving them to sit with their decisions and to ethically reflect upon the cost of ludic victory.[15]

This method is particularly useful for enabling a kind of transgressive play – where players pursue their own goals (rather than the ones most obviously presented by the game) because it has not been explicitly disallowed. In *Undertale* (2015) for example, players have the option to spare characters – but are unlikely to do so because they have been trained by ludic convention. By being aware of and even intentionally allowing space for transgressive play, we can offer players the space to break through the game's immersive experience – so challenging the rules, systems and orders it presents (Podleschny 2012). This method, then, could potentially encourage players to challenge *ideological* systems like neoliberalism: By engaging players in neoliberally-coded game systems – and then subverting their victory at the last second – games may have the potential to powerfully evoke reflection on the impact of complying with those systems (especially unwittingly).

Role-Reversal

Role-reversal, as seen in *Papers Please* (2013) may be a useful tool for encouraging ethical reflection. At one point during the game, for example, you'll encounter a couple trying to cross the border – who will be killed if they remain in their tyrannical home country. The husband has the correct papers and so passes through. The wife couldn't attain a permit and so, you leave her behind.

You can go the entire game looking out only for yourself and your family – entailing complete obedience to the government, taking bribes, engaging in corruption *and* leaving the wife for dead. This will result in a ludic victory – but a narrative ending (called *Snowier Pastures*) which causes the player to critique their actions: Here, the player character and their family find themselves on the other side of the counter, trying to escape their country with faulty paperwork – a direct role reversal of the

[15] It is important to recognise that this method may achieve the opposite effect in certain players – causing them to feel tricked or become defensive.

aforementioned couple. Had the border control officer not let them through, they would never have escaped. While the player character and their family survive, the player is left to question the hypocrisy of their actions and the consequences thereof.

In this way, role-reversal may bear potential for games that hope to subvert neoliberalism by putting players 'on the other side' of a situation – exposing them to perspectives they might otherwise not have met with due to privilege or social background.

Constraining Agency

Constraining agency can be just as meaningful as affording it. In *Depression Quest* (2013), for example, the main character's depression makes everyday decisions difficult – and some options are greyed out to simulate this constrained feeling of agency. In *That Dragon, Cancer* (2016), players can take many actions but are unable to affect the story – expressing the helplessness of parents trying to care for a child with cancer (Farber & Schrier 2017).

Affording too much agency can even be problematic. For example, *SPENT* (2011) allows players to make choices that influence the income of impoverished peoples. Players 'win' by having enough money at the end of the month and 'lose' if they run out before it ends. This resulted in negatively impacting some player's attitudes towards impoverished people because it gave the sense of poverty being controllable – thereby perpetuating the neoliberal idea that impoverished people are the creators of their own suffering (Farber & Schrier 2017).

Inverting this could, however, be useful in the creation of a game designed to subvert neoliberalism: Clearly and intentionally demonstrating the idea that players *can't* win in a situation like this could force them to confront the powerlessness many face as a part of living in a neoliberal society.

4.2.14. Engagement: Keeping Players Playing

> *Player engagement is understood as the level of continuation desire experienced in-game, during play or over a longer period of time, when players dedicate themselves to coming back and playing a game again and again (Schoenau-Fog 2011, p. 4).*

As found by Martin and Bolliger (2018), engagement evokes greater willingness to learn and lowers feelings of isolation in learning environments – making it a crucial tool in games that seek to teach or raise awareness about an issue. It is key to maintaining player awareness and providing a stable platform for players to emotionally connect. In games, engagement can be more precisely defined as "the desire to continue playing" (Schoenau-Fog 2011, p. 1). Encouraging people to play one's game or 'hooking' players early on in a game means little if they don't play long enough to receive the game's full message: For example, boredom might evoke the desire to play – but engagement only occurs when "the player becomes excited and wants to continue playing" (Schoenau-Fog 2011, p. 4). In this way, engagement is also essential to ensure that players take in the full message of a transformative game – rather than leaving before they have the chance to absorb it or (worse) leave with a warped understanding of what the designer was trying to convey.

In this regard, Schoenau-Fog (2011) details the player engagement process, defining several elements for keeping players engaged. These include objectives, activities, accomplishments and affect:

Players begin with their own motivation to play – either personal (e.g., wants online friends) or game-related (e.g., game looks interesting). An **objective** is then either presented by the game (e.g., win a race) or defined by the player (e.g. find all collectibles). The player performs various **activities** to reach the objective (e.g., optimize their race car). An engaged player can perform activities until reaching their objective in the hope of finding **accomplishment**. The player experiences **affect** (positive or negative) from activities and accomplishing/failing objectives. If the affect is *positive*, "player engagement can be sustained and a new cycle can begin with new objectives or by returning to play the same game later" (Schoenau-Fog 2011, p. 6).

4.2.14.1. Objectives

Objectives are "concerned with what a player wants and the game-related triggers that motivate the player to continue playing" (Schoenau-Fog 2011, p. 6). These include **extrinsic** (presented by the game) and **intrinsic** (self-defined) objectives. Most games will present a number of extrinsic objectives while also allowing space for the player to define their own intrinsic ones – maintaining engagement by continually motivating players towards particular goals until the game is over (Schoenau-Fog 2011).

In *Double-Edged Chord*, a number of extrinsic objectives are present: open this door, beat that enemy in combat, escape this nightmare. These drive the progression of the game forward. At the same time, players are given the space to define their own intrinsic objectives – especially with regards to narrative outcome: While characters may start off with the intrinsic motivation of spreading positivity in the grim reality they are presented with, they may realize that their actions only perpetuate surrender and complacency to that reality. Thereafter, they may be inclined to pick options which allow them to challenge (and eventually support) the characters they meet.

4.2.14.2. Activities

Activities are "concerned with what players want to do in order to reach an objective" (Schoenau-Fog 2011, p. 8). Activities can be performed in-game, outside the game or mentally/physically by the player. For example (among many other in-game activities) 'solving' activities involve the player mentally engaging with puzzles, strategies, tactics and/or problem-solving "when they are motivated by intellectual challenges" – while 'socializing' activities engage players by stimulating friendship/camaraderie between them, thereby turning social goals (e.g., earn peers' respect) into objectives (Schoenau-Fog 2011, p. 8).

Double-Edged Chord puts forward several activities that encourage players to meet various objectives: The activity of choice-making is designed to meet players' *intrinsic* objectives (obtaining favourable story outcomes) while encouraging moral engagement with the game's presented issues. Puzzle-solving activities are designed to meet the *extrinsic* objective of unlocking new areas while also promoting a sense of mystery and curiosity. Combat activities are designed to meet the extrinsic objective of beating

enemies while also fostering the potential intrinsic objective of bonding with one's partner.

4.2.14.3. Accomplishments

Accomplishments are "concerned with what happens when an objective is accomplished and is related to the end results of players' activities towards the objectives" (Schoenau-Fog 2011, p. 10). **Achievement** accomplishments offer in-game rewards to players – like new equipment, abilities or levels. **Progression** accomplishments involve the desire to improve – for example 'levelling up' one's equipment, characters or personal ability as a player. **Completion** accomplishments focus on players fulfilling their desire to fully complete a game or in-game objective – e.g., finding all collectibles or finishing a game with 100% completion (Schoenau-Fog 2011).

In initial designs of *Double-Edged Chord*, there was an experience system and a greater array of abilities offered to players in order to encourage achievement and progression accomplishments *(see Appendix G)*. It is hoped that this can be implemented in future versions of the game – but should be noted as a limitation of the original.

4.2.14.4. Affect

Affect is "is concerned with the emotions players experience when performing activities and/or accomplishing something". **Positive affect** involves the evocation of positive or desirable emotions. **Negative affect** involves the evocation of negative emotions – which can both reduce engagement (the game is too frustrating) or encourage it (the game is just frustrating enough that one won't stop playing until they beat their obstacle). **Absorption** relates to "flow, immersion and presence" – the way a game allows players to escape, be somewhere else or become someone else (Schoenau-Fog 2011, p. 11).

In *Double-Edged Chord*, beating enemies in combat, solving puzzles and achieving favourable story outcomes are designed to evoke positive affect. This, ideally, encourages players to keep playing – and fosters connection via mutual success. Losing in combat and achieving unfavourable story outcomes should encourage negative affect – which would hopefully aid in fostering connection via mutual frustration while also (in the case of story outcomes) encouraging players to shoulder mutual responsibility for the results of their choices.

4.2.14.5. Ranking the Elements of Engagement

In Schoenau-Fog's (2011) study, randomly-selected respondents answered the open-ended question: "What in a game makes you want to continue playing?" The results revealed that "accomplishment overall (36%), experiencing the story (18%), socializing (10%), sensing (9%), exploration (7%) and positive affect (8%) were the most often mentioned categories among this group of respondents" (Schoenau-Fog 2011, p. 12).

Double-Edged Chord attempts to employ all of these to some extent (with the lack of ludic accomplishment, again, constituting a limitation). It does, however, attempt to promote narrative accomplishment (if players seek out favourable story outcomes), the experiencing of story (branching narrative), socializing (cooperative gameplay), sensory engagement (through visuals, audio and atmosphere linked by an arcanepunk aesthetic), exploration (through dungeons) and positive affect (through combat and puzzle-solving).

4.2.15. Immersion

Immersion can be considered a form of deep, transportive engagement. It engenders the feeling of actually being present within a story world, experiencing its events as they unfold. By immersing a player and encouraging their suspension of disbelief, we encourage their "willingness to accept the author's vision of a time, place, world, or characters" (Farber & Schrier 2017, p. 12). This can engender "'parasocial interactions' with characters" – encouraging empathy and so accountability for them. In this way, immersion can be transformative – and those engaging with a story often find that "their attitudes and behaviors actually change in relation to the story" after being so deeply immersed in its narrative (Farber & Schrier 2017, pp. 12-13).

4.2.15.1. Creating Immersion in Games

4.2.15.1.1. Transportation Theory

Transportation theory describes the transportation-like quality of immersion – where players feel as though they are 'lost' within the game world, actually experiencing the story as it unfolds. This happens when a narrative is strong and engaging enough for players to become invested in it – meaning that "the creators of the narrative should be

invested in the player's experience" (Farber & Schrier 2017, p. 11). Immersive games should allow meaningful interaction with the virtual world, its characters, its landscapes and its secrets – maybe even incorporating "storytelling elements associated with mythology and folklore to encourage further player transport into the game's system" (Bowman 2010; Cragoe 2016, cited in Farber & Schrier 2017, p. 12).

When a player is invested in a world this way, it comes with the implication that they care what happens to it – and about the role their actions have to play within it. As such, a player who is more immersed in a game world is also more likely to experience sensations of empathy towards characters (and associated feelings of guilt when their actions have a negative effect on them – which may encourage questioning and responsibility-taking) (Farber & Schrier 2017). In addition, presenting real-world issues through symbol, fantasy and metaphor may allow for the transportation of players to a safe space for engaging with the relevant subject matter (Kaufman et al. 2016).

With this in mind, *Double-Edged Chord* offers small pieces of lore to players – trying to paint a picture of a much larger world with a history behind its creation that bears parallels to our own neoliberal world (and what we can potentially do to change it). It further attempts to contextualise each character within a linked web of neoliberal issues. In this way, it hoped to transport players inside its world, establish an investment in it (and its characters) and – by drawing parallels to the real world – encourage the transfer of this investment to reality.

4.2.15.1.2. Flow State and Game Balancing

Csikszentmihalyi (1990, cited in Baker 2017, p. 17) defines 'flow' as the optimal immersive experience – where the outside world "fades away" and an experience can be enjoyed with active, exclusive and deep engagement. In games, flow state occurs when players are well-balanced between boredom and anxiety – meaning that, in turn, balancing a game's difficulty is critical to immersion (Baker 2017).

This concept is further compatible with transportation theory – since allowing players to be transported into a world via "virtual spaces, well-balanced challenges, and/or strong storytelling" may also aid in transporting them into flow state. Flow doesn't

necessarily have to occur in intense, action-driven spaces – but also "when someone is immersed in a well-balanced activity, such as gardening" (Farber & Schrier 2017, p. 12).

Missura and Gartner (2009, cited in Baker 2017, p. 39) recommend two ways of balancing a game's difficulty: Static balancing and dynamic balancing. In static balancing, "the level of challenge is pre-determined, based on repeated testing and altering of gameplay activities during development". In dynamic balancing, "the level of challenge alters during gameplay, based on the level of skill the player demonstrates during the game" (Baker 2017, p. 25). Balancing the *activities* players can perform in a game also contributes to flow state – for example, balancing intense battles with more relaxing tasks like "talking, crafting and exploring" (Farber & Schrier 2017, p. 13).

In this regard, *Double-Edged Chord* tries to balance its more passive dialogue with more active puzzle-solving – which is followed by more action-driven combat. In this way, it attempts to guide the player through gradual rises and falls in activity intensity. However, a number of players found that the (statically-balanced) combat was too easy: While it succeeded in its goal of being more accessible for newer players and people who weren't used to playing games, it may have been somewhat disruptive to flow state for more experienced players. In this regard, the designer hopes to employ dynamic balancing in the future *(See Appendix G)*.

4.2.15.1.3. Intentionally Breaking Immersion in Games

As termed by Huizinga (1938), the magic circle is a metaphorical space in which all play takes place in a separate time and space to the real world. However, Copier (2007, cited in Podleschny 2012, p. 63) argues that this "creates a dichotomy between the real and the imaginary which hides the ambiguity, variability, and complexity of actual games and play". Rather, there is a 'spill-over' between in-game space and the real world which allows for the 'magic circle' to be broken (for example, by breaking the fourth wall). This could be useful for encouraging players to engage with the messages presented by the game. In Brechtian technique, for example, breaking the fourth wall is often done as a part of alienation or the 'Verfremdungseffekt' to emphasize something that might otherwise be ignored and allow the audience to critically examine the overall message of the experience (Dunne 2019). This can be seen in *Undertale* (2015) – in which typical game conventions are used to immerse the player before being explicitly subverted to

communicate the game's themes of compassion and non-violence in full force. More explicitly, it presents a talking flower who seemingly has total awareness of the game's conventions and the player's activities – continuously holding them accountable for their actions and even crashing the game when you battle him.

Double-Edged Chord attempts to use the 'Verfremdungseffekt' to its advantage – using the strange man who sits at the back of the Jam Joint as its vehicle. While the rest of the game attempts to position itself as a separate space to reality, this man breaks the fourth wall by showing the characters extra-terrestrial 'artifacts'. These 'artifacts' (newspaper clippings) make reference to real-world experiences of neoliberal suffering – so attempting to draw connections between the neoliberal world of the game and the events of reality.

4.2.16. Summary

This framework attempts to offer insight into designing more effective transformative games – in the process teaching us about neoliberalism's impact on our lives while enabling what Rusch (2017, p. xiii) defines as "thought-provoking, emotionally rich experiences and personal and social change". If we want to be a part of the "multiple forms of resistance" against neoliberalism, we need to design more games that encourage collaboration, caring, empathy, social cohesion and equality. In this regard it is hoped that the proposed framework of elements can help us make more engaging and compelling transformational resistance games: Games that can use the transformative power of narrative, agency and immersion to render the invisible hand of neoliberalism visible. Games that can hopefully inspire players to shift their gaze from their own city skylines to question, challenge and resist neoliberalism's colonisation of our lives.

To assess this framework, a transformational game was created. This game seeks, as Culyba (2018, p. 9) puts it, to "support the goals of transformation inherently in the experience we create" as the game becomes the medium through which the transformational goals are achieved.

SECTION 5: RESULTS, ANALYSIS AND DISCUSSION

5.1. Study 1 (Pre-Game Questionnaire)

This study sought to better understand how neoliberalism's influence has shaped the way people "interpret, live in and understand the world" (Harvey 2005, p. 1). To this end, research participants were asked to complete an open-ended pre-game questionnaire. This questionnaire aided in exploring the extent to which neoliberalism's core values were embraced by participants. It was analysed using template analysis. The findings that emerged from the themes and sub-themes follow.

5.1.1. Theme 1: The shaping of individuals into neoliberal subjects

The majority of participants felt that competitiveness, individualism and/or winning above all else can play a role in making people feel lonely, isolated, anxious and depressed. Some, like Participant 39, note the effects on the individual – for example, that "it leads to a lot of mental health problems" (Participant 39). Others note that it has ramifications for wider society – like Participant 38: "[Competition and individualism] ignores the power of collective action and progress. In addition, from this point of view, a do 'whatever it takes' attitude is a likely outcome that can have bad effects for the person and society". Most simply note a relation – as with Participant 21 who finds experiences of isolation, loneliness, anxiety and depression to be "a direct side effect of forced competition and individualism". This suggests that most participants have either experienced the negative effects of competition and individualism themselves – or at least are aware of its presence in others.

Seventeen participants, however, suggested that competition and/or individualism should be encouraged as valuable and motivational elements of productive workplaces/educational spaces. Sometimes, this was *despite* acknowledging their harmful effects. In some cases, this may be because participants felt competition/individualism could become toxic when left unmoderated: As Participant 45 writes: "I wholeheartedly encourage individualism" but later notes "I love individualism, but I think if there are too many labels, to[sic] many categories, there will be those who in their need to stand out and be unique, cut themselves out entirely".

In other cases, responses suggest that the participant sees competition/individualism as worthwhile – regardless of the harm they can do. For example, Participant 57 notes that "Being the best […] could leave you feeling lonely and alienated" while "being the worst also leaves you with no one around and anxiety to[sic] even try". At the same time, they say: "I think [individualism and competitiveness] are what make a company and educational institute better than their competitors". Or, Participant 47, whose response points to more of a reluctant acceptance: "Individualism and competition is a core of capitalism, unfortunately, pursuing the unknown can be quite scary, lonely and thrilling. You are bound to experience the full spectrum of emotions" (Participant 47).

Interestingly, some participants viewed the relation in an inverse manner – noting the negative effects that isolation, loneliness, anxiety and depression could have on one's progress or performance as it is driven by competition. For example, as Participant 19 writes, "[feeling lonely, isolated, anxious and depressed] may stifle the work ethic of anyone who is competitive". None of these participants noted that competition/individualism could be the source of those sensations in the first place. This may suggest a tendency to think of poor wellbeing/mental health as simply an obstacle in the way of progress.

On the lines of empathy, compassion and pro-social behaviour, the vast majority of participants held the belief that, in order to fully understand someone, one needs to consider things from their point of view. In line with this, the majority of participant responses were aligned with the idea that it is important to help each other – though several also noted that (even if helping is important) it should not be considered a responsibility to help others or something that should be expected of everyone.

