Encoding the Symptom or the Cause?
Values in the Design of Computer Games
that Represent School Mass-Shootings

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Introduction

In this paper, I examine how two first-person shooter (FPS) computer games set in North American high schools communicate different values in relation to the same violent phenomenon. While both commit the same transgression by making a game based on school mass-shootings, the socio-cultural, institutional and material context of their designers in relation to the violent phenomenon results in two very different readings, and very different ways to understand violence in computer games.

In this paper, I locate the representational affordances of the FPS genre according to Rune Klevjer's 2006 paper 'The Way of the Gun', Alexander Galloway's research on FPS subjectivity (2006), Paul Virilio's (1989) theory of military optics and John Bale's (2003) research into the transgressive appropriation of non-game environments in various sporting traditions. Building on the paradigm of values as expressed through both game design and the social context of play found in procedural rhetorics (Bogost 2006) and simulation theory (Frasca 2001), I examine how the context of my designers relative to their games expresses particular values about the sociological factors surrounding school mass-shootings. By revealing the different values within these games, I seek to offer an important way to differentiate between different forms of violent representation in computer games.

The case studies for this paper are a student-made modification (mod) of the first-person shooter (FPS) game *Counter-Strike* (CS) and a training simulation produced using the Unreal Engine for the US Department of Defense and repurposed by the US Department of Homeland Security. In 2007, a student from Clements High School, Texas, was expelled for building a replica of his school as a playable CS mod on the grounds that this representation was inappropriate in relation to school mass-shootings. (Sinclair 2007) In 2017, the US Department of Homeland Security built an FPS simulation set in a high school as part of the larger Enhanced Dynamic Geo-Social Environment (EDGE) project, which is designed to train police and first responders for mass-shootings in North American schools. (BBC 2017) (Wales 2018) By analysing both of these within the FPS game genre, I will establish their common procedure and language of expression. Using Julian Küchlich's economic analysis of the amateur modder compared to the professional game developer, I will differentiate these games on the basis of the context of their authorship.

I will then introduce relevant insights from a meta-review into the causative factors that relate to the school mass-shooting, published by sociologists Nils Böckler, Thorsten Seeger and Wilhelm Heitmeyer (2013). In particular, I will examine how their umbrella concept of 'Social Disintegration Theory' (Böckler et al. 2013, p.28) reveals a clear dividing line between the values implicit in the Clements High School CS mod and the EDGE simulation. I focus specifically on how causative factors such as the violence-affirming setting and the lack of social mobility (what Böckler et al refer to as a 'recognition gap) (Böckler et al. 2013, p.43) experienced by North American adolescents relate to law enforcement response of further militarising the school environment.

In this paper, I show how the Clements High *CS* map, made by a student modder for the consumption of his peer group is consistent with the recognition gap endemic to both the modding community and the North American adolescent identified under Social Disintegration Theory. By contrast, I show that the EDGE school mass-shooting simulation, designed for the US Department of Homeland Security, is more consistent with the "violence affirming setting" identified as a causative factor in Social Disintegration Theory. I argue that the differential of social, economic and political power between the student modder and the government agency, and the student player versus the police/first responder player illustrates how these two FPS games express completely different values in relation to the school mass-shooting. Put simply, I argue that the Clements High CS mod represents the symptoms of this phenomenon, whereas the EDGE simulation represents the cause.

Values and design

The contrast between the two case studies in this paper – the student-produced mod and the government-produced simulation, hinges on the notion that the authorial context of a game[1] affects the values that it communicates. By authorial context, I am not referring to authorial intent in a Barthean sense (1978) nor it's corollary in an instrumentalised simulation (Frasca 2001) and procedural rhetorics (Bogost 2007). I am referring to the social and material context within which a game is made, and how this might influence the relationship it forms with the player. Both Ian Bogost and Alexander Galloway argue that extrinsic social and historical circumstances structure how a player relates to a computer game. Bogost's 'simulation gap' (Bogost 2006, p.131) and Galloway's 'congruence requirement' (Galloway 2006, p.76) suggest that the lived experience of the player intersects with the historical context of the computer game, and meaning is generated by how the player and the game relate to each other in the world. In Galloway's example, the relationship an American player might have with the US Department of Defence's *America's Army* (2002) is contrasted by the relationship a Palestinian player might have with Dar Al-Fikr's *Under Ash* (2001) due to how the designers, players and subject matter of these games relate in an extrinsic socio-historical context.