However, for some, empathy remains a distinct challenge. As Participant 31 notes: "it is a lot of work". Participant 60 writes: "If I see something I think is unfair I would note it but would probably avoid confrontation". With that said, the majority of participant responses indicated that they would take steps to actively combat unfair treatment and the people/entities behind it. This suggests an innate desire to help others – even within a dataset that reflects a widespread influence of competition (and the negative effects which accompany it).

A small number of participants also noted that when they're confronted with someone being treated unfairly, they avoid taking action because they feel constrained by their socio-cultural context. As Participant 17 notes: "In the past I would defend them. As a black women I have learnt to mind my business because it doesn't help. Then I'm labeled as the stereotypical black women. I keep quiet". While this wasn't a common trend in the data, it is worthwhile noting how – as inequalities occur along lines of race, class and socio-cultural context – the psychological impact of those same inequalities may be the very thing that prevents people from taking action to lessen them.

5.1.2. Theme 2: Re-configuration of the role of the state to serve the interests of capital

Some participant responses reflected on privatisation as an absolute evil – as with Participant 25, who described it as: "Risky. Unethical. Selfish." Most participants, however, thought there was value to be found in privatisation – even reluctantly. However, of this group, the majority approached this with some nuance – suggesting that privatisation has its pros and cons, has value in certain contexts or under certain conditions and/or that a balance of privatised and public government services should be made available. Interestingly, a good number of these responses pointed to government failings and corruption as reasons why privatisation may prove valuable. As Participant 9 notes, privatisation is "sometimes good when the government isn't doing its job properly but a good government should keep essential services and do them well". This demonstrates how, as the state increasingly takes less responsibility for its citizens, the public feels no choice but to turn towards drastic solutions – even when those solutions stand to further increase inequalities and class divisions. As Participant 83 says: "incrementing the responsibility of the government and the affect[sic] they have on our society is a great endeavour but fails when our government itself is entrenched in the pursuit of a profit".

5.1.3. Theme 3: Insecurity and Precarity

The vast majority of participants noted that they have encountered insecure, flexible and temporary work in some capacity – either personally or via friends or family. Much of the remainder acknowledged an awareness of the situation (with a few others feeling as though they didn't know enough to comment). This points to the sheer ubiquity of precarious employment. Interestingly, a few participants also noted the shift as

something beneficial. Participant 17 (for example) said of their encounters with insecure, flexible and temporary work: “Family has turned to starting their own businesses and everyone feels that it's more flexible and more rewarding”. Or, in the case of Participant 32: “One would think that they would’ve started saving more funds for a rainy day when they’re out of a job, but on the contrary it seems like they’re living each day like it’s their last; and living their best life.” Though an uncommon response, it may speak to the ways in which neoliberalism disguises itself: How ‘freedom’ conceals the state’s complete detachment from responsibility for its citizens – and how ‘living in the moment’ masks the way we live under the constant threat of unemployment.

Finally, the influence of the ‘entrepreneur-of-the-self’ discourse marks a turn in the data: While some participant responses indicated viewpoints and characteristics out of line with the typical ideal neoliberal subject (empathy, action in the face of unfairness, an acknowledgement of the harmful effects of competition and individualism) the vast majority of participants still fell in line with the ‘Do What You Love’ mentality. Most participants were willing to work for little to no pay as long as they had the chance to do what they love. This was sometimes conditional – for example “you must always be financially secure” (Participant 1) – but a good number of participants noted no precursory requirements needed in order to work for little to no pay.

Only a small number of participants indicated that it is not worth doing a job that does not pay you/underpays you for the sake of doing what you love. Of these, almost all expressed this from a preferential viewpoint, like Participant 17 (“No. I love money, a job that doesn't pay is keeping me away from my love”) or a practical one, like Participant 34 (“It won’t make you happy if it doesn’t pay your bills”). Only two participants saw it part of an exploitative culture (e.g., Participant 29: “Your passion is not worth being exploited over”). Only one participant noted the way circumstance can prevent people from working for little to no pay. However, they still noted that if “you are living comfortably, then doing what you love is important” (Participant 43). No participant response considered that a decision to work unpaid/underpaying jobs might have an impact in perpetuating a culture of exploitation and burnout – or have ramifications for others seeking employment (since, the more everyone is willing to work for exploitative prices, the more people who expect fair compensation will struggle to find employment).

5.1.4. Theme 4: Marketisation of Education

Most participants felt that all knowledge is relevant in a university context. Much of the remainder felt that there should be a balance of profitable/entrepreneurial studies and other variations of knowledge – or that profitable/entrepreneurial studies should be included in the curriculum (if not necessarily situated as the focus). Interestingly, a handful of participants explicitly noted that profitable/entrepreneurial studies should be included in the curriculum to prepare students for the world awaiting them or to give them more employment options. In the words of Participant 1: "there should be more of a focus on entrepreneurial studies in order to accommodate students for the type of world they live in". In a similar vein, others noted that the value of knowledge taught is dependent on the context of its application – as with Participant 17: "entrepreneurship and leadership skills should be taught and emphasized from a young age especially in South Africa where the unemployment rate is so high". This suggests a position of acceptance with regards to the state of our profit-driven world – or perhaps even a resignation (somewhat reflected in Participant 23's comment): "…Due to the capitalism-run world we live in, I also believe that business skills are relevant to students of all fields".

5.1.5. Theme 5: Erasure of inequalities rooted in socially-constructed identities (e.g., race, gender, class, sexual orientation)

Most participants felt that unemployment, inequality and poverty occur as a result of external factors (e.g., poor governance, corruption, historical inequality or human greed). The majority of participants also felt that socially-constructed identities like race, gender and class have an influence on one's success and livelihood. This points to both the pervasiveness of divisions along socially-constructed lines – and to a common awareness of their existence. Interestingly, however, a fair few of those participants also felt that everyone has a chance of making it in life – regardless of their social background. Moreover, a handful of them suggested that unemployment, inequality and poverty affect individuals as a result of their own mentality, characteristics and/or decision-making (rather than social background). For example, Participant 11 stated that "not everyone is built equal. Differences in drive, determination, ability etc. Naturally[sic] move people up or down the food chain" and Participant 20 commented that "many people think that tons of things should be handed to them on a golden platter". This suggests that although these participants are aware of how one's socially-

constructed identities can put them at an advantage/disadvantage, they may not have a full understanding of the extent.

With that said, the majority of participants felt that it is *not* possible for anyone to 'make it' in life – with some putting forward reasons for why others might make that assumption. Participant 82 points to privilege as a possible reason, noting that someone who could make that assumption would likely "live a life where they are privileged enough to not have their background, race, or economic class be an obstacle in achieving success". Participant 29 chalks it up to a simple lack of awareness, noting that "they are very naive about the world we live in". Participant 28 suggests denial: "I'd think that they believe this statement to satisfy their own just-world bias, because they're incapable of conceding that the world and system is indeed not fair in the slightest".

5.2. Study 2

Study 2 developed a design framework for transformative games (detailed in *Section 4*) that was then used to design a transformational game, *Double-Edged Chord*. This framework and associated game are assessed in study 3.

5.3. Study 3

53 participants played the game and completed the post-game diary.

It should be noted that this section repeatedly points to anomalies or responses from participants that are less-than-desirable in terms of the goals of this study. However, while they are noted, a thorough analysis and unpacking of the reasons behind these responses was not possible within the scope of this particular study.

5.3.1. Data Capturing Program

For the purposes of this study, a custom program was built to aid in the analysis of the data – as seen in *Figure 6*. The program curated the pre-game themes and post-game answers of each participant, displaying them onscreen next to each other. This allowed for easy comparison when measuring transformation between the pre-game questionnaire and post-game diary. Using this information, post-game themes were then created and added manually – with the relevant participant responses added as evidence to support them. Finally, the results were exported to excel.

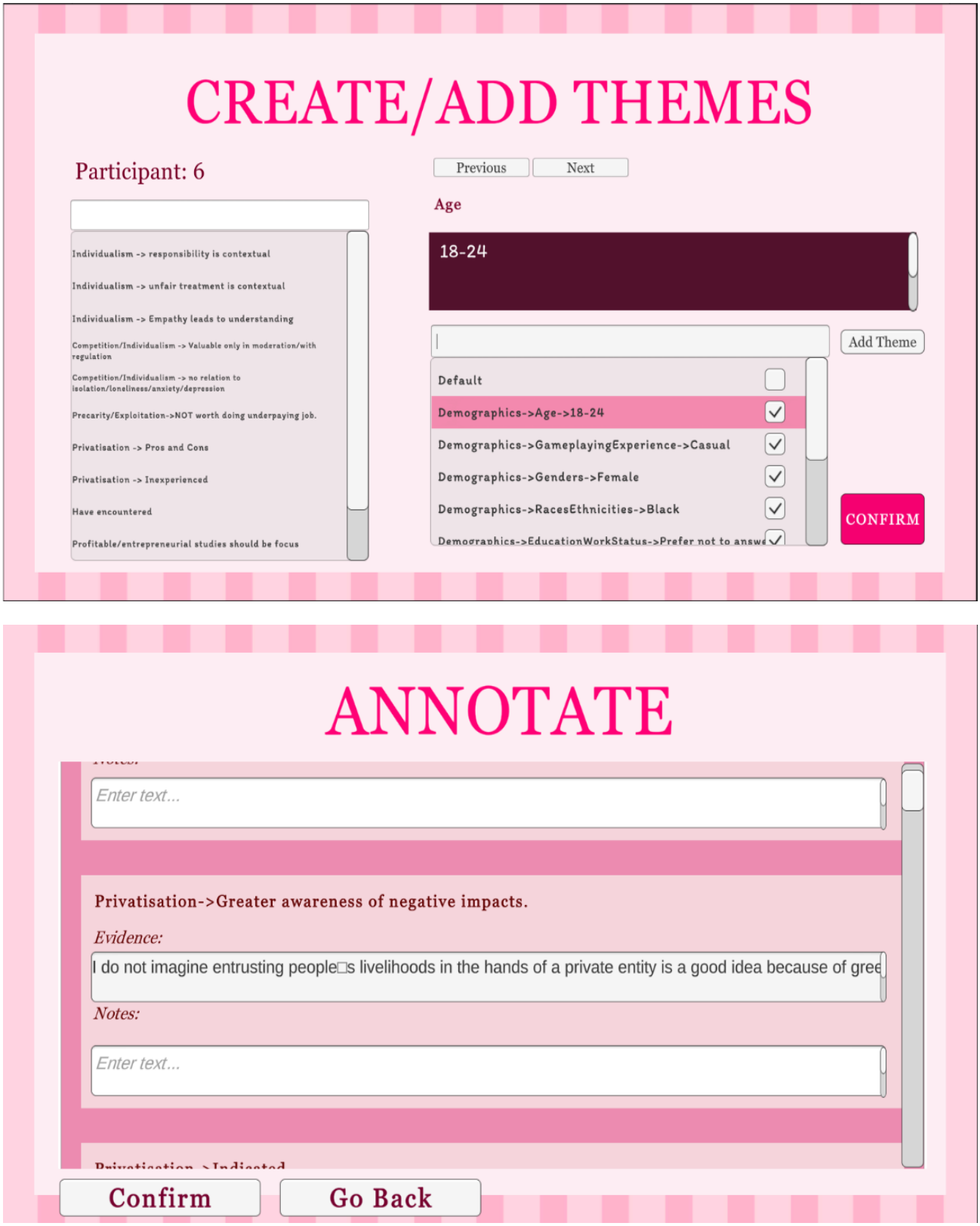

Figure 6: Screenshots of the custom-made program used to analyse participants' post-game diary responses (in tandem with their pre-game responses where applicable).

5.3.2. Demographics

Participants comprised a diverse group of individuals from different races, genders, ages and ethnic backgrounds – as seen in *Figure 7* below. Some were workers, some were students and some were unemployed. Some were gamers, some played casually and a small minority had never played games before. Surprisingly, almost all participants who were playing games for the first time indicated an understanding of the story and its neoliberal themes.

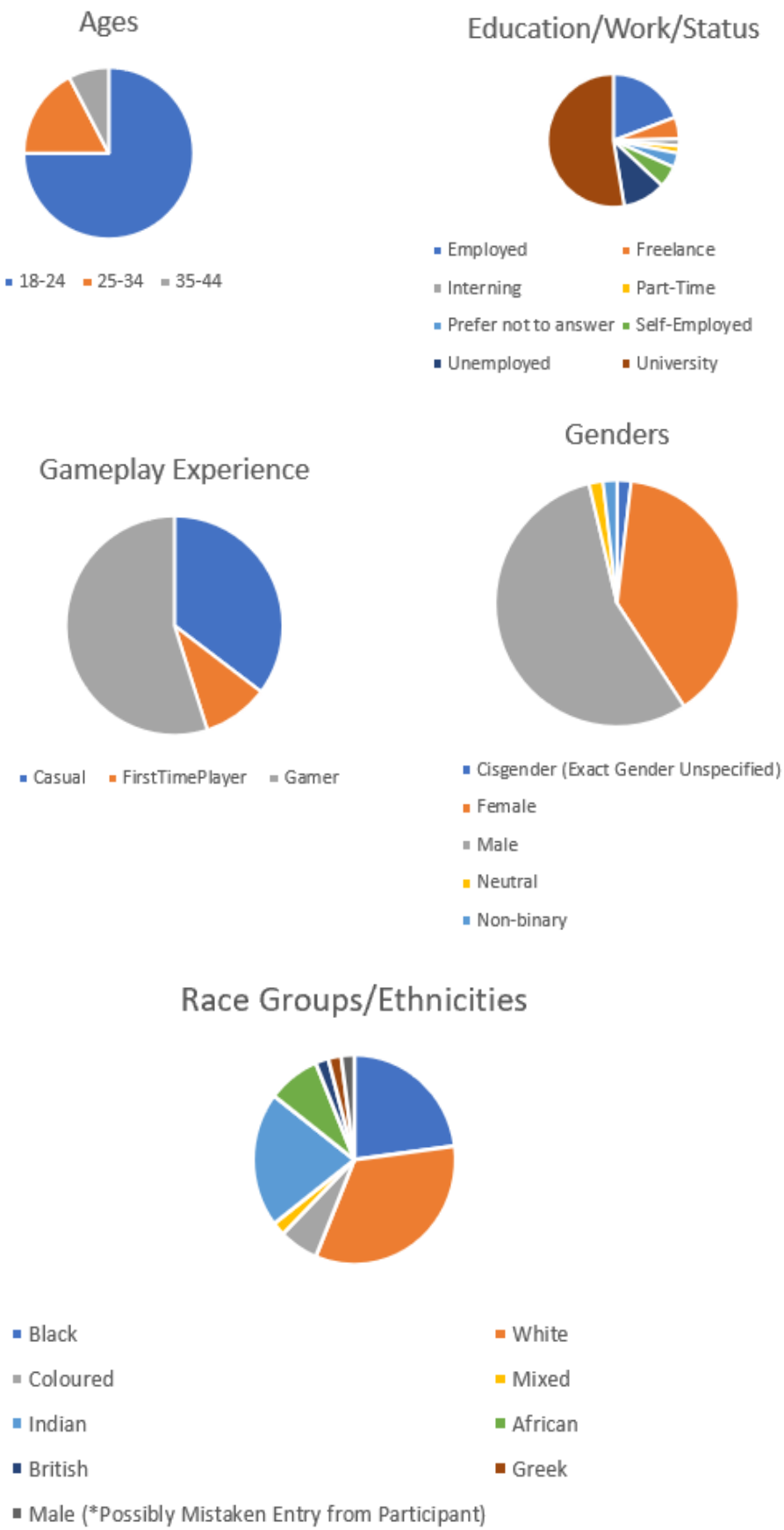

Figure 7 - Pie charts illustrating demographics of participants who filled in post-game diaries for this study.

5.3.3. Testing the Efficacy of the Design Framework for Transformative Games

This study's third objective was to embed its design framework for transformative games within a transformational game (*Double-Edged Chord*) that, ideally, could render visible neoliberalism's invisible influence – and subvert it. In this vein, the efficacy of the framework elements and its medium (the game) are discussed in relation to participant responses.

5.3.3.1. Embedded Design

The majority of participants demonstrated an understanding of the story and its embedded themes. The majority also displayed a degree of enjoyment in playing the game – with some participants claiming that they felt inspired to make their own games or apps as a result of play. Most noted that they felt emotionally affected by the story – as with Participant 57, who felt that the game challenged social and economic inequalities "on such a relatable level". Most also noted that they felt focussed and immersed in the game. Only one participant (Participant 45) indicated that the game was boring – clarifying his decision with: "I wanted more dance combat, other than that, it was good". This suggests that the game largely succeeded in communicating its message without sacrificing player enjoyment.

5.3.3.2. Engagement

> *The games[sic] forces you to confront a lot of the harsh realities of real life but in an engaging and less intimidating environment (Participant 11).*

All participants noted that they felt engaged by some element of the game – be it making choices, combat and/or solving puzzles. Results showed making choices to be the most engaging element – followed closely by puzzles and then combat. This may be because a number of players found combat to be too easy (which came as a trade-off for making the game more accessible to newer players[16]) while most players indicated that they felt immersed and/or emotionally invested in the story. As Participant 60 noted, "the art style and story-telling element made it a much more engaging and impactful

[16] Better difficulty-scaling will hopefully be implemented in future designs *(see Appendix G)*.

representation of social issues". That most participants completed the experience with the majority claiming that they felt focussed on the game suggests that the element of engagement was mostly successful.

It should be noted, however, that technical issues may have hindered engagement – since the 11 participants who didn't complete the experience largely cited technical complications as the reason.[17]

5.3.3.3. Immersion

> *Good job Leia, you have successfully touched a soul (Participant 44).*

The majority of participants noted that they felt focussed and immersed in the game. The majority also claimed to be emotionally affected by the story – with Participant 4 commenting that he "liked how each character was developed enough to have their own unique story personality and even ethics within the game", clarifying that "it really gave the game more substance especially when the player had to interact with such well-developed characters within the active and immersive story". Most participants also claimed to have enjoyed the look, style and feel of the game – as well as the sound design and music (though a few noted that sparse environments and the blend of pixel/painted art styles could be a bit jarring). Overall, however, results suggest that the element of immersion was successfully achieved for the most part.

[17] During development, these issues did not appear in-game because it was being tested on the same device (using ParrelSync) and on the same internet connection. On release, however, varying connection speeds between players and possible issues with the external Photon servers meant that the range of technical issues varied wildly between players. Some experienced no issues at all – while many experienced only minor/momentary issues and still others had game-breaking bugs (largely comprising the group who couldn't complete the game). The designer hopes to find ways of remedying this in the future.

5.3.3.4. Modelling the Human Experience (Identification)

With this element being more abstract than the others, its efficacy is a little harder to measure. In this regard, it was examined along the following dimensions:

1. The extent to which players identified with the experiences presented by the game.
2. The efficacy of the core experiential metaphor (teamwork as being 'in-tune' with one another).
3. The efficacy of the core allegorical method (metaphor as message).

Most players identified with at least one character in the game – where the majority identified with Anci or Clef (the player characters). This may suggest that playing *as* them increased the level of identification with their experiences – as with Participant 30, who claimed that his identification with Anci was "even stronger because [he] played as her".

In line with the goal of engendering a sense of teamwork as being 'in-tune' with one another, the vast majority of participants agreed that it felt as though they were on a shared journey with their fellow player. Most also agreed that the game's multiplayer elements facilitated a closer connection to their partner. However, it is unclear how much of this connection stemmed from in-game combat (where the metaphor largely manifests) and how much resulted from other multiplayer elements (like making choices).

The majority of participants felt that the game reflected political, social and economic realities – suggesting that the *metaphor as message* approach was successful. While there was a worry that this approach would be off-putting to participants, some expressed an (unprompted) appreciation for making the message feel tactful, relatable or not forced – with Participant 8 commenting: "I like how all people were represented. It did not feel forced at all, which is the downfall of many stories". However, two players indicated that the message was too subtle – while two others indicated that it was too forced[18]. Overall, results show that this element was mostly effectively implemented.

[18] With the short playtime available for this study, it was sometimes difficult to communicate each of the game's intended themes with as much depth and nuance as was initially hoped. In the future, when a

5.3.3.5. Teaching Resistance (Game as Teacher)

> *The idea that we all have the power to make a change if we work together has become even more clear which I never thought would be this well reinforced in me from playing a game (Participant 63).*

Participants predominantly agreed that in transforming the game world, they could see the possibilities for how they could transform the real world for the better. As Participant 59 stated (when asked what they had learned from the game): "I have learnt that the value of protest and visible solidarity with just causes is bigger than my comfort as well as my fear of potential negative consequences."

Most participants also agreed that the game made them reflect on the importance of protest and resistance – and that it inspired them to resist injustices. In the words of Participant 30 (on protest and resistance) "I reflected on those concepts more than I can say after this game. It gave me the reassurance that sometimes you just have to try to make a difference".

The majority of participants also expressed that they wanted to join the resistance in the game world. Moreover, most participants expressed a willingness to donate to the WITS foodbank and half of participants also said that they would join a real-world march to demand an increase in government funding for universities. A handful of participants did note, however, that the in-game resistance felt overly simplistic. For example, Participant 41 commented that "there were some over-simplified ideas like that simply getting those in power to speak up would guarantee change", and Participant 53 stated that "I do believe that individuals can bring about change but I believe it takes a lot more than a small group of people to do that". The designer hopes to remedy this once a longer play time is possible.

From the above, it can be said that the element of teaching resistance was relatively successful – with the main limitation being a short playtime that doesn't fully cater to demonstrating the complexity of a real-world resistance.

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longer playtime is possible, it is hoped that each issue can be given the time, pacing and attention it needs for more organic, emotionally-grounded development.

5.3.3.6. Persuasion

Most participants stated that they were emotionally affected by the game and the majority claimed that they empathised with one or more characters – suggesting that the game's linguistic and narrative persuasion was effective. Several players noted (unprompted) that they enjoyed the storyline: For example, Participant 33 noted that "the story line[sic] was amazingly done", while Participant 75 stated that "the characters especially the 2 protagonists both of them were well written and likable". Participant 59 commented that he "very much enjoyed the character writing and dynamics" – saying it "was reminiscent of great anime and shows like *Steven Universe*, *She-Ra* etc."

Participants also predominantly felt that the game reflected political, social and economic realities – suggesting that enough background for contextual persuasion was provided: "I enjoyed the story, art, its relevance to the real world, the uniqueness of its characters, the LGBTQ representation, and heaps more. I wish it were longer!" (Participant 30).

The majority of participants enjoyed the look, feel and style of the game – which may have played a role in visual persuasion and character appeal. This appreciation was noted (for example) by Participant 43 ("the characters were very cool looking!"), Participant 55 ("game characters were adorable") and Participant 25 (who mentioned that they liked "the overall character design") – among others.

Most participants enjoyed the sound design and music – suggesting that sonic persuasion was effective in its aims of making the game feel more immersive and enhancing the core rhythm mechanic (with its associated collaborative qualities). To quote Participant 33, "the music was the highlight for me, every time there was a mini game, I was astonished at how good the music was". Participant 52 also commented that "the game has a distinct sound that loves[sic] in my head rent free".

Responses indicated that procedural persuasion (mainly affected through choices) may only have been somewhat effective – given that just a small majority of participants felt as though their choices impacted the outcome of the story (see the heading *Agency and Choice* below). However, a sizeable majority still found making choices to be enjoyable/engaging, suggesting that these elements still encouraged some level of

reflection, introspection and/or engagement – even in players who might not have realised their effects.

Unfortunately, no question in the post-game diary could measure cinematic persuasion (a limitation of this study). However, a few players noted (unprompted) that they liked the layout or perspective – with Participant 39 stating that "the layout it[sic] was beautiful" and Participant 13 noting that "the top-down view was great". Participant 10 further commented that "the format of the game was very fun! It gives a sense of nostalgia to 90s kids and the 2d format most of us were exposed to".

Finally, the majority of participants expressed a willingness to answer the game's call to action (donating to the WITS foodbank), suggesting that the element of persuasion was largely successfully implemented.

5.3.3.7. The Restoration Story

Double-Edged Chord was structured along the lines of Monbiot's (2017) restoration story and its associated 'politics of belonging'. In this regard, the majority of participants indicated that they felt a sense of belonging from being part of this study's group of voluntary play-testers – suggesting that that the philosophy of the restoration story (its politics of belonging) resonate with the spirit of this study. While the effectiveness of this element has largely been measured through the categories that follow, some participants commented on their enjoyment of the story as a whole. For example, Participant 71 commented that "the story was very well planned out and [they] understood what was happening at all times" while Participant 25 noted that "the story was well written and the characters were well written".

5.3.3.7.1. Empathy (and perspective-taking)

The large majority of participants reported that they empathised with one or more characters in the game. Most play-testers also claimed that they empathised with characters even when they shared different views. Participants also predominantly agreed that they cared about the struggles of one or more characters – and most claimed to have felt an emotional connection to one or more of the characters. A surprising number of participants indicated that the game had encouraged them to be more empathetic or less judgemental in the real world too. When asked what she had learned

from the game, for example, Participant 40 stated that she had learned "not to judge a book by its cover; and to be cognisant of other people's experiences and life circumstances". Participant 6, in response to the same question, noted that the game helped "remind [her] to be more understanding of people and their circumstances, because Everybody[sic] is just trying their best with what they have".

This suggests that the element of empathy was mostly successfully achieved.

5.3.3.7.2. Compassion

The large majority of play-testers claimed that they felt a sense of compassion for one or more characters. A few also indicated that they felt motivated to be more compassionate in reality – as with Participant 69 who wrote of the game: "it has more reinforced my views on some issues but mainly the issue of helping those who need it". Participant 30 also wrote that the game reinforced his beliefs in "helping people in need and the importance of being a genuinely compassionate person". In this light, the element of compassion appears to have been mostly successfully achieved.

5.3.3.7.3. Wide Appeal

> *Double-Edged Chord was a refreshingly relevant game. I feel like I saw, even for just a little, into the lives of the many real people that do go through what the characters have gone through (via their memories of the future) and Francium and Clef's real interactions with others (Participant 30, original emphasis).*

The large majority of participants expressed at least some degree of enjoyment while playing the game. While it was by no means perfect (with many players experiencing technical issues and offering helpful suggestions/comments for improving the game) it generally seemed to be well-received. Participant 8, for example, claimed that it "was a really fucking fantastic game". Participant 11 stated: "All around the game was EXCELLENT!! Artwork Storyline everything!"

This element may have facilitated in delivering the game's message in a way that didn't feel too judgemental – since the majority of players noted that they empathised with characters even when their views differed from their own. Others also commented positively (in line with the goals of this study) on the way the game handled sensitive

issues. For example, when asked whether the game challenges social and economic inequalities, Participant 50 stated: "I completely agree and it was done to[sic] tactfully". When asked whether the game had challenged or reinforced his views, Participant 64 commented: "My view of capitalism that is a system that needs to be tempered with an understanding of social issues and empathy has been reinforced".

5.3.3.7.4. Simple Presentation

The majority of participants were able to finish the game with an understanding of the story and its neoliberal themes. This suggests that the game was presented simply enough to be effective in delivering its message – without overloading players with complex story threads or game mechanics. In this regard, Participant 63 noted that they liked "the simple layout and movement" and Participant 30 claimed that "playing the game was simple and worked well". Participant 16 also stated that "it was easy to play – controls and keys".

5.3.3.8. Anti-Oppression Principles

Much of the game's focus on anti-oppression manifests in its handling of socially-constructed identities and inequalities. In this regard, the large majority of play-testers agreed that the game challenged social and economic inequalities. Players predominantly (after playing the game) also agreed that race, gender and background have an influence on one's success and livelihood – and that our society is socially constructed along race, gender and class lines. Moreover, most players agreed that impoverished people cannot simply "make it" in life if they work hard enough. This grouping included a number of play-testers who demonstrated a shift in awareness/knowledge/attitudes after playing the game – and who had previously indicated less awareness of these issues in their pre-game questionnaire (see the heading *Critical Reflection and Player Transformation* below).

Most play-testers agreed that the game challenged stereotypes – though some still disagreed. However, a few responses from those who disagreed suggest that even though the game didn't challenge stereotypes, it didn't actively reinforce them with regards to marginalised communities. As Participant 44 noted: "Mmm it doesn't reinforce them. I think there are a variety of people that are uniquely represented but a stereotype wasn't challenged necessarily from what I can remember". Various other

reasons for disagreeing included that the participant "never really thought of stereotypes" while playing the game (Participant 79) and that "the main characters have a stereotypical Sakura and Sasuke sort of relationship if you've watched Naruto" (Participant 6), for example. Only one person made an important reference to a marginalised community, stating that "non-binary people were a little sterotypical, but it[sic] there was no race, gender or person was[sic] sterotyped or shown to be more significant or lesser than anyone else. Amazing job!" (Participant 8).

In this regard, Fife is the game's most notable non-binary character. Admittedly, the designer only realised Fife's design choices were stereotypical after some reflection. For example, purple was chosen as their primary colour to represent their calm, sensible nature – while black, white and yellow were chosen as accent colours because they seemed like good complements to purple. This (unwittingly) covered Fife in the colours of the nonbinary flag. They also have purple hair (chosen to match their jacket and the cyberpunk aesthetic of the game) which unwittingly feeds into the stereotype that LGBTQ+ people always have brightly-coloured hair.

5.3.3.9. Cooperative Gameplay

> *The multiplayer function gave the characters life and the roleplaying element made it easier to empathize and better understand the characters. It also helped us(me) get better emersed[sic] in the story (Participant 25).*

All participants indicated that they enjoyed playing with their partners whether randomly-assigned or self-chosen – with Participant 30 stating that "I did not think it would have turned out as well as it did!" and Participant 5 noting that "it brought us together". Only one participant who played with a randomly-assigned partner indicated that they would have preferred playing with their own partner (but still agreed that she had enjoyed playing with her randomly-assigned one). Almost all participants said that they felt like they were on a shared journey with their partner. The majority of participants agreed that they had either made new friends or bonded with old friends and most agreed that they felt an emotional connection to their partner – with, for example, Participant 5 stating: "My playtest partner and I have been in touch. I would say we are close friends now." Participant 8 also noted, unprompted, that the multiplayer elements "facilitated discussion well". Some players further noted that the

multiplayer element increased immersion, allowing them to roleplay the characters together with their partner.

Just over half of participants indicated that they didn't mind the game being uncompetitive – as with Participant 25: "I think the gameplay well compliments the story itself (working together to achieve a common goal). If it was more competitive I feel like I[sic] would kind of be taking away some element from the game". In this regard, it should be noted that some players possibly interpreted 'competition' as competition with the AI – rather than between themselves. This is implied by Participant 6, who commented: "I liked this game I just wished the competitive part was a little more competitive than it was" and Participant 82, who stated: "The level of combat was just right. Any more and it would have been tiring". As such, this observation may relate more to engagement with combat than cooperative play. However, it should also be noted that two players indicated the multiplayer elements felt unnecessary – as with Participant 53, who commented that she "didn't really feel like [she] needed [her] partner to complete the game". With this in mind, the designer hopes to create space for more cooperative play and mutual aid in the future.

5.3.3.10. Agency and Choice

Responses indicated that making choices (over puzzles and combat) was the most enjoyable/engaging element of gameplay. This suggests a level of engagement with and reflection upon the story and its themes.

However, only a small majority (just over half) indicated that they felt their choices had an effect on the outcome of the game – as with Participant 30, who commented: "I think the choices we made affected dialogue – and therefore our understanding of the plot". This is despite the fact that player choices have sweeping consequences on all characters in the game – sometimes deciding whether characters live or die, whether relationships are healed or broken and even whether the resistance at the end of the game happens at all. As such, there is a great possibility that even though there are consequences for every choice, the *link* between these consequences and the player's actions were not made clear enough.

This is implied by Participant 79 – who noted that "this game made me feel somewhat hopeless at times. Like even if[sic] stood up and brought an end to the system tomorrow, millions of people have already died and relationships have been damaged (like Coda's) so it all feels for nought". This suggests that she didn't realise deaths wouldn't have occurred and Coda's relationship with his daughter wouldn't have been damaged if she'd made different choices.

This unclear linkage between choice and consequence may be remedied in a few particular ways – which are further outlined in *Appendix G*.

5.3.3.11. Real-World Call to Action

> *When we found out it is a Wits Food Bank initiative we were very touched by it all (Participant 6).*

The majority of participants expressed a willingness to answer the game's real-world call to action (even if financial constraints prevented them from doing so at the time) and donate to the WITS food bank.

5.3.4. Critical Reflection and Player Transformation

Shifts in awareness/knowledge/attitudes in players were measured by checking their responses in the pre-game questionnaire against their responses to the corresponding questions from the post-game diary. If players explicitly mentioned that they had learned something new from the experience, this was noted as well.

5.3.4.1. Erasure of inequalities rooted in socially-constructed identities (e.g. race, gender, class, sexual orientation)

> *My belief in advocating for the rights of those who are exploited or mistreated has been reinforced. The belief that poor people are lazy has been challenged and has changed (Participant 39).*

After playing the game, the majority of players acknowledged that race, gender and background can influence one's success and livelihood. The majority of participants also believed the poor couldn't simply 'make it' in life if they worked hard enough.

Of all participants, just over a third reflected a change in this area in line with the goals of this study. Some indicated a greater awareness of the role socially-constructed identities play in one's livelihood than in their pre-game questionnaires. Others explicitly indicated that the game had increased their awareness of these issues. For example, Participant 33 wrote: "I am guilty of the idea that those who beg should find a job even if it is low pay. This game challenged that idea by showing me that begging may have been the only option and not a choice. Those people may have tried to find jobs but could not get any."

When confronted with the statement "race, gender and background have little influence on one's success and livelihood", Participant 71 had written (in her pre-game questionnaire): "I agree. I believe anyone can be successful regardless of their race, gender, and background." However, in her post-game diary, she disagreed with the same statement. When asked "what would you think if someone told you that anyone can 'make it' in life if they work hard enough?", Participant 55 had written (in his pre-game questionnaire): "True. However, it is true that some have to work harder than others." But, in his post-game diary (in response to the same statement) he disagreed and wrote: "The poor need the help and support of society as well. Hard work can only get you so far".

It should be noted that two participants[19] seemed to underplay the role of socially-constructed identities in livelihood between their pre-game questionnaire and post-game diary. The reason for this is unclear. While they didn't demonstrate transformation in this area (in either direction), two participants who had *already* believed anyone could 'make it' with hard work also felt that the game *showed* how people from underprivileged backgrounds could still be successful. For example, Participant 31 (in their pre-game questionnaire) stated that they "would agree[sic] that individual" who tells them anyone can make it in life if they work hard enough. In their post-game questionnaire, they then stated that the game challenged the stereotypes "that people from rural and small towns cannot be successful" and "that the success of a person is based on their race." This may suggest a level of confirmation bias – in that they

[19] In some places, mention is made of 'two participants' who misinterpreted the game's message and/or found that their views shifted to be more neoliberal in nature. It should be noted that these 'two participants' are not always the *same* two participants.

interpreted Anci's fame as a story of success rather than manipulation and power control at the hands of a wealthy elite.

5.3.4.2. Insecurity and Precarity

> *Sometimes what we think is good (hard work and competition, for example), can be detrimental to our wellbeing. A life in industry, while profitable, can be very taxing on one's mental, physical and emotional wellbeing. I am happy to be in academia and be doing what I love. But at the same time, I shouldn't be settling for just survival. What I do is important and I deserve more (Participant 55, when asked if the game shifted his perception or feelings about any particular issue).*

The game largely measured this theme in relation to the 'Do What You Love' mentality. After playing the game, most participants indicated that it would *not* be worth doing a job that doesn't pay or underpays them for the sake of doing what they love. The large majority indicated that they believe people should not willingly sacrifice their free time, work for little to no pay and jump from gig to gig if they want recognition. Moreover, the large majority also seemed to feel that similar themes were reflected in the story – agreeing that the characters Coda and Fife suffered because their bosses profit from workers doing long hours in insecure jobs in unsafe conditions for little pay.

After playing the game, just under a third of participants demonstrated a shift in their views on insecurity and precarity in line with the goals of the study. These included participants who expressed a greater awareness of precarity/exploitation and its impacts, those who expressed clearer or more nuanced views on precarity and those who emerged less willing or unwilling to be unpaid/underpaid for the sake of doing what they love (than they had expressed in their pre-game questionnaire).

For example, Participant 58 noted that the game taught him "about the exploitation of Amazon factory workers" – a sentiment also expressed by Participant 83 who said he didn't know about "the actual tracking of workers in Amazon". Participant 35 (in their pre-game questionnaire) had said: "At the moment, as a student with no income, I would absolutely love to have a job, especially if it requires doing something I love regardless of the pay." However, in their post-game diary, they indicated that doing an unpaying/underpaying job would *not* always be worth it for the sake of doing what they

love. They clarified their answer with: “depends if it’s enough to provide for yourself only”.

Finally, it should be noted that two participants seemed to emerge more willing to be unpaid/underpaid to do what they love than in their pre-game questionnaire. The reasons for this are unclear.