In a similar way, Mary Flanagan and Helen Nissenbaum write the following regarding how values are communicated in a computer game:

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[1] I refer to these case studies using the term 'game' due to the proximal relationship they share with the procedure and play conventions of the first-person shooter game genre. One is a customised *Counter-Strike* map and the other is a training simulation. I expand upon this later in this paper.

"...digital games – like other technologies and like social practices, systems and institutions – have values embedded in them…As Langdon Winner argues in his landmark article "Do Artifacts Have Politics?" the creators of technological systems and devices should consider functional and material properties and also recognize the ethical and political properties of this technology." (Flanagan & Nissenbaum 2014, p.8)

Like Bogost and Galloway, they argue that values in computer games "are as much a function of the circumstances in which a game is played as the contours of the game itself." (Flanagan & Nissenbaum 2014, p.102) I would like to combine this argument of values in authorship, play and context, with the argument that the socio-historical context of the designer relative to the game functions as an additional vector for embedding values within digital games. In this paper, I will demonstrate that my two case studies, whilst sharing a common representational system (the first-person shooter) and a common subject (the school mass-shooting) differ substantially due to the context of their design. I will show that the material authorial contrast between a student modder and a government agency, as well as their position relative to the social phenomena of school mass-shootings, can justify the claim that the student mod communicates values related to the symptoms of the phenomena, whereas the government simulation communicates values related to the cause of the phenomena.

The material circumstances of the designer

In order to extend the claim about contextual values in game development to the material status of the developer, I look to the work of Julian Küchlich and Hanna Wirman, who provide a useful template for differentiating the economic circumstances in which computer games are made and played. What Wirman refers to, as 'player productivity' is the actions by which players generate new texts via the expanded practice of play and production, from machinima videos to customised avatars and total conversion modifications. (Wirman 2009) Galloway observes that this blurred relationship between play and production reflects the broader dissolution of the modernist distinction between work and leisure, and functions as an index of Neoliberal Capitalism, where play "is not a vacation from the pressures of production, but rather the form-of-appearance ("afterimage") of that mode itself". (Galloway 2006b) Regarding the question of values revealed through the material context of the designer, Küchlich's paper "Precarious Playbour: Modders and the Digital Games Industry" does an exemplary job of outlining the legal and financial boundaries that differentiate a professional game developer from an amateur modder. Küchlich uses the categorical distinctions of 'developer', 'modder', 'produser' and 'player' to show how the economic and legal boundaries between individuals who design and play computer games affect the semiotic meaning of the game itself. For example, the activities of a modder can be similar to those of a game developer in both scope and creativity; however, the labour of the modder is defined and enclosed by the End User License Agreement (EULA) of the game that is being modified. Unlike the developer who holds the license, the modder is typically denied intellectual property rights and remuneration for their labour and creativity. (Kuchlich 2005, p.5) Furthermore, the mod is often instrumental in extending the life of the original game, so therefore the unpaid labour of the modder leads to remuneration for the developer of the original game. Küchlich writes "in the entertainment industries, the relationship between work and play is changing, leading, as it were, to a hybrid form of 'playbour'". (Küchlich, p.1) The following quote from Ippolita, Geert Lovink and Ned Rossiter's *10 Web 2.0 Theses* place Küchlich's 'playbour' into a broader context:

Web 2.0 is not for free. 'Free as in free beer' is not like 'free as in freedom'. Open does not equal free. These days 'free' is just another word for service economies. The linux fiefdom know that all too well. We need to question naïve campaigns that merely promote 'free culture' without questioning the underlying parasitic economy and the 'deprofessionalization' of cultural work. (Ippolita et al. 2009)

If we combine the material inequalities of game authorship, between the modder and the developer, with the idea developed in the previous section, that values in computer games are influenced by context in which the game is played, we have grounds to argue that the position of the player-made school shooter mod and the government-funded school shooter simulation can be critiqued according to the contrasts between their authorship. In the next section, I will define the first-person shooter as the common genre of representation between these two case studies, and then move on to examine the games in detail, and illustrate how they communicate opposing sets of values in relation to the social phenomena of the school mass-shooting.

A common representational system

Returning to the idea that values can be embedded in the simulation (Frasca) or procedure (Bogost) of the game, in this section, I argue that the conventions of the first-person shooter (FPS) game constitute the shared expressive language of the EDGE simulation and the Clements High School CS mod. Whilst these case studies contain significant differences in their gameplay structure, I will demonstrate that they share a common set of values according to the core components of FPS representation.

When examining the media history of the first-person shooter, Galloway highlights multiple examples from Alfred Hitchcock such as *Spellbound* (1945) and *Topaz* (1967) where a gun is positioned in the lower foreground of the subjective point of view shot for a predatory character, as a compositional precedent for FPS, where the subjective gaze of the camera is linked to the actionable targeting of a firearm. According to Galloway, the 'gamic vision' of FPS realises what is implied in these filmic precedents – the depth axis of lens-based optics is operationalised by the actionable weapon, and when bound to the same perspectival convergence, results in a hybrid expression of predatory vision and movement. (Galloway 2006, p.67)

In his 2006 paper "The Way of the Gun", Rune Klevjer outlines the representational structure of the FPS according to the player-avatar relationship it relies on, and the kind of game world that is created by this representational system. Klevjer writes:

…because the hand with the gun is fixed in relation to the framing of the first-person perspective (as if mounted to a subjective camera, immovable), the gunpoint is always at the centre of the player's vision. Looking and targeting come together in the same movement, and the player is invited to, as it were, follow his gun. (Klevjer 2006, p.1)

Like Galloway, Klevjer argues that the representational baseline of the FPS lies in the relationship between the player and the "camera-gun", where the monocular gaze merges the act of looking with the act of targeting. (Klevjer 2006, p.2) The targeting gaze of the camera-gun then defines the type of world that the game makes available to the player. Peter Bayliss describes the computer game avatar as the "locus of manipulation" that limits and defines

what the player is able to realise about the game world. (Bayliss 2010, p.179) Using Heidegger's distinction between the ready-to-hand and the present-at-hand, Bayliss argues that as the player becomes familiar with the limitations and affordances of their avatar, the locus of manipulation begins to disappear (becomes present-at-hand) and the player becomes embodied in the game world as defined by the avatar. Therefore as the FPS player becomes accommodated to the limitations of the camera-gun, they experience and become embodied in the world *according to* the camera-gun. Due to its limited angle of view and its emphasis on the perspectival depth axis for navigation and targeting, the camera-gun produces a form of tunnel vision. (Klevjer 2006, p.2) This is supported by Bernadette Flynn, who writes that the camera angle of the first-person shooter produces an artificially elongated depth axis that exaggerates the relative scale of close and distant objects, and encourages the player to push their avatar deeper into the diegetic space of the game. (Flynn 2005)

The representational structure of the FPS avatar produces a world for the player where the line of sight is a dominant game mechanic. This is most evident in multiplayer FPS games such as *Counter-Strike*, where level design is focused on balancing the access to line of sight vantage points relative to navigable distances. (Nitsche 2008, p.186-187) In *War and Cinema: The Logistics of Vision*, Paul Virilio describes line of sight as the general rule of how military vision objectifies the world. According to Virilio, the shared history of the film canister and the colt revolver is part of a much broader history in modern optics, where technologies of vision are instrumentally linked to technologies of war. (Virilio 1989, p.4, p.15)