5.3.4.3. Re-configuration of the role of the state to serve the interests of capital

> *I was always told that private institutes were better, but the game made me realize that many people cannot access private facilities and rely on the government for many basic needs (Participant 68).*

The game mainly addressed this theme with a focus on privatisation. After playing the game, just under a third of participants reflected a change in their views on privatisation in line with the goals of the study. A number of participants expressed a greater awareness of the negative impacts of privatisation. Participant 55, for example, stated that: “I’m not sure anymore if privatization is at all a good thing. I’ve also had a high regard for the[sic] privatization over nationalization, but now I’m not so sure.” Others demonstrated a more in-depth understanding of privatisation than in their pre-game questionnaire. Some still believed that privatisation has its place – but also reflected greater awareness of its negative impacts or demonstrated an uncertainty about its value that they hadn’t previously shown in their pre-game questionnaires. Some participants were motivated to research privatisation outside of the game as well – such as Participant 69, who commented: “At first, I didn’t have much knowledge on the view and the term but I did my research and I can see it in the story via Clef’s mothers’ actions.”

Though a small minority, it should be noted that two participants did seem to have somewhat more positive views of privatisation after playing the game. The reasons for this are unclear.

5.3.4.4. Marketisation of Education

> *I have never considered business to be such a danger to art. This was a very interesting viewpoint worth exploring (Participant 55).*

After playing the game, participants predominantly felt that universities should not focus on profit-driven/entrepreneurial education – with a majority indicating that "all knowledge is relevant". About a fifth demonstrated a shift in thinking in this area in line with the goals of the study.

This included participants who expressed a greater awareness of the negative impacts of profit-driven/entrepreneurial education (than they had in their pre-game questionnaire), participants who expressed a belief that all knowledge is relevant (where they hadn't in their pre-game questionnaire) and participants who still believe that universities should focus on profitable education – but now also express a belief that all knowledge is relevant (where they hadn't in their pre-game questionnaire). Participant 83, for example, stated that he "didn't know about the input billionaire's[sic] had on the education system" prior to playing the game. Participant 2, when asked what he'd learned from playing the game responded that "the education system is very flawed." In his pre-game questionnaire, he had also commented: "I think that 'profitable and entrepreneurial studies' should be included in every course so people that graduate know that it is possible to use the knowledge you learnt (this means whatever degree you just finished) can be made into a business venture[sic]. You do not need to go look for a job, you can create jobs for others." In his post-game diary, however, he only agreed that "all knowledge is relevant" – and not that "universities should focus on profitable and entrepreneurial studies."

5.3.4.5. The shaping of individuals into neoliberal subjects

> *[The game] made me think about how the world is focussed on success and most of the time success comes from being selfish and working on yourself while using others or just exploiting others (Participant 24, when asked if he'd learned something new about himself or the real world).*

After playing the game, the majority of participants agreed with the Atticus Finch quote: "you never really understand a person until you consider things from his point of view, until you climb inside his skin and walk around in it". The majority of play-testers also

agreed that it is their responsibility to help others – and most indicated that they would respond or act if they witnessed unfair treatment. Most disagreed that being competitive and investing in ourselves is the only way to succeed. The majority disagreed that competition brings out the best in people – and most agreed that it relates to people feeling lonely, anxious and depressed. Despite this, however, most also *still* agreed that individualism and competitiveness should be encouraged in workplaces and places of education – and that competing with others is a normal part of life.

Of all participants, just over a third had demonstrated a change in this area in line with the goals of the study. This included:

- Participants who indicated that they felt more inspired to stand up to unfair treatment.
- Participants who demonstrated a greater awareness that there are others suffering the effects of neoliberalism along with them.
- Participants who indicated that they were more inclined towards taking responsibility for helping others than they had been in their pre-game questionnaire.
- Participants who indicated that they no longer believe competition and/or individualism should be encouraged in workplaces/spaces of education.
- Participants who now state that they stand up when they see someone being treated unfairly.
- Participants who demonstrated clearer views or a greater depth of awareness/understanding on competition and/or individualism.
- Participants who indicated a greater awareness of the negative effects of competition and individualism.
- Participants who indicated that they could see a greater connection between competition/individualism and people feeling depressed, anxious or isolated than they had in their pre-game questionnaire.

For example, when asked if she considered herself more of a bystander, Participant 39 wrote: “In the past yes but not from this point moving forward.” When asked what he’d learned from playing the game, Participant 55 wrote:

> *...As highlighted above, sometimes competitiveness can breed more problems rather than fixing any. Money is also not a key solution to the grander problems the world faces today. The game also taught me that the struggles I face (difficulties finding a job, continued hard work for very little security) are shared across youth. The researcher's perspective and experiences resonate through their creation (the game) highlighting problems young people face that they may have encountered while at Wits University (e.g. unhealthy competitiveness, socio-economic insecurity, an obsolete education system, the power of corporate entities in controlling resources and the fate of the youth)(Participant 55).*

However, it should be noted that five participants emerged from the experience seeing *less* of a connection between individualism/competition and depression, anxiety or isolation. In some cases, however, this may be because people interpreted the question as asking whether it was the *sole* cause of those sensations (when they didn't interpret it that way in their pre-game questionnaire). For example, Participant 79 stated (in her post-game diary): "I don't know. I've felt those things and I don't think I'm competing with anyone". Conversely, in her pre-game questionnaire, she had said "I think there's a correlation" and that "there's an eternal lack of contentment because you're always comparing yourself to others". Alternatively, these players may also have experienced a defensive resistance to the game's message (even if their own values aligned with it). This is particularly likely if they found its delivery too forceful – as described by Worchel and Brehm (1970, cited in Kaufman et al. 2016). Notably, the aforementioned Participant 79 mentioned that "at times [the game] felt a bit on the nose with its message".

5.3.5. Questioning and Reflection

> *[The game] also makes you wonder if companies etc. are actually conducting their businesses ethically (Participant 63).*

A number of participants implied that the game had encouraged questioning or reflection on the issues it presents. Some participants indicated that they had gained more perspective on their own ethics or the implications of their work and its potential impacts – as with Participant 68 who stated: "As a creative person [the game] also made me want to be extra cautious or sensitive of the work I produce and how it may impact others like in Cherry's case". Other participants indicated that they had gained more perspective on the ethics (or lack thereof) of businesses and corporations. One

participant noted that the game offered him a new perspective on cultural appropriation, saying he had "never seen it expressed in that way before".

5.3.6. Unexpected Outcomes

The game gave rise to some unexpected results. For example, a few participants noted that they felt inspired to pursue their own creative endeavours after playing the game – as with Participant 27 who commented: "The game itself has exposed me to the idea of maybe creating my own game one day or being educated on how games are created" and Participant 68 who stated: "It inspires me to continue working on my own projects and encourage and support others to do the same".

Participant 16 noted that even though she was already familiar with much of the game's content, it helped her articulate her views:

> *It pretty much reinforced my views I wouldn't say I learnt something new. However it did help me articulate my views because that's something I usually struggle with so it gave me a concrete image of my views and that makes it easier to explain. Hopefully that means my understanding of theses[sic] issues are better and that will lead to active efforts to bring about change (Participant 16).*

Moreover, Participant 40 commented that the game "reinforced [her] thoughts on certain ideas that [she] had kinda silenced".

A couple of participants also noted that the game inspired them to contribute to change in their own ways – as with Participant 10 who commented:

> *It gave me a great idea on how to give back to the community through KitsuneZA Esports Charity initiative. So thank you for that. There is the potential to expand the organization from being technologically-driven with charity actions to possibly giving access to creative professionals so they have a starting point for their careers and portfolios. One that allows for equal pay and security in their assigned job (Participant 10).*

5.3.7. Overall Outcome

After playing the game, the majority of play-testers demonstrated some degree of transformation in line with the goals of this study.

All play-testers (with the exception of two) showed a degree of transformation, felt encouraged to reflect upon the issues presented by the game *and/or* indicated that already-existing beliefs (e.g., the importance of empathy) had been reinforced within them (all in line with the goals of this study).

SECTION 6: LIMITATIONS AND CONCLUSION

6.1 Limitations

Admittedly, there is a certain irony in that this study itself is seemingly driven by certain tenets of neoliberalism. For example, the idea that working hard equates to success (the designer has poured inhuman hours into this project in the hope of it being a success). However, as long as neoliberalism remains a dominant ideology, it can be argued that (to some extent) one has to leverage its existing practices in order to occupy space and be heard within it – lest the perspectives presented in this study be lost among those that have only been acknowledged because of a culture of ruthless labour and 'crunch-time' mentality. It does not necessarily follow that we must (at least, in every aspect of life) become mindless drones of neoliberal ideology.

Double-Edged Chord is also unfortunately challenged by online connection issues between play-testers and seemingly location-based issues with regards to the Photon[20] servers. The majority of play-testers encountered some form of technical issue which disrupted the play experience for some – while a few encountered game-breaking bugs that prevented them from finishing the game.

Moreover, the challenge of making an online multiplayer game was admittedly underestimated. Though it helped support the study, the time limit (coupled with being new to multiplayer game development) lead to compromises on the combat and level-design – along with the scrapping of several elements that might have aided in

[20] Photon, along with Unity and ParrelSync, comprised the software predominantly used to make the game.

constructing a more transformative, immersive and enjoyable experience. Ensuring that the game was of a reasonable length for participants also made it difficult to demonstrate the dynamic development of a resistance movement with the kind of depth, complexity and realism that was hoped for.

There is also little doubt that a longer playtime would have greatly benefitted the game overall – allowing for depth and nuance both ludically and narratively. While this could also be achieved by simply handling *less* in the narrative, the designer feels it is important to illustrate how neoliberal ideology doesn't manifest in only one area – but rather presents itself as a complex, interconnected web. In doing so, it is hoped that players (from all walks of life) might realise that this common suffering, rather than dividing us, may be the very thing that binds us together.

6.2. Conclusion

> *Despair is the state we fall into when our imagination fails. When we have no story that explains the present and describes the future, hope evaporates (Monbiot 2020).*

This study argued that if video games can construct spaces which reproduce dominant ideologies, they can also create spaces to resist them. In this regard, the paper explores transformative game design as a way of making engaging games that can inspire critical reflection and player transformation without sacrificing player enjoyment. With this in mind, this study proposes a design framework meant to inspire game designers who want to make games that can impart transformative play experiences. The framework focusses on the elements of: Embedded design, the restoration story, wide appeal, empathy, compassion, simple presentation, modelling the human experience, incorporation of anti-oppression principles, persuasion, teaching the dynamics of resistance, real-world call to action, cooperative gameplay, agency and choice, engagement and immersion. Ultimately, this design framework, embedded within the transformational game (*Double-Edged Chord*), was aimed at rendering the invisible influence of neoliberalism visible, in the process subverting it. An analysis of pre-game questionnaires and guided post-game diary responses of 53 play-testers show that the framework and its medium, *Double-Edged Chord*, have transformational potential. The game appears to have resonated with the majority of players and demonstrated relative

success in transforming awareness, knowledge and attitudes about neoliberalism's core practices – helping players to re-imagine a world founded upon more humane values of equality, justice, empathy and cooperation.

6.3. Future Implications

It is hoped that other game designers will experiment with this approach for making more engaging transformational games. While game designers operate in a world where even creativity is captured by neoliberalism, the results of this study show that there is still space for resistance in our work. Using the tools at our disposal, game designers can craft games that attempt to resist and challenge the dominant order of our time – games that envisage a more just, equitable and empathetic world. The time has come for creative workers to attend to the values we embed in our work — and for whom.

REFERENCES

1. Aaronson, R. 2016. *The privitisation of hope*. Available from: http://bostonreview.net/editors-picks-us-books-ideas/ronald-aronson-privatization-hope. [Accessed 5 July 2021].
2. Aarseth, E., 2001. *Allegories of Space: The Question of Spatiality in Computer Games*. [ebook] Copenhagen. Available at: <https://www.researchgate.net/publication/238485005_Allegories_of_Space#:~:text=Computer%20games%20are%20essentially%20concerned,or%2C%20perhaps%2C%20implements%20space.> [Accessed 23 June 2022].
3. Akasaka, A. 2015 [Manga]. *Kaguya-sama: Love is War*. Miracle Jump. Tokyo.
4. Animal Crossing. 2020. [Game]. Nintendo Switch Nintendo. Kyoto
5. Archibald, M. and Gerber, N. 2018. *Arts and Mixed Methods Research: An Innovative Methodological Merger*. American Behavioral Scientist, 62(7), pp.956-977.
6. Azevedo, F., Jost, J., Rothmund, T. and Sterling, J . 2019. *Neoliberal Ideology and the Justification of Inequality in Capitalist Societies: Why Social and Economic Dimensions of Ideology Are Intertwined*. Journal of Social Issues, 75(1), pp.49-88.
7. Baeg, A . 2014. *Neoliberalism, Risk, and Uncertainty in the Video Game*. Available from: https://quod.lib.umich.edu/o/ohp/12832551.0001.001/1:5.2/--capital-at-the-brink-overcoming-the-destructive-legacies?rgn=div2;view=fulltext [Accessed 5 July 2021]
8. Bailes, J . 2019. *Ideology and the Virtual City: Video games, Power Fantasies and Neoliberalism.* Winchester. Zero Books.
9. Baker, A. 2019. *What South Africa Can Teach Us as Worldwide Inequality Grows* Available from: https://time.com/longform/south-africa-unequal-country/ [Accessed 5 July 2021]

10. Baker, J .2017. Designing immersive serious games. University of Southampton, Doctoral Thesis. Available from: <https://eprints.soton.ac.uk/419472/1/JB_ThesisFinal.pdf [Accessed 18 January 2021]

11. Barab, S., Dodge, T., Gentry, E., Saleh, A., & Pettyjohn, P. 2010. *Uganda's road to peace may run through the river of forgiveness: Designing playable fictions to teach complex values. In Designing Games for Ethics: Models, Techniques and Frameworks* (pp. 312-333). IGI Global. Available from: https://doi.org/10.4018/978-1-60960-120-1.ch019 [Accessed 6 February 2020]

12. Barab, S., Gresalfi, M. and Ingram-Goble, A. 2011. *Transformational Play*. Educational Researcher, 39(7), pp.525-536.

13. Bayliss, K., Mattioli, G. and Steinberger, J. 2020. *Inequality, poverty and the privatization of essential services: A 'systems of provision' study of water, energy and local buses in the UK*. Available from: https://journals.sagepub.com/doi/10.1177/1024529420964933 [Accessed 8 March 2021]

14. Bertoli, M., 2017. *Doris Rusch, Deep Games Developer, Talks Designing For Empathy* [online]. Available at: <https://ithrivegames.org/newsroom/blog/doris-rusch-deep-games-developer-talks-designing-for-empathy/> [Accessed 26 January 2021].

15. Bettache, K., Chiu, C., and Beattie, P. 2020. T*he merciless mind in a dog-eat- dog society: neoliberalism and the indifference to social inequality*. Available from: https://www.sciencedirect.com/science/article/pii/S2352154620300905?via%3Dihub. [Accessed 2 March 2022].

16. Bettache, K., and Chiu, C. 2019. T*he Invisible Hand is an Ideology: Toward a Social Psychology of Neoliberalism*. Journal of Social Issues. 75. 10.1111/josi.12308.

17. Blee, K., 2012. *Democracy in the making*. New York: Oxford University Press.

18. Bogost, I. 2021. 2. *Persuasive Games, A Decade Later*. In: De La Hera, T., Jansz, J., Raessens, J. and Schouten, B. ed. *Persuasive Gaming in Context*. Amsterdam: Amsterdam University Press, pp. 29-40.

19. Boncori, I., Sicca, L. and Bizjak, D. 2019. *Transgender and Gender Non-conforming People in the Workplace: Direct and Invisible Discrimination. Inequality and Organizational Practice.* Available from: <https://www.researchgate.net/publication/332064352_Transgender_and_Gender_Non-conforming_People_in_the_Workplace_Direct_and_Invisible_Discrimination> [Accessed 16 February 2022].

20. Boston Review. (2019). *How to Think About Empire Boston Review speaks with Arundhati Roy on censorship, storytelling, and her problem with the term 'postcolonialism*. Boston Review. Available from: http://bostonreview.net/literature-culture-global-justice/arundhati-roy-avni-sejpal-challenging-%E2%80%9Cpost-%E2%80%9D-postcolonialism [Accessed 28 August 2021]

21. Brody, J., 2018. S*ave the Cat! Writes a Novel: The Last Book On Novel Writing That You'll Ever Need.* Berkeley CA: Ten Speed Press.

22. Brookfield, S. (2009). *The concept of critical reflection: Promises and contradictions*. European Journal of Social Work. 12. 293-304. 10.1080/13691450902945215.

23. Brooks, J., McCluskey, S., Turley, E. and King, N. 2015. *The Utility of Template Analysis in Qualitative Psychology Research*. Qualitative Research in Psychology, 12(2), pp.202-222.

24. Brown, E. and Cairns, P., 2004. *A Grounded Investigation of Game Immersion. CHI'04 extended abstracts on Human factors in computing systems.* Available from: http://complexworld.pbworks.com/f/Brown+and+Cairns+(2004).pdf [Accessed 10 March 2021]

25. Brown, W. 2015. *Undoing the Demos: Neoliberalism's Stealth Revolution* [online] Available from https://erikafontanez.files.wordpress.com/2019/10/w.-brown-undoing-the-demos.pdf [Accessed 6 March 2022].

26. Brown, W., 2010. *Without quality public education, there is no future for democracy*. Available from: <https://news.berkeley.edu/2010/03/05/wendybrown/ [Accessed 6 March 2022].

27. Burelli, P. 2016. *Emotion in Games. Socio-Affective Computing.* Available from : <https://www.researchgate.net/publication 304441359_Game_Cinematography_from_Camera_Control_to_Player_Emotions> [Accessed 11 February 2022]

28. Call of Duty. 2003 [Game] Activision. USA

29. Candy Crush Saga 2012. [Game] King. Malta

30. Cart Life. 2011. [Game] Adventure Game Studio

31. Cherry, K. 2019. *What Role Do Schemas Play in the Learning Process?* Available from: <https://www.verywellmind.com/what-is-a-schema-2795873> [Accessed 12 July 2021].

32. Chomsky, N. 1999. *Profit over people: Neoliberalism and global order*. New York: Seven Stories Press. Chicago

33. Clarke, V. & Braun, V. 2013. *Successful Qualitative Research: A Practical Guide for Beginners*. Sage.

34. Clifford, D., Burke, B. 2008. *Anti-Oppressive Ethics and Values in Social Work.* Basingstoke, Palgrave Macmillan

35. Cloete, S. 2010. *Gaming Between Places and Identities: An Investigation of Table-Top Role-playing Games as Liminoid Phenomena*. MA Dissertation. Available from: https://wiredspace.wits.ac.za/bitstream/handle/10539/8886/Dissertation.pdf. [Accessed 7 March 2021].

36. Compton, C., 2019. *Designing Interesting Decisions in Games (And When Not To).* [online] Medium. Available at: <https://remptongames.medium.com/designing-interesting-decisions-in-games-and-when-not-to-452af04d0e66> [Accessed 23 June 2022].

37. Confessore, N. 2018. *Cambridge Analytica and Facebook: The Scandal and the Fallout So Far* Available from: <https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html> [Accessed 12 July 2021].

38. Counterstrike. 2012 [Game] Valve Corporation

39. Craig, G. n.d. *Shaking off the allegories of Spirits of Spring*. [online] Kill Screen. Available from: <https://killscreen.com/previously/articles/spirits-spring/> [Accessed 12 July 2021].

40. Csikszentmihalyi, M. 1990. *Flow: The Psychology of Optimal Experience*. New York: Harper and Row

41. Culyba, S. 2018. *The Transformational Framework.* ETC Press, Pittsburgh

42. D'Anastasio, C., 2020. *Next-Gen Gaming Is an Environmental Nightmare*. Available from: <https://www.wired.com/story/xbox-playstation-cloud-gaming-environment-nightmare/> [Accessed 11 March 2022]

43. Daggubati, L., 2016. *Effect of cooperation on players' immersion and enjoyment.* Available from:

<https://scholarsmine.mst.edu/cgi/viewcontent.cgi?article=8498&context=masters_theses> [Accessed 11 January 2021].

44. Darfur is Dying. 2006. [Game]. Take Action Games.

45. Dechering, A. and Bakkes, S. 2018. *Moral Engagement In Interactive Narrative Games.* Available from: <http://sander.landofsand.com/publications/FDG2018-Dechering-Bakkes.pdf> [Accessed 26 January 2021].

46. Denzin, N. 2012. *Triangulation 2.0*. Journal of Mixed Methods Research, 6(2), pp.80-88.

47. Denzin, N.K. and Giardina, M.D. (Eds.). (2018). *Qualitative Inquiry in the Public Sphere*. Routledge. New York.

48. Depression Quest. 2013. [Game]. The Quinnspiracy. US

49. Disco Elysium. 2019 [Game]. PlayStation 4, Nintendo Switch, Xbox. ZA/UM. UK.

50. Dishonoured. 2012 [Game] Bethesda Softworks. Rockville

51. Donlan, C. 2013. *Cart Life: "The only thing that changed was me*. Available at: <https://www.eurogamer.net/articles/2013-01-24-cart-life-theonly-thing-that-changed-was-me.> [Accessed 6 March 2022]

52. Don't Starve Together. 2016. [Game] Klei Entertainment. Canada.

53. Doom. 1993. [Game]. GT Interactive Software Corp: New York.

54. Dovemark, M., Kosunen, S., Kauko, J., Magnúsdóttir, B., Hansen, P. and Rasmussen, P., 2018. *Deregulation, privatisation and marketisation of Nordic comprehensive education: social changes reflected in schooling*. Available at: <https://www.researchgate.net/publication 329732520_Deregulation_privatisation_and_marketisation_of_Nordic_comprehensive_education_social_changes_reflected_in_schooling> [Accessed 12 July 2021].

55. Dumbrill, G. C. 2003. *Child welfare: AOP's nemesis*? In W. Shera (Ed.), Emerging perspectives on anti-oppressive practice (pp. 101-119). Toronto, ON: Canadian Scholars' Press.

56. Dunne, D. 2019. *Brechtian Alienation in Videogames*. Available at: https://press-start.gla.ac.uk/index.php/press-start/article/view/8 [Accessed 27 Feb. 2019].

57. Dyer-Witheford, N. and de Peuter, G. 2005. *A Playful Multitude? Mobilising and Counter-Mobilising Immaterial Game Labour* . Available from: http://five.fibreculturejournal.org/fcj-024-a-playful-multitude-mobilising-and-counter-mobilising-immaterial-game-labour. [Accessed 5 August 2020]

58. Dyer-Witheford, N., & de Peuter, G. (2009). *Games of empire: Global capitalism and video games*. Minneapolis, MN: University of Minnesota Press

59. Edge, 2018. *Disco Elysium*. Available from: <https://www.pressreader.com/australia/edge/20180426/281509341779466> [Accessed 19 July 2020].

60. Ekman, I. 2008. *Psychologically motivated techniques for emotional sound in computer games*. Available at: <https://www.researchgate.net/publication/233406205_Psychologically_motivated_techniques_for_emotional_sound_in_computer_games> [Accessed 10 February 2022].

61. Electrocity 2007. [Game] Genesis Energy NZ. New Zealand.

62. El-Nasr, M., Aghabeigi, B., Milam, D., Erfani, M., Lameman, B., Maygoli, H., Mah, S. 2010. U*nderstanding and Evaluating Cooperative Games* In: Proc. 2010 ACM SIGCHI Conference on Human Factors in Computing Systems (CHI), pp. 253–262. ACM Press

63. Elude. 2010. [Game]. Gambit. Cambridge

64. Emerald, N. 2004. C*onsumerism, Nature, and the Human Spirit*. Masters. Virginia Polytechnic Institute and State University.

65. eQuoo. 2019 [Game] PsycApps. UK.

66. Escape from Woomera. 2004. [Game]. Applespiel. Australia.

67. Everett, A., Harrell, D., Jenson, J. and Murray, S. 2015. *The Visual Politics of Play: On the Signifying Practices of Digital Games.* Available at: http://ISEA2015_submission_261.pdf [Accessed 18 Apr. 2021]

68. Faber, T. 2020. *Gamers get virtual access to high fashion and accessories*. Available at: <https://www.ft.com/content 59cb4152-1bf9-11ea-81f0-0c253907d3e0> [Accessed 21 August 2020].

69. Farber, M. Schrier, K. 2017. *The limits and strengths of digital games as empathy machines* (working paper No. 5). MGIEP working paper (pp. 1-35). New Delhi: Mahatma Gandhi Institute of Education. Available from: https://www.researchgate.net/publication/322714771_The_Limits_and_Strengths_of_Using_Digital_Games_as_Empathy_Machines. [Accessed January 12, 2021]

70. Farca, G. 2014. *Agency and personal responsibility in the Walking dead.* Available at: < http://www.videogamenarrative.com/agency-personal-responsibility-telltales-walking-dead/> [Accessed 8 January 2021]

71. Fisher, A., 2021. This article is more than 1 year old The NHS is being privatised by stealth under the cover of a pandemic. *The Guardian*, [online] Available at: <https://www.theguardian.com/commentisfree/2021/may/03/government-pandemic-privatise-nhs-by-stealth> [Accessed 23 June 2022].

72. Flanagan, M., & Nissenbaum, H. (2007). *A Game Design Methodology to Incorporate Social Activist Themes.* In Association for Computing Machinery (ACM) (Ed.), Proceedings of the 2007 Conference on Human Factors in Computing Systems, pp. 181-190. New York: ACM Press.

73. Forsey, M. 2010. *Ethnography as participant listening*. Ethnography, 11(4), pp.558-572.

74. Fortnite. 2017. [Game]. Epic Games. USA.

75. Foster, V. 2016. *Collaborative Arts-based Research for Social Justice* Kindle Edition. Taylor and Francis.

76. Fredrickson, B., Cohn, M., Coffey, K., Pek, J. and Finkel, S. 2008. *Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources*. Journal of Personality and Social Psychology, 95(5), pp.1045-1062.

77. Friday Night Funkin'. 2020 [Game]. Newgrounds Inc. USA.

78. Friedman, S. 1987. T*he Struggle Within the Struggle: South African Resistance Strategies. Transformation* . Available at: <http://transformationjournal.org.za/wp-content/uploads/2017/02/407-360-1-PB.pdf> [Accessed 12 February 2022].

79. GAME. 2020. *Gamers Have Spent 10.4 Million Years Playing Fortnite* Available from : https://www.forbes.com/sites/simonchandler/2020/09/15/gamers-have-spent-104-million-years-playing-fortnite/?sh=7473d242341f [Accessed 8 January 2022].

80. Gavin, J. 2017. A*n absurd re-ordering of game design through the possibilities of the database*. The Journal of Creative Technologies, (6).

81. Gee, J.P. 2009. *Good video games and good learning*. Phi Kappa Phi Forum, 85(2), 33-37.

82. Genshin Impact. 2020 [Game} miHoYo, COGNOSPHERE PTE. LTD. China

83. George, S. 1999. *A Short History of Neoliberalism.* Presented at the Conference on Economic Sovereignty in a Globalising World, Bangkok, 24-26 March 1999. Available at: https://www.tni.org/en/article/short-history-neoliberalism. [Accessed 7 March 2021].

84. Gill, R. and Pratt, A.C. 2008. *In the social factory? Immaterial labour, precariousness and cultural work*. Theory, Culture & Society, 25(7-8), pp. 1-30. doi: 10.1177/0263276408097794

85. Gilliam, M., Jagoda, P., Jones, I., Rowley, J. and Hill, B. 2018. *Embedded Game Design as a Method for Addressing Social Determinants of Health*. American Journal of Sexuality Education, 13(3), pp.378-398.

86. Girerd, L., Verniers, C. and Bonnot, V. 2021. *Neoliberal Ideology in France: A Qualitative Inquiry.* Frontiers in Psychology, 12.

87. Giroux, HA. 2005. *The Terror of Neoliberalism: rethinking the significance of cultural politics* . Available at https://go.gale.com/ps/anonymous id=GALE%7CA128705116&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn =00933139&p=LitRC&sw=w [Accessed 2 June 2021].

88. Giroux, HA. 2019. *Neoliberalism Paved the Way for Authoritarian Right-Wing Populism Available* from: https://truthout.org/articles/neoliberalism-paved-the-way-for-authoritarian-right-wing-populism/[Accessed 5 July 2021]

89. God of War II. 2007. [Game] Sony Computer Entertainment. USA

90. Goins, E. 2018. *Structuring digital storytelling in Interactive Storytelling.* 11th International Conference on Interactive Digital Storytelling, ICIDS 2018, Dublin, Ireland, December 5–8, 2018, Proceedings

91. Goins, E. 2019. *Towards a Language of Video Games, Part I: Creating Meaning with Game Mechanics*. Available at: https://www.gamasutra.com/blogs/ElizabethGoins/20190930/351322/ Accessed 15 April 2021.

92. Goslin, A. 2019. *The Kaguya-sama: Love is War manga survived one of the series' most pivotal moments*. [online] Polygon. Available at:

<https://www.polygon.com/comics/2019/2/4/18210433/kaguya-sama-love-is-war-manga> [Accessed 6 March 2022].

93. Gouveia, P. 2019. *Play and Games for a Resistance Culture*. In Playmode exhibition publication,MAAT / Fundação EDP, Lisboa, 2019, pp. 8-27

94. Gov.ZA. 2022. *South Africa's Provinces*. Available at: <https://www.gov.za/about-sa/south-africas-provinces> [Accessed 15 February 2022].

95. Grand Theft Auto San Andreas. 2004. [Game] Rockstar North. USA

96. Gray, K. and Leonard, D. 2018. *Woke Gaming : Digital Challenges to Oppression and Social Injustice* https://searchworks.stanford.edu/articles/e000bna__1918485. Accessed 12 April 2021.

97. Greene, J. C. 2007. *Mixed methods in social inquiry*. San Francisco. Jossey-Bass.

98. Gross, J. 2002. *Emotion Regulation: Affective, Cognitive, and Social Consequences*. Psychophysiology. 39. 281-91. 10.1017/S0048577201393198.

99. Grzanka, P., Miles, J., Spengler, E., Arnett, J. and Pruett, J. 2020. *Measuring Neoliberalism: Development and Initial Validation of a Scale of Anti-Neoliberal Attitudes.* Social Justice Research. 33. 10.1007/s11211-019-00339-3.

100. Habitica. 2013. [Game]. HabitRPG, Inc.

101. Half-Life. 1998. [Game] Valve Corporation

102. Hall, C. 2021. *Workers at Paizo unionize, a first for the tabletop role-playing game industry.* [online] Polygon. Available at: <https://www.polygon.com/tabletop-games/22726765/paizo-workers-form-union-demands-cwa-pathfinder-starfinder> [Accessed 16 February 2022].

103. Hall, S. 1997. *Representation: Cultural Representations and Signifying Practices*. London: Sage.

104. Hall, S. 2006. *The Origins of Cultural Studies*. Available at: https://www.mediaed.org/transcripts/Stuart-Hall-the-Origins-of-Cultural-Studies-Transcript.pdf. Accessed 10 January 2021.

105. Hamilton, D. 2019. *Neoliberalism And Race.* Available at: <https://democracyjournal.org/magazine/53/neoliberalism-and-race/> [Accessed 24 August 2020].

106. Harvey, D. 2005. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.

107. Haven, K. 2007. *Story Proof: The Science Behind the Startling Power of Story.* Westport, CT: Libraries Unlimited.

108. Haven, K. n.d. *Applying the Science of Story to the Art of Communication*. Available at: <https://www.kendallhaven.com/> [Accessed 12 July 2021].

109. Hawkley, L. and Cacioppo, J. 2010. *Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms*. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3874845/> [Accessed 12 July 2021].

110. Henderson, R., 2019. *What is the NHS? An introduction to the National Health Service*. [online] Netdoctor. Available at: <https://www.netdoctor.co.uk/health-services/nhs/a4489/what-is-the-nhs/> [Accessed 23 June 2022].

111. Heroes of the Storm. 2015. [Game] Blizzard entertainment. US.

112. Hocking, C. 2013. *Techniques For Developing Dynamic Narratives*. Available at: <https://www.clicknothing.com/> [Accessed 12 January 2021].

113. Hoffman, N. 2020. *Spain did it, so why can't South Africa nationalise healthcare to save lives?*. Available: https://mg.co.za/article/2020-04-12-spain-did-it-so-why-cantsouth-africa-nationalise-healthcare-to-save-lives/ [Accessed 2 September 2020]

114. Houghton, E. 2019. *Becoming a neoliberal subject*. Ephemera; Leicester Vol. 19, Iss. 3, (Aug 2019): 615-626.

115. Huizinga, J. 1938. *Homo Ludens*: *A Study of the Play Element in Culture*. Beacon Press, Boston.

116. Hundal, S. 2017. *Games for Social Good*. [online] Medium. Available at: <https://medium.com/babble-on/games-for-social-good-7e8e122aa102> [Accessed 6 March 2022].

117. Hunsinger, M., Livingston, R., and Isbell, L. 2014. *Spirituality and intergroup harmony: Meditation and racial prejudice. Mindfulness, 5*(2), 139–144. https://doi.org/10.1007/s12671-012-0159-5

118. Hutcherson, C. A., Seppala, E. M., and Gross, J. J. (2008). *Loving-kindness meditation increases social connectedness. Emotion, 8*(5), 720–724. https://doi.org/10.1037/a0013237

119. Hyers, L. 2018. *Diary methods understanding qualitative research methods.* Oxford university press

120. Illusion. 2006. Rapelay.

121. Ingress. 2012. [Game]. Niantic. USA

122. Irwin, D. and Ward, O. 2022. *What is the "Washington Consensus?"* Available at <https://www.piie.com/blogs/realtime-economic-issues-watch/what-washington-consensus> [Accessed 16 February 2022].

123. Isbister, K. 2016. *How Games Move Us.* Cambridge: MIT Press.

124. Jagoda, P. 2020. *Playing Through a Serious Crisis: On the Neoliberal Art of Video Games.* Available at: <https://post45.org/2020/08/playing-through-a-serious-crisis-on-the-neoliberal-art-of-video-games/> [Accessed 16 February 2022].

125. James, D. 2020. *Annual environmental impact of gaming is equivalent to 5 million cars in the US alone*. Available at:

<https://www.pcgamesn.com/microsoft/gaming-environmental-impact> [Accessed 16 February 2022].

126. Jenkins, H. 2005. *Game design as narrative architecture*. Available at: http://homes.lmc.gatech.edu/~bogost/courses/spring07/lcc3710/readings/jenkins_game-design.pdf [Accessed 28 Apr. 2019].

127. Jet Set Radio Future. 2002. [Game] Smilebit,

128. Jones, B. 2016. *Free To Play/Pay To Win: Consuming Competition Through Onlinegaming In The Neoliberal Age*. Available at: <https://scholarworks.bgsu.edu/cgi/viewcontent.cgi?article=1301&context=honorsprojects> [Accessed 21 August 2020].

129. Jones, A. 2019. H*ow The Gig Economy Is Killing Millennial*. Available: https://www.magzter.com/stories/Womens-Interest/Cosmopolitan-South-Africa/How-The-Gig-Economy-Is-Killing-Millennials. [Accessed 7 Apr. 2020]

130. Jong, C. 2016. *Demystifying Activism – A 101 Guide To Getting Involved.* [online] One More Castle. Available at: <https://onemorecastle.wordpress.com/2016/11/14/demystifying-activism-a-101-guide-to-getting-involved/> [Accessed 15 January 2021].

131. Jong, C. 2020. *Bringing Politics Into It: Organizing at the Intersection of Videogames and Academia.* Available: https://spectrum.library.concordia.ca/986682/. [Accessed 7 January 2021].

132. Journey. 2012. Playstation [Game]. Annapurna Interactive: Los Angeles.

133. Juul, J. 2009. *The Magic Circle and the Puzzle Piece.* Available at: <https://www.jesperjuul.net/text/magiccirclepuzzlepiece.pdf> [Accessed 11 February 2022].

134. Kalleberg AL and Vallas SP (ed). 2018. *Precarious Work: Causes, Characteristics, and Consequences*. Bingle. UK.

135. Kassner, M., Wesselmann, E., Law, A. and Williams, K. 2012. V*irtually Ostracized: Studying Ostracism in Immersive Virtual Environments*. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3422048/> [Accessed 12 February 2022].

136. Kaufman, G., Flanagan, M. and Seidman, M. 2016. Creating Stealth Game Interventions For Attitude And Behavior Change: An "Embedded Design" Model. Available at: <https://www.researchgate.net/publication/319995249_Creating_Stealth_Game_Interventions_for_Attitude_and_Behavior_Change_An_Embedded_Design_Model> [Accessed 15 October 2020].

137. Kavenna, J. 2019. *Shoshana Zuboff*: *Surveillance capitalism is an assault on human autonomy*. Available from https://www.theguardian.com/books/2019/oct/04/shoshana-zuboff-surveillance-capitalism-assault-human-automomy-digital-privacy. [Accessed on 04 July 2021]

138. Kerpitsopoulou, A. 2016. *Gaming to change the world? Serious Games and the refugee crisis* https://www.academia.edu/38569348 Gaming_to_Change_the_World. [Accessed 17 October 2020]

139. Keys, D. 1982. *Earth at Omega: Passage to Planetization*. Boston: Branden Books.

140. Khaled, R., Barr, P., Fischer, R., Noble, J. and Biddle, R. 2006. *Factoring culture into the design of a persuasive game.* Proceedings of the 20th conference of the computer-human interaction special interest group (CHISIG) of Australia on Computer-human interaction: design: activities, artefacts and environments. Available at: <https://www.researchgate.net/profile/Pippin-Barr-2/publication/221332186_Factoring_culture_into_the_design_of_a_persuasive_ga

me/links/02bfe50e5449bd8f5f000000/Factoring-culture-into-the-design-of-a-persuasive-game.pdf > [Accessed 12 July 2021].