The system of the first-person shooter and the world it creates for the player is the representational baseline shared by the Clements High School CS mod and the EDGE Simulation. The FPS system produces a game world defined by the camera-gun, flattening representations according to the logic of line of sight and military vision. In this paper I will not seek to define either of my case studies as games or not-games, I will simply say that they both fall within the representational conventions of the first-person shooter. As Olli Leino has shown, defining the precise qualities of a game can be an elusive pursuit, whereas a 'gameplay condition' ("the freedoms and responsibilities imposed by the materiality of the computer game artefact on its voluntary player") (Leino 2010, p.i) can be a more undeniable feature to identify. Therefore I will use the gameplay condition facilitated by the first-person shooter as the common medium of representation through which I will compare and contrast my two case studies. In the next two sections, I describe how this representational system was used to represent North American high schools, first by a student modder, and second by a contractor working for the US Department of Homeland Security. In the second half of this paper, I examine how these two examples relate to the broader sociological factors influencing the phenomena of school mass-shootings, and how the contrasts in authorship between these two school-themed first-person shooters produce conflicting values. I demonstrate how the values of the student-made mod express the sociological symptoms related to the school mass-shooting phenomena, whereas the US Department of Homeland Security simulation militarises the school environment in a way that perpetuates the causes of the school mass-shooting phenomena. By highlighting this conflict in values, I also seek to offer a means to differentiate between representations of violence in computer games according to the values they represent.

Case study 1: The Clements High School mod

In 2007, a student from Clements High School, Texas, made a custom map for *Counter-Strike* (CS) based on his school environment. The map was reported to the school and local media by the parents of a fellow student, who recognised a soft-drink vending machine, the round windows of the school corridors and the characteristic interior of the school cafeteria. Due to the notoriety of the Columbine High School shooting less than a decade earlier, parents and staff had the student removed from the school and transferred to an alternative education centre. (Sinclair 2007)

Figure 1 The Clements High School Counter-Strike map (screenshot), "CS 1.6 CZ Map Expelled Clements High School Student (Action)". YouTube video, 2007.

To understand the contextual significance of this mod, it is necessary to understand the history of CS and its reliance on player-produced content. Initially developed by Canadian college student Minh Le in collaboration with American student Jesse Cliffe in 1999 as a total conversion mod of *Half-Life*, CS is a multiplayer FPS where players are sorted into two teams, which compete over a number of short rounds in-game maps of a limited spatial scale. The Valve Corporation bought the rights to CS in 2000, and since then it has been redeveloped a number of times and remains one of the most popular FPS games ever made. (Kuchlich 2005) CS was originally produced in collaboration with the *Half-Life* modding community, and since its inception, has relied on the players to supply a continuous stream of level maps, which are play-tested tested and reviewed by the player community. (Gestalt 2000) Across the multitude of maps populating CS servers, there are wide range of representational environments, from tourist sites such as Venice ('Canals') and European castles ('Cobblestone'), to workplace environments such as office buildings ('Office') and warehouses ('Assault'), to those that refer to contemporary conflicts, such as Middle Eastern streets ('Dust II').

The conversion of these non-game environments into *Counter-Strike* maps always requires a degree of transgressive appropriation. On the one hand, the redefinition of office buildings and tourist sites into landscapes of the military gaze lies in accordance with Virilio's theory that the modern relationship between the military gaze and the projection of force has collapsed the geographical distinction between the war zone and the civilian landscape (Virilio 1989, p.26). This finds further confirmation in the dual relationship between a drone strike and domestic terrorism. (Chamayou 2015) But on the other hand, the appropriation of non-game environments for the ludic consumption is a well-established feature in sports. Geographer John Bale points to sporting activities such as jogging, skateboarding and tai chi as common examples where non-sport environments are appropriated for sporting activities, to varying degrees of community acceptance or consternation. In the case of *Counter-Strike*, and the Clements High School mod, I think we are witnessing a combination of the expansive military gaze *and* ludic appropriation. Without speculating on the intentions of the Clements High School modder, it would be fair to say that the construction of his map is a transgressive conversion of a civilian environment into the military gaze *and*, like skateboarding, a transgressive appropriation of a non-game environment into a ludic landscape.