141. Kidd, J. 2015. *Gaming for Affect: Museum Online Games and the Embrace of Empathy.* Journal of Curatorial Studies, [online] 4(3), pp.414-432. Available at: <https://orca.cardiff.ac.uk/76995/1/Gaming%20for%20Affect_KIDD.pdf> [Accessed 15 February 2022].

142. Kindynis, T. 2017. *Bomb alert graffiti writing and Urban Space in London*. Available from :https://academic.oup.com/bjc/article/58/3/511/4056547 [Accessed 21April 2021]

143. Kistner, U. 2007. *The business of academe*. Available from https://mg.co.za/article/2007-01-29-the-business-of-academe/ [Accessed 18 March 2021]

144. Klein, M. 2012. *Enabling large-scale deliberation using attention-mediation metrics*. Computer Supported Cooperative Work, 21, 449–473.

145. Klimecki, O. M. 2019. T*he role of empathy and compassion in conflict resolution*. Emotion Review, Volume 11(4), 310-325.

146. Klimecki, O., Leiberg, S., Ricard, M. and Singer, T. 2013. *Differential Pattern Of Functional Brain Plasticity After Compassion And Empathy Training* Available at: <https://www.researchgate.net/publication/236193383_Differential_Pattern_of_Functional_Brain_Plasticity_after_Compassion_and_Empathy_Training> [Accessed 26 January 2021].

147. Kline, S. Dyer-Witheford, N. & de Peuter, G. 2003. *Digital play: The interaction of technology, culture, and marketing*. Kingston: McGill - Queens University Press.

148. Kloch, Z. 2012. *Language and Social Change. Public Communication, Nation, and Identity.* Psychology of Language and Communication. Available at:

<https://sciendo.com/article/10.2478/v10057-012-0017-5> [Accessed 10 February 2022].

149. Knowlton, A. 2009. *Darfur Is Dying: A Narrative Analysis*. Available at: <https://www.academia.edu/1334277/Darfur_is_Dying_A_Narrative_Analysis> [Accessed 13 November 2020].

150. Knox, K. 2015. *Mixed Methods Research a bridge between the Qualitative and Quantitative Dilemma in* Creswell, J. W. (2014). Research design. 4th ed. Thousand Oaks, CA: Sage.

151. Koksal, I. 2019. *Video Gaming Industry & Its Revenue Shift*. Available at: <https://www.forbes.com/sites/ilkerkoksal/2019/11/08/video-gaming-industry--its-revenue-shift/ #5a081b30663e> [Accessed 19 July 2020].

152. Kral, T.R.A., Stodola, D.E. and Birn, R.M. 2018. *Neural correlates of video game empathy training in adolescents: a randomized trial* . Available from : https://doi.org/10.1038/s41539-018-0029-6. [Accessed 19 April 2021].

153. Krull, G. and De Klerk, D. 2021. *Online teaching and learning: Towards a realistic view of the future* . Available at: <https://www.wits.ac.za/covid19/covid19-news/latest/online-teaching-and-learning-towards-a-realistic-view-of-the-future.html> [Accessed 16 February 2022].

154. Le Guin, U. 2014. *Speech in Acceptance of the National Book Foundation Medal for Distinguished Contribution to American Letters.* Available : https://www.ursulakleguin.com/nbf-medal [Accessed 28 April 2021]

155. League of Legends. 2009 [Game] Riot Games. USA

156. Leary, P. 2018. *Keywords, the new language of capitalism* . Available https://www.scribd.com/read/446836543/Keywords-The-New-Language-of-Capitalism. Accessed 5 July 2021

157. Leavy, P. 2013. Fiction as research practice: Short stories, novellas, and novels. Walnut Creek,CA

158. Leavy, P. 2017. *Introduction to arts-based research.* Available: https://www.guilford.com/excerpts/leavy3.pdf?t [Accessed 28 January 2021]

159. Lefebvre, H. 1974. T*he production of space*. Blackwell. Oxford.

160. Left4Dead. 2008. [Game] Valve Corporation. USA

161. *Lego Star Wars.* 2005. [Game] Sony Interactive Entertainment Europe

162. Leiberg S, Klimecki O, Singer T. 2011. *Short-Term Compassion Training Increases Prosocial Behavior* in a Newly Developed Prosocial Game. PLoS ONE 6(3): e17798. https://doi.org/10.1371/journal.pone.0017798

163. Leong, F. T. 2008. *Positive psychology*. In Encyclopedia of counseling (Vol. 1, pp. 782-784). SAGE Publications

164. Liao, C. 2017. *Interactive Fictional Dialogue Games as Arts-Based Research.* Visual Arts Research , Vol. 43, No. 1 (Summer 2017), pp. 36-42. University of Illinois Press

165. Lidwell, W., Holden, K., & Butler, J. 2003. U*niversal principles of design*. Gloucester, Mass: Rockport.

166. Lindner, A. 2010. *Empire of the games.* Available from https://journals.sagepub.com/doi/pdf/10.1525/ctx.2010.9.4.77. Accessed 28 January 2022]

167. Little Big Planet. 2008. [Game] Sony Interactive Entertainment Europe

168. Martin, F. and Bolliger, D., 2018. *Engagement Matters: Student Perceptions on the Importance of Engagement Strategies in the Online Learning Environment*. Online Available at: <https://eric.ed.gov/?id=EJ1179659> [Accessed 14 February 2022].

169. MasterClass. 2021. *8 Popular Book Genres: A Guide to Popular Literary Genres.* [online] Available at: <https://www.masterclass.com/articles/a-guide-to-popular-literary-genres#8-popular-literary-genres> [Accessed 23 June 2022].

170. Maturo, A., Mori, L. and Moretti, V., 2016. An Ambiguous Health Education: The Quantified Self and the Medicalization of the Mental Sphere. *Italian Journal of Sociology of Education*, [online] 8(3), pp.248-268. Available at: <https://www.researchgate.net/publication/311583814_An_Ambiguous_Health_Education_The_Quantified_Self_and_the_Medicalization_of_the_Mental_Sphere> [Accessed 23 June 2022].

171. McCarter, R. 2019. *The World Is A Tough Place, But We All Live In It*. Available at: <https://bulletpointsmonthly.com/2019/11/06/the-world-is-a-tough-place-but-we-all-live-in-it [Accessed 28 January 2021]

172. McGonigal, J. 2011. *Reality is broken.* New York: Penguin Press.

173. McKinley, D. 2021. *Vaccine nationalism and profiteering: How capitalism has captured a pandemic*. Available at: <https://www.dailymaverick.co.za/opinionista/2021-02-14-vaccine-nationalism-and-profiteering-how-capitalism-has-captured-a-pandemic/> [Accessed 7 March 2021].

174. McRobbie, A. 2016. *Re-Thinking Creative Economy as Radical Social Enterprise.* [ebook] Available at: http://www.variant.org.uk/pdfs/issue41/amcrobbie41.pdf [Accessed 10 Oct. 2019].

175. Mertens, D. M., Bazeley, P., Bowleg, L., Fielding, N., Maxwell, J., Molina-Azorin, J. F., Niglas, K. 2016. T*he future of mixed methods: A five year projection to 2020.* Available from https://mmira.wildapricot.org/resources/Documents/MMIRA%20task%20force%20report%20Jan2016%20final.pdf [Accessed 16 February 2022].

176. Mertens, D. 2007. *Transformative Paradigm: Mixed Methods and Social Justice*. Journal of Mixed Methods Research. 1. 212-225. 10.1177/1558689807302811.

177. Mertens, D. 2012. T*ransformative Mixed Methods*. American Behavioral Scientist, 56(6), pp.802-813.

178. Mission US. 2008. [Game]. ThirteenWNET. USA

179. Monbiot, G. 2016. *Neoliberalism—The ideology at the root of all our problems.*. [online] Available at: <https://www.theguardian.com/books/2016/apr/15/neoliberalism-ideologyproblem-george-monbiot.> [Accessed 6 March 2022].

180. Monbiot, G. 2017. *Out of the Wreckage*. A New Politics for an Age of Crisis.Verso.

181. Monbiot, G. 2019. *Quantomania*. Available at: <https://www.monbiot.com/2019/04/13/quantomania/> [Accessed 11 March 2022].

182. Monbiot, G. 2020. *The Roots of Fascism.* Available at: https://www.monbiot.com/2020/02/11/the-roots-of-fascism/[Accessed 6 August 2020].

183. Monbiot, G. 2021. *Why George Monbiot is fighting to build a 'politics of belonging' to better our world | CBC Radio*. [online] CBC. Available at: <https://www.cbc.ca/radio/ideas/why-george-monbiot-is-fighting-to-build-a-politics-of-belonging-to-better-our-world-1.5720535> [Accessed 11 March 2022].

184. Morrison, B. 2013. *Meaningful Choice in Games: Practical Guide & Case Studies*. Available at https://www.gamasutra.com/blogs/BriceMorrison/20131119/204733 Meaningful_Choice_in_Games_Practical_Guide__Case_Studies.php. [Accessed 6 March 2022]

185. Mould, O. 2018. *Against Creativity*. Verso.

186. Murphy, D. 2016. *Struggling with stimulations. Decoding neoliberal politics.* Masters of arts. Ryerson University, Canada.

187. Murray, J. 1997. *Hamlet on the Holodeck.*. Free Press, New York

188. Murray, S. (Ed.). 2018. *On Video Games: The Visual Politics of Race, Gender and Space.* Available from https://www.bloomsburycollections.com/book/on-video-games-the-visual-politics-of-race-gender-and-space/introduction-is-the-culture-in-game-culture-the-culture-of-cultural-studies.[Accessed August 30, 2020]

189. Mushtaq, R., Shoib, S., Shah, T. and Mushtaq, S. 2014. *Relationship Between Loneliness, Psychiatric Disorders and Physical Health ? A Review on the Psychological Aspects of Loneliness.* Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4225959/> [Accessed 15 February 2022].

190. Myers, B. 2019. Gaming For Life: Gaming Practices, Self-Care, And Thriving Under Neoliberalism.. Available at: <https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=2759&context=dissertations_2> [Accessed 26 January 2021].

191. National Library. n.d. *Genres and forms for young adult and young fiction*. [online] Available at: <https://natlib.govt.nz/schools/reading-engagement/childrens-and-youth-literature/genres-and-forms-for-young-adult-and-young-fiction> [Accessed 23 June 2022].

192. Navarro-Remesal, V. 2016. *Regarding the (game) pain of others: suffering and compassion in videogames*. [ebook] Madrid. Available at: <https://www.academia.edu/20779959/Regarding_the_game_pain_of_others_Suffering_and_compassion_in_videogames> [Accessed 12 July 2021].

193. Neill, W. 2020. *Can Gaming Act as Meditation?*. [online] The Oxford Student. Available at: <https://www.oxfordstudent.com/2020/11/07/can-gaming-act-as-meditation/> [Accessed 12 July 2021].

194. Neocab. 2019. [Game]. Fellow Traveller. Australia.

195. New Economic Thinking, 2016. *Wendy Brown on the Future*. [video] Available at: <https://www.youtube.com/watch?v=kejmWQkK8Yw&t=4s&ab_channel=NewEconomicThinking> [Accessed 11 March 2022].

196. Nicholls, B. and Ryan, S. (2003). *Game, Space and the Politics of Cyberplay*. Available at: https://www.academia.edu/715260/Game_Space_and_the_Politics_of_Cyberplay [Accessed 7 Apr. 2019].

197. Nussbaum, M. 2008. *Collaborative discourse, argumentation, and learning* Contemporary Educational Psychology. 33. 345-359. 10.1016/j.cedpsych.2008.06.001.

198. Owen, H. 2016. *Better Games From Diaries And Data.* Available at: <https://www.gamasutra.com/blogs/HarveyOwen/20160314/267893/Better_Games_from_Diaries_and_Data.php> [Accessed 25 January 2021].

199. Oxfam. 2020. *5 shocking facts about extreme global inequality and how to even it up* . Oxfam International. Oxfam International. Available from: https://www.oxfam.org/en/5-shocking-facts-about-extreme-global-inequality-and-how-even-it.

200. Papa & Yo. 2012. [Game]. Minority Media Inc.: Montréal.

201. Papers, Please. 2013. [Game]. 3909 LLC: Tokyo

202. Pedercini, P. 2014. *Making Games In A Fucked Up World* . Available at: <https://www.molleindustria.org/blog/making-games-in-a-fucked-up-world-games-for-change-2014/> [Accessed 30 January 2021].

203. Pikmin. 2001. [Game] Nintendo, Niantic. USA

204. Podleschny, N. 2012. *Games for change and transformative learning : an ethnographic case study.* PhD thesis, Queensland University Available https://eprints.qut.edu.au/58142/. [Accessed 9 January 2021].

205. Pokémon Go. 2016. [Game] Niantic. USA

206. Polzer, M., Hlavacs, H. 2017. *Designing Game-Based Interventions for Subverting Normative Attitudes*. 16th International Conference on Entertainment Computing (ICEC). Available at: <https://hal.archives-ouvertes.fr/hal-01771301/> [Accessed 7 March 2021]

207. Pope Francis. 2015. Encyclical Letter Laudato Si' of the Holy Father Francis on *Care for our Common Home*. Vatican Press. Available at: <https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html> [Accessed 11 March 2022].

208. Racho, M. 2017. *Assessing The Cultural Effects Of Neoliberalism On Empathy*. Available at: <https://digscholarship.unco.edu/cgi/viewcontent.cgi?article=1426&context=dissertations> [Accessed 26 June 2020].

209. Roedl, K. 2020. *Speculations On Solidarity: Speculations On Solidarity: From Fordism To The Gig Economy.* Available at: <https://digitalcommons.macalester.edu/cgi/viewcontent.cgi?article=1173&context=tapestries> [Accessed 20 July 2020].

210. Roy, A. 2002. *Globalization is ripping through people's lives.* Available from https://socialistworker.org/2002-2/423/423_06_Roy.php.

211. Roy, A. 2004. *Help that hinders.* Available at: <https://mondediplo.com/2004/11/16roy> [Accessed 11 March 2022].

212. Roy, A. 2014. *Capitalism: A Ghost Story.* Haymarket Books USA.

213. Roy, A. 2017. *We must globalise dissent - Toward freedom.* Available at: https://towardfreedom.org/global-news-and-analysis-global-news-and-analysis/arundhati-roy-mustglobalize-dissent/ [Accessed 27 August 2020].

214. Rueckert, P., 2019. *10 Barriers to Education That Children Living in Poverty Face*. [online] Global Citizen. Available at: <https://www.globalcitizen.org/en/content/10-barriers-to-education-around-the-world-2/> [Accessed 23 June 2022].

215. Rusch, D. and Phelps, A. 2020. Existential Transformational Game Design: Harnessing the "Psychomagic" of Symbolic Enactment. Frontiers in Psychology, [online] 11. Available at: <https://www.researchgate.net/publication/345813371_Existential_Transformational_Game_Design_Harnessing_the_Psychomagic_of_Symbolic_Enactment> [Accessed 11 March 2022].

216. Rusch, D. 2017. *Making Deep Games*. Taylor & Francis Group.

217. Russell, F. 2018. *I'm not playing: gamification, mental illness, and neoliberal subjectivity,* Journal for Cultural Research, 22:4, 396-411, DOI: 10.1080/14797585.2019.1631997

218. SAGE Publications. 2019. *Learn to Use an Exploratory Sequential Mixed Method Design for Instrument Development*. Available at: <https://methods.sagepub.com/base/download/DatasetStudentGuide/exploratory-sequential-mixed-method-instrument-development-united-states> [Accessed 6 March 2022].

219. Sarian, A. 2019. *Ethical Self-Reflection in Papers, Please*. Cultural Science Journal, 11(1), pp. 41–53. DOI: https://doi.org/10.5334/csci.122

220. Schlicht-Schmälzle, R., Teltemann, J. and Windzio, M. 2011. *Deregulation of education: What does it mean for efficiency and equality?,* TranState Working

Papers 157, University of Bremen, Collaborative Research Center 597: Transformations of the State. Available online:https://www.tandfonline.com/doi/pdf/10.1080/20004508.2018.1429768?needAccess=true. [Accessed 4 July 2021]

221. Schoenau-Fog, H. 2011 *The Player Engagement Process – An Exploration of Continuation Desire in Digital Games.* In: Think Design Play: Digital Games Research Conference, Utrecht School of the Arts & DiGRA, Utrecht, Netherlands. Available at:https://www.semanticscholar.org/paper/The-Player-Engagement-Process-An-Exploration-of-in-Schoenau-Fog/66d0200acd3b0905dd2e3117171d218ee8ab379c [Accessed 6 January 2021].

222. Schrier, K. and Gibson, D. 2011. *Designing Games For Ethics : Models, Techniques And Frameworks*. Available at: <https://www.researchgate.net/publication/262250136_Designing_Games_for_Ethics_Models_Techniques_and_Frameworks> [Accessed 26 January 2021].

223. Shapiro, J. 2018. *Digital play for global citizens.* Available at: <https://joanganzcooneycenter.org/wp-content/uploads/2018/03/jgcc_digitalplayforglobalcitizens.pdf> [Accessed 20 July 2021].

224. Short, E. 2009. *Types of Action and Types of Agency.* Available at: <https://emshort.blog/2009/03/03/types-of-action-and-types-of-agency/> [Accessed 14 February 2022].

225. Short, T. 2017. *Six Ways Games Can Teach Resistance.* Available at: <https://www.vice.com/en/article/padzjn/6-ways-games-can-teach-resistance> [Accessed 12 February 2022].

226. Silent Hill 2. 2001. Playstation [Game]. Konami: Tokyo.

227. Simon, B. and Whitson, J. 2014. *Game Studies Meets Surveillance Studies At The Edge Of Digital Culture: An Introduction To A Special Issue On Surveillance, Games And Play* Available at: <https://www.researchgate.net/publication/287018279_Game_Studies_meets_Surveillance_Studies_at_the_Edge_of_Digital_Culture_An_Introduction_to_a_special_issue_on_Surveillance_Games_and_Play> [Accessed 21 August 2020].

228. Smith, MN. 2018. *Parastatals: Privatisation won't solve the crisis*. Available from https://mg.co.za/article/2018-02-28-00-parastatals-privatisation-wont-solve-the-crisis/ Accessed 4 July 2021

229. Snyder, B., 2005. *Save the Cat!.* Studio City, CA: M. Wiese Productions.

230. Solon, O. 2018. *Amazon patents wristband that tracks warehouse workers' movements*. Available at: <https://www.theguardian.com/technology/2018/jan/31/amazon-warehouse-wristband-tracking> [Accessed 11 March 2022].

231. Spaull, N. 2013. Poverty & Privilege: Primary School Inequality in South Africa. International Journal of Educational Development, 33(5), 436-447.

232. SPENT. 2011. [Game]. McKinney: Durham

233. Spirits of Spring 2014. [Game] Minority Media Inc. and Larva Game Studios. USA.

234. Spyro Dawn of the Dragon. 2008 [Game] 2008 Activision. USA.

235. Stockburger, A. 2006. *THE RENDERED ARENA -MODALITIES OF SPACE IN VIDEO AND COMPUTER GAMES.* Available at: http://www.stockburger.at/files/2010/04/Stockburger_Phd.pdf [Accessed 28 Apr. 2019]

236. Sullivan, L. 2020. *TRADE AND COVID-19: PRIVATISATION, BIG PHARMA AND ISDS.* Available at: https://waronwant.org/media/trade-and-covid-19-privatisation-big-pharma-and-isds. [Accessed 20 August 2020].

237. Team Fortress 2. 2007. [Game] Valve Corporation, Buka Entertainment, Electronic Arts. USA.

238. Terranova, T. 2000, *Free Labor: Producing Culture for the Digital Economy* Available :https://web.mit.edu/schock/www/docs/18.2terranova.pdf [Accessed 5 July 2021]

239. *That Dragon, Cancer*. 2016. Numinous Games

240. The McDonald's Videogame. 2005. [Game]. Molleindustria. USA.

241. The Sims. 2000. [Game]. Electronic Arts. California.

242. The Stock Market Game. 1977. [Game] SIFMA Foundation.USA

243. The Walking Dead. 2012. PC[Game]. Telltale Games: San Rafael.

244. Thomas, F. and Johnston, O. 1995. T*he illusion of life*. New York: Disney Editions.4

245. Truby, J. 2008. *The Anatomy of Story: 22 Steps to Becoming a Master Storyteller.* New York

246. Undertale. 2015. PC[Game]. Toby Fox.

247. Vargas, J. 2006. *'Darfur Is Dying,' The Game That's Anything But.* Available at: <https://www.washingtonpost.com/archive/lifestyle/2006/05/01/in-darfur-is-dying-the-game-thats-anything-but/b5be1cb0-37f9-4381-8f89-cf972a4a4864/> [Accessed 14 February 2022].

248. Walker-Emig, P. 2019. *How Disco Elysium Captures Our Current Political Moment* | Gamesradar. Available at: <https://www.gamesradar.com/how- disco- elysium-captures-our-current-political-moment/> [Accessed 20 July 2020]

249. Wallick, J. 2014. *Non-Diversity: Gerudo Valley in the Legend of Zelda*. Available at: <https://girlsincapes.com/2014/02/19/non-diversity-gerudo-valley-in-the-legend-of-zelda/> [Accessed 10 February 2022].

250. Wilkie, R. 2003. *Video games and the deskilling of labour*. from http://www.redcritique.org/FallWinter2003 videogamesandthedeskillingoflabor.htm [Accessed 28 August 2020]

251. Wilkinson, R. and Pickett, K. 2009 . *Income Inequality and Social Dysfunction*. Annual Review of Sociology, 35, pp. 493–511

252. Wong, A. 2017. *Work In The Creative Economy: Living Contradictions Between the Market and Creative Collaboration*. Available at: https://www.researchgate.net/publication/318026048_Work_In_The_Creative_Economy_Living_Contradictions_Between_the_Market_and_Creative_Collaboration [Accessed 10 Oct. 2019].

253. World Without Oil. 2007. [Game]. Electric Shadows . USA

254. Wulansari, O., Pirker, J., Kopf, J. and Guetl, C. 2020. *Video Games and Their Correlation to Empathy.* Available at: <https://www.researchgate.net/publication 339995588_Video_Games_and_Their_Correlation_to_Empathy_How_to_Teach_and_Experience_Empathic_Emotion> [Accessed 15 February 2022].

255. Zhu, L. 2020. T*he psychology behind video games during COVID-19 pandemic: A case study of Animal Crossing:.* Available at: <https://onlinelibrary.wiley.com/doi/10.1002/hbe2.221> [Accessed 12 July 2021].

256. Zieleniec, A. 2016. T*he right to write the city: Lefebvre and graffiti. Journals.openedition.org*. Available at: https://journals.openedition.org/eue/1421 [Accessed 28 Apr. 2019].

257. Zieleniec, A. 2018. *Lefebvre's Politics of Space: Planning the Urban as Oeuvre.* Available at: https://www.cogitatiopress.com/urbanplanning/article/view/1343/1343 [Accessed 28 Apr. 2019]

258. Zinn Education Project. 2020. *The Corona Connection: Capitalism, Climate Change, and Deforestation*. Available at: <https://www.zinnedproject.org/news/corona-connection-forest-loss> [Accessed 11 March 2022].

259. Zuboff, S. 2019. The age of surveillance capitalism. Hatchette book group. New York.

APPENDIX A: OPEN-ENDED QUESTIONS (FOR COLLABORATIVE DESIGN GROUP)

Questions adapted from Leavy (2013):

A Genuine Virtual Reality

1.Is the mood of this world expressed clearly? How could it be improved upon?

2.Can you think of any games which embody narrative richness and authenticity? If so, which ones?

Empathy

Sensitive portrayals of people and promotion of empathy and empathetic engagement.

1.Do the characters, conceptually, feel multi-dimensional? How could this element be improved upon?

2.Do you feel like you can understand the characters? Do the motivations, values, hopes and/or fears guiding them make sense?

3.Have the characters challenged any stereotypes – and if so, how?

4. Do you think the characters could expose players to new ideas, experiences or perspectives?

5.Can you think of any games which made you aware of societal issues? If so, how did they achieve this?

6.Can you think of any games which made you empathise with the characters or other players? If so, which ones?

Form, structure and narrative coherence

1.Does the choice of video game as a medium help to communicate its content and messages? Does it feel like the delivery of the content is enhanced by the medium (the game)?

2.Is the objective of the game clear?

3.Does the storyline suit the research purpose?

4.Does the storyline make sense and engage you?

5.Are expectations met or challenged in ways that make sense?

6.Does the ending promote reflection or discussion over the entire story?

7.Can you think of any games which communicate their story and/or gameplay especially clearly to the player? If so, which ones?

Substantive contribution

1.Can you see the connections between the experiences of the characters and their external backgrounds? If so, how?

2.Could this game increase players' awareness about a particular issue (or issues) or about how different issues are connected to each other?

3.Can you think of any games which made you feel as though you'd learned something new after playing them? If so, which ones?

Aesthetics

1) Have cliches been avoided?
2) Do you think the game would be enjoyable? How could this element be improved upon?
3) Can you think of any games with a story that you particularly enjoyed? If so, which ones?

Design Elements

1. Do the mechanics make sense? How could they be improved upon?

2. Do the mechanics seem too simplistic or complex?

3. Do the mechanics suit the aim (to raise consciousness and change perceptions about neoliberalism) and design goals?

4. Do the controls make sense?

Audience

1. Have design elements been chosen in a way that is likely to engage the target audience (young adults)?

APPENDIX B: PRE-GAME QUESTIONNAIRE (FOR PLAY TESTERS)

Questions drawn from this study's literature review.

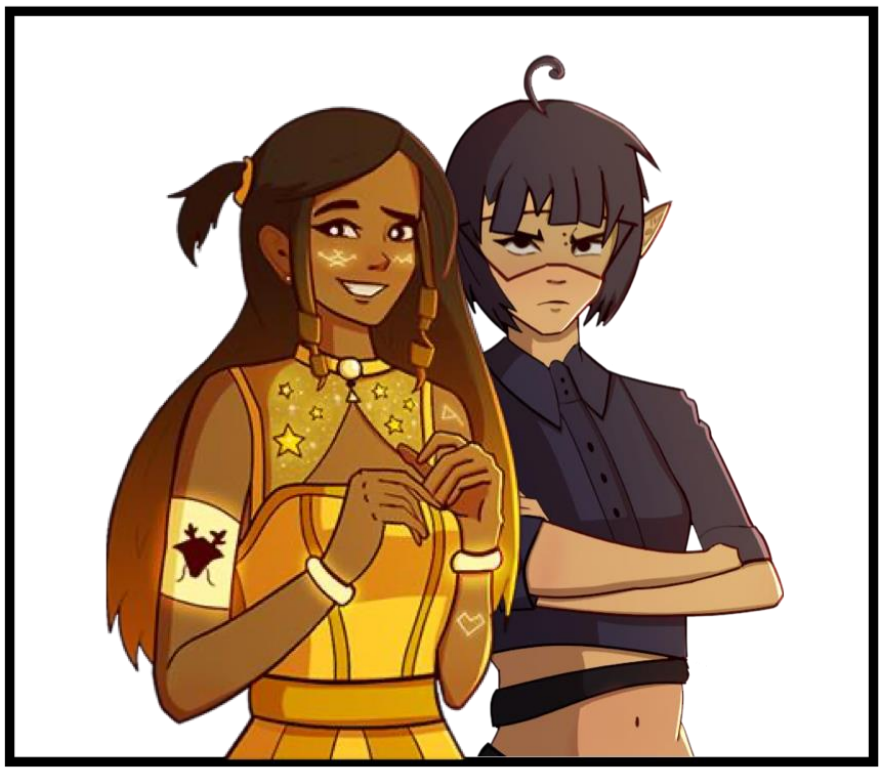
1. What would you think if someone told you that anyone can 'make it' in life if they work hard enough?
2. What are your thoughts on privatising public services (for example, health care)?
3. Is it worth partaking in a job that does not offer compensation for the sake of doing what you love?
4. Race, gender and background have little influence on one's success and livelihood. What are your thoughts on this statement?
5. Do you feel that universities should focus on profitable and entrepreneurial studies or is all knowledge relevant?
6. What are your thoughts on encouraging individualism and competitiveness in workplaces and places of education?
7. Many argue that unemployment, inequality and poverty happen naturally in society. What are your views on this?
8. It is not your responsibility to help others; each person is solely responsible for themselves. How do you feel about this statement?
9. Many people report feeling lonely, isolated, anxious and depressed. How do you feel this relates (if at all) to competition, individualism and winning above all else?
10. How do you usually respond if you saw someone being treated unfairly?
11. Labour has become precarious: Insecure, flexible and temporary. How have you encountered this, if at all? Do you feel this applies to you – and if so, in what way?
12. "You never really understand a person until you consider things from his point of view, until you climb inside of his skin and walk around in it" (Atticus Finch). How do you feel about this quote?

APPENDIX C: GUIDED DIARY QUESTIONS (FOR PLAY TESTERS)

Some questions adapted from Polzer and Hlavacs (2017).

Double-Edged Chord

Playtester Diary



PLAYTESTER INFORMATION

Name of Play tester:_____

Name of Play Partner_____

	18-24 years old
	25-34 years old
	35-44 years old
	+ 45
	Prefer not to Answer

Age (Mark with an X)

Game playing experience (Mark with an X)					
Gamer		Casual player		First time player	

Gender (s)_____	Prefer not to Answer (Mark with X)	
Other_____		

Race(s)-ethnicity(ies) _____	Prefer not to Answer (Mark with X)	

Education/Work status (Please put an X next to your option)			
School		Interning	
University/college		Part-time	
Employed		Stay at home caregiver	
Self employed		Unemployed	
Freelance		Prefer not to Answer	
Other (Please specify)			

Section B

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q1	I felt focussed and immersed in the game			
Q2	The story affected me emotionally			
Q3	I enjoyed the style, look and feel of the game			
Q4	I enjoyed the sound design and the music			
Q5	I could not not focus on the game			
Q6	The game was boring			
Q7	How challenging was the game? **(Please mark with an X <u>your preferred option)</u>** The game was too easy ☐ The game was too hard ☐ The game was challenging enough ☐ Other _____			
Q8	The multiplayer feature facilitated a stronger connection to the characters and my partner			
Q9	I finished the game			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q10	**I found these activities enjoyable/ engaging:** **(Please mark with an X <u>all the options that apply)</u>** Making choices ☐ Solving puzzles ☐ Combat ☐ None of the above ☐ Other (Please specify) _____			
Q11	I chose my partner			
Q12	My partner was randomly assigned			
Q13	I would have preferred playing with my own partner			
Q14	I felt as though I was on a shared journey with my game partner			
Q15	I was worried about losing battles/making the wrong choices because of how it could negatively affect my partner			
Q16	I enjoyed playing a cooperative game with my randomly assigned partner			
Q17	I enjoyed playing a cooperative game with my self-chosen partner			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q18	I would have preferred a more competitive game			
Q19	I could see the connections between the characters' experiences and their backgrounds (race, gender, class, etc)			
Q20	The game challenges social and economic inequalities			
Q21	The game challenges stereotypes If you agree, please briefly explain			
Q22	I felt that my choices had an impact on the outcome of the story			

Q23

There is no one way of seeing or experiencing a story/game. We all experience it differently.

Please describe in a few words - from your point of view - what the game was about:

Q24

Did the game reflect many of the political, social and economic realities of the real-world? (Please briefly explain)

Anci's Story: What is your view on privatisation?

Did the game help you learn something new about yourself or the real world? (Please briefly explain)

Did the game expose you to new ideas, experiences or perspectives? (Please briefly explain)

What have you learnt from playing this game, if anything? (Please briefly explain)

Has something you believed in been challenged or reinforced? (Please briefly explain)

Any other comment?

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q25	Empathy is defined by the Oxford Dictionary as: "the ability to understand and share the feelings of another". (Please mark with an X **<u>all the options that reflect your view</u>**)			
	I empathised with one or more characters in the game			
	I empathised with one or more characters **even though their views were different** to mine			
	I felt an emotional connection to one or more of the characters			
	I cared about the struggles of one or more characters			
	I did not empathise with any character			
	If you did empathise with a character, which character did you empathise with most?			
	If you identified any characters, which character did you identify with the most?			
Q26	The game inspired me to resist injustices			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q27	I have always stood up to injustices			
Q28	The game inspired me to want to help make our world a better place.			
Q29	The game got me to reflect on the importance of protest and resistance			
Q30	I felt like joining the resistance in the game-world			
Q31	Being part of a group of voluntary research assistants/play-testers - helping this study and playing with a partner - gave me a sense of belonging			
Q32	I made new friends			
Q33	I bonded with old friends			
	The Cambridge dictionary defined compassion as "a strong feeling of sympathy and sadness for the suffering of others and a wish to help them"			
Q34	I felt a sense of compassion for one or more of the characters			
Q36	In transforming the game world I can see the possibilities for how we can transform our real world for the better			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q37	"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has"			
Q38	Work has become insecure, flexible and temporary. How have you/family/friends encountered this, if at all?			
Q39	Coda and Fife suffer because their bosses profit from workers working long hours in insecure jobs in unsafe conditions for little pay			
Q40	**Coda's story:** Is it is worth doing a job that does not pay you/underpays you for the sake of doing what you love?			
Q41	People should willingly sacrifice their free time, work for little to no pay and jump from gig to gig if they want recognition.			

Q42	**Please mark with an X the option that best represents your view:**		
	Universities should focus on profitable and entrepreneurial studies		
	All knowledge is relevant		

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q44	**Zia and Marsh's story:** Race, gender and background have little influence on one's success and livelihood.			
Q45	The poor can "make it" in life if they work hard enough?			
Q46	Our society is socially constructed (an invention of society) along race, gender and class lines. Resources like housing, health, education and water are unequally distributed along those lines.			
Q47	The rich all earned their wealth in our world			
Q48	**Ancie's story:** Women and girls have the same opportunities as everyone else in the real world			
Q50	Competing with others is a normal part of life			
Q51	Individualism and competitiveness in workplaces and places of education should be encouraged			
Q52	Competition brings out the best in people			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
Q53	Many people report feeling lonely, isolated, anxious and depressed. In many cases this is associated with competition, individualism and winning above all else			
Q54	It is not your responsibility to help others; each person is solely responsible for themselves.			
Q55	The only way to succeed is to be competitive and to invest in ourselves - learn skills, spend more time and money on ourselves			
Q56	You never really understand a person until you consider things from his point of view, until you climb inside of his skin and walk around in it" (Atticus Finch).			
Q57	**Please mark with an X the option that best represents your view:** I respond/act if I see someone being treated unfairly I am more of a bystander - it is safer to not get involved			
Q59	Fees Must Fall is a world wide movement led by students to stop increases in student fees and to pressure governments to increase funding for universities/colleges. Please choose the option that best suits your thinking (Mark with an X):			

Q	**PLEASE MARK WITH AN X**	**Agree**	**Disagree**	**Any other comment? (please specify)**
	I will join the protest march to the Minister of Education's office to demand an increase in government funding for universities and to stop an increase in student fees			
	My parents can afford my fees so there is no need for me to take any action			
	My parents can afford my fees but I will join the protest in solidarity with those who cannot afford their fees			
	Unfortunately I don't have time to volunteer or to participate in protests/resistance movements			
	Protests are a waste of time			

Q60

Has the game exposed you to new ideas?If it did briefly explain

Q61

Has the game shifted your perception or feelings about any particular issue?I f it did briefly explain

Q62

Is there anything in particular you liked about the game?

Q63

Is there anything in particular you disliked about the game?

Q64 Did you encounter any technical issues or difficulties ?

Q65

Other (Please specify

_____

_____

Q66

Real world call to action: There are many Wits students facing hunger and exclusion. The Wits food bank is what many of them rely on for their daily meal. Would you be willing to make a donation to the Wits food bank?

Yes		No		Other (Specify)

Should you wish to make a donation to the Wits food bank you can do this online by accessing the Wits food programme from your student home page. Those not students at Wits can contact Karuna Singh: +27 0 11 717 9255 or karuna.singh@wits.ac.za for details on how you can make your donations directly to Wits.

THANK YOU to THOSE WHO MADE IT TO THE END!!!!!

My deepest gratitude!

I will be forever in your debt!

APPENDIX D: PARTICIPANT INFORMATION SHEETS

SUBVERTING NEOLIBERALISM THROUGH A DESIGN FRAMEWORK FOR TRANSFORMATIVE GAMES (PARTICIPANT INFORMATION SHEET FOR DESIGN REVIEWERS)

Dear Potential Playtester

My name is Leia French and I am a Masters student in Digital Arts at the University of the Witwatersrand, Johannesburg. My study, under the supervision of Stephen Cloete, explores the potential of video games to inspire and drive social change – particularly in relation to neoliberal ideology.

Description of Research:

Neoliberalism is the belief that political, social, and economic "power should reside in markets and corporations – rather than in governments and citizens" (Giroux, 2005). This has contributed to an age of escalating economic deregulation, privatization, inequality, poverty and employment precarity in the name of 'profit-over-all'. Primed to immerse and persuade, video games can capture the attention of millions of players – and in positively mirroring neoliberal ideology (as many games do) they can serve to unwittingly naturalize it. In this regard, it will be argued that if games can entice consent to the dominant order, it is possible that they can inspire resistance to it. To this end, this study aims to develop a framework for transformational games – one which brings together potential strategies for encouraging discussions about challenging subjects like neoliberalism. It then aims to create a transformational game through which the transformational framework will be assessed.

Description of Procedure:

This study is built on a foundation of collaborative design. All participants will be viewed as collaborative research assistants. All potential participants are postgraduate game design students drawn from WITS and a professional game developer.

I would humbly like to invite you to review and offer feedback on the game design concept. This includes the story, mechanics, gameplay and visual aesthetic of the game. To guide this review, you will be asked to fill out a short questionnaire. This should take roughly 20-30 minutes.

Methods of Communication:

This study takes into consideration restrictions around COVID-19: All communication, including consent processes, will therefore be done via email. Google forms will be used for questionnaires.

What are the benefits?

It is not anticipated that you will directly benefit from this study and research does not involve payment. However, your participation and feedback will hopefully add your voice to the larger discourse on transformative game design.

How will your privacy be protected?

Since communication will occur over email, your identity will be known to me – and participants may talk amongst themselves about their experiences. However, you will be anonymous in the published research. Any data derived from this research project that identifies you will not be voluntarily released or disclosed. You may revoke data at any time that you do not wish to be published. Your name will not appear on the questionnaire. When referring to you in the thesis, I will be using a pseudonym such as Participant A, Participant B, etc. to represent your voice. I would, however, like to add your name to my list of acknowledgements – with your consent.

Is Participation Voluntary?

Participation is voluntary and you are free to withdraw from the research at any time. You may refuse to answer any questions which make you feel uncomfortable. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled (e.g. current access to facilities).

Data Storage

If you choose to partake, responses will be uploaded to google forms – which will then be downloaded by me. After that, it will be stored on local hard drives and backed up on a local server – as will any documents I produce to manage or process that data. Only I will have access to this data.

Any data stored on google forms or email will be deleted prior to the publication of the research.

Availability of Study

This thesis will be publicly available on the world-wide web through Wired Space accessed through the library website. The resulting game could potentially be shared publicly on online gaming websites like Make Games SA, itch.io or Steam.

Contact Details and Further Information

- If at any time you have questions regarding the research or your participation, please feel free to contact me at the details listed below. Should you be interested in a summary of the research/research results, it will be made available on request once the study has been completed.
- If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely
Leia

Researcher:
Leia French, 1600474@students.wits.ac.za, 0818230321.
Supervisor:
Stephen Cloete, stephen.cloete1@wits.ac.za, +27 (11) 717 4687.

A FRAMEWORK FOR THE DESIGN OF TRANSFORMATIONAL GAMES (PARTICIPANT INFORMATION SHEET FOR PLAYTESTERS)

Dear Potential Playtester

My name is Leia French and I am a Masters student in Digital Arts at the University of the Witwatersrand, Johannesburg. My study, under the supervision of Stephen Cloete, explores the potential of video games to inspire and drive transformation in players.

Description of Procedure:

- *This study is built on a foundation of collaborative design. All participants will be viewed as collaborative research assistants.*
- *Potential participants are video game players drawn from a pool of WITS students.*

I would humbly like to invite you to play the game and provide feedback – which will be used to improve its design and experience. You will be asked to fill in a short questionnaire – after which you'll be given the game to playtest. To guide this playtest, you will be asked to fill out an electronic diary with guided questions as you play, allowing you to comment freely on your experience in your own time and space. The game will be a cooperative two-player game – which requires a partner to play. In this regard, you may decide to play with a partner of your own choosing or have one assigned to you. Playing the game and filling in the diary should take roughly 1 hour.

Methods of Communication:

This study takes into consideration restrictions around COVID-19: All communication, including consent processes, will therefore be done via email. Google forms will be used for questionnaires.

What are the benefits?

It is not anticipated that you will directly benefit from this study and research does not involve payment. However, your participation and feedback will hopefully add your voice to the larger discourse on transformative game design.

How will your privacy be protected?

Since communication will occur over email, your identity will be known to me – and participants may talk amongst themselves about their experiences. However, you will be anonymous in the published research. Any data derived from this research project that

identifies you will not be voluntarily released or disclosed. You may revoke data at any time that you do not wish to be published. Your name will not appear on the questionnaire. When referring to you in the thesis, I will be using a pseudonym such as Participant A, Participant B, etc. to represent your voice. I would, however, like to add your name to my list of acknowledgements – with your consent.

Is Participation Voluntary?

Participation is voluntary and you are free to withdraw from the research at any time. You may refuse to answer any questions which make you feel uncomfortable. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled (e.g. current access to facilities).

Data Storage

If you choose to partake, responses will be recorded inside your diary with guided questions – which will then be emailed to me. Questionnaires will be uploaded to google forms – which I will then download. After this, data will be stored on local hard drives and backed up on a local server – as will any documents I produce to manage or process that data. Only I will have access to this data.

Any data stored on google forms or email will be deleted prior to the publication of the research.

Availability of Study

This thesis will be publicly available on the world-wide web through Wired Space accessed through the library website. The resulting game could potentially be shared publicly on online gaming websites like Make Games SA, itch.io or Steam.

Contact Details and Further Information

- If at any time you have questions regarding the research or your participation, please feel free to contact me at the details listed below. Should you be interested in a summary of the research/research results, it will be made available on request once the study has been completed.
- If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely

Leia

Researcher:

Leia French, 1600474@students.wits.ac.za, 0818230321.

Supervisor:

Stephen Cloete, stephen.cloete1@wits.ac.za, +27 (11) 717 4687.

APPENDIX E: CONSENT FORMS

SUBVERTING NEOLIBERALISM THROUGH A DESIGN FRAMEWORK FOR TRANSFORMATIVE GAMES

Leia French

Consent Form for Design Reviewers

I, ……., agree to participate in this research project and understand that my participation in this project is entirely voluntary. The research has been explained to me and I understand what my participation will involve . I agree to the following:

(Please circle the relevant options below).

1. I agree that I have read and understood the research information sheet. YES NO
2. I agree to review and offer feedback on a given game design concept – which includes the story, mechanics, gameplay and visual aesthetic of the game – and agree to fill out a short questionnaire which will guide this review. YES NO
3. I agree that the researcher may use anonymous quotes in his / her research report. YES NO
4. I agree that any data gathered from my participation may be retained, destroyed or re-used. YES NO
5. I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained. YES NO

6. I am aware that I may remove myself from the research at any point. YES NO

7. I agree to have my name added to the acknowledgement list (not a requirement for participation). YES NO

Participant Name: _____ Signature: _____ Date: _____

Researcher Name: _____ Signature: _____ Date: _____

Supervisor Name: _____ Signature: _____ Date: _____

Consent Form for Playtesters

I, ……., agree to participate in this research project and understand that my participation in this project is entirely voluntary. The research has been explained to me and I understand what my participation will involve . I agree to the following:

(Please circle the relevant options below).

1. I agree that I have read and understood the research information sheet. YES NO

2. I agree to play the given game and provide feedback which will be used to improve its design and experience. I agree to fill out a diary with guided questions as I play which will guide this playtest. YES NO

3. I agree to play with a partner if requested – and that I can decide to play with a partner of my own choosing or have one assigned to me. YES NO

4. I agree that the researcher may use anonymous quotes in his / her research report. YES NO

5. I agree that any data gathered from my participation may be retained, destroyed or re-used. YES NO

6. I agree that the information I provide may be used anonymously after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained. YES NO

7. I am aware that I may remove myself from the research at any point. YES NO

8. I agree to have my name added to the acknowledgement list (not a requirement for participation). YES NO

Participant Name: _____ Signature: _____ Date: _____

Researcher Name: _____ Signature: _____ Date: _____

Supervisor Name: _____ Signature: _____ Date: _____

APPENDIX F: *DOUBLE-EDGED CHORD* DOWNLOADS

Game Download

Download links for *Double-Edged Chord*. Should any trouble arise with setup, please consult the **game tutorial** (linked further below).

Windows Build:
https://drive.google.com/file/d/1cexQrCgj314E-kivPrf1Bin9BubAihA_/view?usp=sharing

Mac Build:
https://drive.google.com/file/d/13Bgw6km2636v_ej3V1_vTSHyV0i5kLs_/view?usp=sharing

Note: Mac security features may not let you open the Mac build unless you right-click on it. The Mac version may also show some UI out of place.

Video Playthrough

A full video playthrough of the game.
Note: Recording is in low resolution.

All characters saved (full playthrough; hopeful ending):
https://drive.google.com/file/d/1pPu9R15TnU5xLudgGu-bn0D1oVVi16Qz/view?usp=sharing

All characters doomed (series of clips; what happens if you make different choices):
https://drive.google.com/file/d/1Ew-p92TytA7EF1EUPpVrd_8-CnGjLGkZ/view?usp=sharing

Game Tutorial

All core gameplay elements are tutorialised within the game. This tutorial (sent out to the original playtesters) may be helpful for players who are new to multiplayer games – or who would like a detailed account on installing and setting up the game.

Note: Recording is in low resolution.

https://drive.google.com/file/d/1C9W809Y3VaztC9RmcWfN_XoXQ0GNRLL_/view?usp=sharing

Tech Support/Cheat Code Guide

Double-Edged Chord can, in its present state, be a little unpredictable – especially if players experience slow and/or fluctuating internet connection.

- If you encounter **major problems** (e.g., missing save files, inability to make a desired choice) please download and open this cheat guide at the link:
    - https://drive.google.com/file/d/1wA0eLh1E88tv6zSwtnwwGrX7gTm_D2tD/view?usp=sharing
    - While major problems are rare, this interactive guide should aid you in overcoming most game-breaking bugs.
- If you encounter **minor problems** (e.g., game freezing, characters getting stuck) opening and closing the game may help.
- If you encounter problems **entering the game or joining a room**:
    - Make sure you and your partner are connected to the same server region (ZA or EU) at the start of the game.
    - Try turning off your VPN
    - Try disabling your antivirus.
- If you encounter problems that **cannot be solved with any of the above solutions**, please feel free to contact me on leia@gillyweed.co.za and I will respond as soon as possible.

APPENDIX G: FUTURE IMPROVEMENTS TO *DOUBLE-EDGED CHORD*

Ideally, these changes would be implemented in future versions of *Double-Edged Chord*. While future improvements are by no means limited to those listed below (and different solutions to in-game issues may still be conceptualised) these detail some *possible* ways in which the transformative potential of this study's design framework could be better drawn-out.

Modelling the Human Experience

Combat and the metaphor of being 'in-tune'

- Having self-written songs tailored to the game. This would allow each player to play a different instrument in the same song, together forming a coherent whole while enabling more meaningful cooperation.
- If a player misses an arrow, an arrow on the other player's board could shatter and disappear – making the players fall out of rhythm.
- The health bars of each player could be separated – giving players the opportunity to choose between supporting each other (more likely to succeed) or attacking alone (more likely to fail)
- Players would have the opportunity to choose and develop abilities in a skill tree to support each other.
- Having portions of the song more akin to *Friday Night Funkin'* (2020) – where the person playing would alternate: Each player would have to match the beats of both each other and their enemy – making the song feel more like a dialogue. It could possibly, however, still have portions where players play at the same time, allowing them to feel in sync.

Empathy and Perspective-Taking

In an initial design of the game, players could make choices that would affect their relationship with *each other* (and the outcome of the game itself). However, this was scrapped in favour of honing one line of relationship development between them (rivals to friends/lovers) as qualitatively as possible. With a longer playtime, however, implementing this could potentially add more emotional weight to the game and

encourage greater empathy – while allowing players to more meaningfully impact each other's game states.

Allowing player characters the time and space to build more emotionally-grounded and in-depth relationships with other major characters (should they wish) through narrative choices or other gameplay elements would also be ideal. However, with the playtime allowed within the scope of this study, this simply wasn't possible.

Persuasion

Visual Persuasion

A few participants noted that the visual style of *Double-Edged Chord* felt inconsistent. Ideally, the game (in the future) will be consistently styled with either pixel-art, semi-realism or an entirely different style altogether.

Sonic Persuasion

Better-balancing the sound levels and allowing music to fade in and out during tonal shifts (rather than simply cutting out) would help further both the game's sonic persuasion and overall immersion.

Teaching the Dynamics of Resistance

The resistance in *Double-Edged Chord* ended up being somewhat fast-paced and shallow. In the future, a longer playtime will ideally be possible – and so the build-up of resistance better-paced. There would be more focus on getting to know the key members of the resistance. Building the resistance itself from the ground up would ideally have a ludic (as well as narrative) emphasis.

Cooperative Play

Synergies between abilities

Involves giving certain characters abilities that support or strengthen the abilities of others (El-Nasr et al., 2016). For example, in *Genshin Impact* (2020), characters with hydro (water) abilities can soak enemies — so intensifying the power of freezing attacks

from party members with cryo (ice) abilities. In *Double-Edged Chord*, it was initially hoped that players could be given similarly compatible abilities in combat. Earlier designs also included an experience system and skill tree that would allow players to 'level up' these different abilities – giving them the space to develop their characters along the lines of supporting each other. It is hoped that this can still be implemented in the future.

Complementarity

While players may take on individual character roles, these roles support and complement the in-game activities of their fellow players. For example, in the co-op mode of *Lego Star Wars* (2005), each level can only be overcome by different player characters working together (El-Nasr et al., 2016). In initial versions of *Double-Edged Chord*, Anci and Clef each had different abilities (similar to their combat abilities) that would allow them to play a unique role in puzzle-solving. This would be in a similar vein to *The Legend of Spyro: Dawn of the Dragon* (2008) – in which the characters' unique abilities in combat also play a role in cooperative level traversal and puzzle-solving. It is hoped that this can still be implemented in the future.

Abilities that can only be used on another player

Giving certain characters abilities that can only be used to benefit other players. For example, Medics in *Team Fortress 2* (2007) can heal other players but not themselves (El-Nasr et al., 2016). In initial versions of *Double-Edged Chord*, the characters had separate health bars – meaning they would be able to heal each other but not themselves. It is hoped that this can still be implemented in the future.

Synergies between goals

Giving players goals that are co-dependent. For example, in *Team Fortress 2* (2007) pyros can burn enemies and medics can ubercharge pyros. Its achievement system gives pyros the goal of killing enemies while ubercharged — simultaneously giving medics the goal of ubercharging pyros while they burn enemies (El-Nasr et al., 2016). In *Double-Edged Chord*, this would largely manifest in giving players different goals in puzzle-solving synergized to their respective abilities.

Camera Settings

To accommodate all characters, co-op games can either use a split screen, like *Lego Star Wars* (2005)*;* focus on only one character, like *Genshin Impact* (2020); or focus on all characters, meaning the camera won't move unless all characters are together — like *The Legend of Spyro: Dawn of the Dragon* (2008) (El-Nasr et al., 2016). In this regard, *Double-Edged Chord* may implement a local co-op mode in the future – where the camera would expand to encompass both players or employ a split screen model.

Shared Characters

Creating characters that are available to all players but can only be chosen by one or a few. This encourages players to discuss how they might share the character (El-Nasr et al., 2016). For example, in *League of Legends* (2009) players can pick from any of the available champions, but no two players can pick the same champion. This was initially a feature in *Double-Edged Chord* (where players could pick who played Clef and who played Anci) but this was removed due to complications. With more time, this feature could hopefully be re-implemented in the future.

Special characters targeting lone wolf

Using enemy NPCs or obstacles that target players working alone — like the Hunter and Smoker from *Left4Dead* (2008) (El-Nasr et al., 2016). While there are currently no plans to implement this in *Double-Edged Chord*, it could prove useful for future designers.

Limited resources

Players are given a limited number of resources and are thus encouraged to share those resources among one another to achieve their goals (El-Nasr et al., 2016). In *Don't Starve Together* (2016) for example, players can share food and materials to help one another survive. In this regard, *Double-Edged Chord* players could have the ability to distribute (and redistribute) experience points between each other throughout the game.

Agency

Clarifying the Links

In the game's lore, dreams are tailored to persuade because they offer near-direct access to one's subconsciousness. This is why the effects of a single choice can be so sweeping – and partially why dream magic is outlawed. However, there was a failure to properly communicate this to players – meaning it would likely be harder for them to find a correlation between their choices and the (otherwise-oversized) consequences.

Links between choice and consequence need to be made clearer. Some potential ways of doing this include:

1. Explicitly clarifying the lore of the game (as outlined above)
2. Explicitly telling the player that their choices will have an effect on the characters – as in *The Walking Dead* (2012).

Expressive Agency

Emotes are one of the most common ways of engendering expressive agency. *Fortnite* (2017), for example, has a number of different emotes – including dances. Depending on the situation, making one's character dance can be a way of connecting with fellow players (simultaneous dancing), a way of passing time while bored or a means of taunting enemies – imbuing a relatively simple action with contextually-based meaning. In this vein, it is hoped that different emotes and player interactions can be implemented into *Double-Edged Chord* in the future (for example, holding the other player's hand to take them across the map). This was part of the initial design but didn't make it into the final game within the allotted time frame.

Friendship Levels

In initial designs of *Double-Edged Chord*, players could make choices for their characters that would influence their relationship with each other (and the outcome of the game). It is hoped that this can be implemented in the future.

Engagement

More coherent and in-depth ludic activities and accomplishments could increase engagement with the game and engender more investment in players (especially those who are drawn to gameplay over story).

Immersion

Dynamically-balancing combat or allowing players to pick their own difficulty level may allow space for players with different levels of gaming experience to become better-immersed in the game.

Anti-Oppression

One playtester noted that the representation of non-binary people in the game felt "a little stereotypical". With this in mind, attention should be turned to Fife – the game's most notable non-binary character. Toning down their visual design could possibly lend itself to making them less stereotypical. Moreover, much of the game's focus was dedicated to the development of Anci and Clef as player characters – meaning that any other characters (like Fife) only ended up getting surface-level engagement. A longer playtime would be helpful for enabling more space to engage with Fife (and all the other dreamers) on a deeper level. This would aid greatly in fleshing out their character: Their makeshift family with Coda and Sarah, their relationship with their craft and how their life was before they ended up being stuck working a precarious job in The Cubes. Having other nonbinary and gender-nonconforming characters (like Tori's partner or the person sleeping outside Dreamhaven) play a more visible and active role in the story may also make Fife's inclusion feel less tokenising.