It is also relevant to consider the technical and creative challenge, and therefore the demonstration of skill, inherent in making a mod. In the case of the Clements High School map, this process included importing photographic textures and assets from the school environment into *Counter-Strike*'s GoldSource engine. (AgentFSB, 2007) Whilst the map itself was built for *Counter-Strike 1.6*, and thus not available on the Steam servers of the contemporary *Counter-Strike: Global Offensive*, it can be downloaded from a U.S. Navy community site. The link to this site[2] can be found on a YouTube video documenting the map, which is accompanied by comments that I believe express a reasonable range of reactions to the Clements High School CS mod, contextualised within the CS player community. I have reproduced a selection of them below:

Map made by Clements High School student that was subsequently expelled for doing so in late April 2007. Great talent is shown in the design and textures of this map. The Counter-Strike community and ALL other gaming communities are behind you!
–YouTube video description, 2007.

I can't play the damn map with bots, it tooks [sic] so long to analize [sic] the map and generate the .nav file. Can someone share it with me?
–YouTube viewer comment, 2016

The 2kids involved in columbine did the same thing
–YouTube viewer comment 2009

Looks good, though the scale is a little off; the school is too big vis a vis the game characters. The round windows are higher off the ground than that, and the stairwells are just huge when in reality they'd be much more cramped. I was CHS '89. Would've been cool if the ROTC room were a command post or something, or if you could get extra weapons at the ROTC armory underneath the main center stair. Still, very impressive at first glance
– YouTube viewer comment 2009

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[2] https://www.navycs.com/

Шеёы awful map. Brushwork at this map IS TERRIBLE. Mapper is noob :(
– YouTube viewer comment 2009

(AgentFSB 2007)

The YouTube description and viewer comments reflect the appropriation and transgression I have already theorised in this section. The uploader of the video comments on the level of detail achieved by the modder, such as the use of custom textures. One user highlights the parallel to the Doom modification made by one of the Columbine shooters, whereas others critique the technical sophistication of the appropriation and conversion process. Oneuser, claiming to be an ex-Clements student, suggests that other areas of the school could be better adapted for *Counter-Strike* gameplay. Collectively, these comments address the transgressive quality of the appropriation as well as the technical qualities of the conversion. In light of this, I characterise the Clements High School *CS* mod as a transgressive appropriation falling within the standard set of practices associated with *Counter-Strike* modding, combined with a controversial autobiographic relationship between the student and the site as well as to the phenomena of the school mass-shooting. In the next section, I will examine the context of production for the EDGE school mass-shooting FPS simulation.

Case study 2: The EDGE simulation

In 2017, the US Army and the US Department of Homeland Security announced an iteration of the Enhanced Dynamic Geo-Social Environment (EDGE) simulation, designed to help police, teachers and first responders train for school mass-shooting events. (Fussell 2018) This was an offshoot of the broader EDGE simulation project developed by private contractors in collaboration with the US Department of Defense. In 2011, Travis Dwyer, Tami Griffith and Douglas Maxwell – leaders of the EDGE simulation project, described how commercial computer game engines and middleware had become a preferable medium for developing simulations in comparison to in-house software environments. The larger training environment of EDGE uses a massively multiplayer online (MMO) environment to allow large numbers of military personnel to experiment with various military scenarios. According to its authors, "it can be used to simultaneously recreate past battles and invent hypothetical scenarios to plan for future warfare styles." (Dwyer et al. 2011) In their presentation at the 2011 Interservice/Industry Training, Simulation, and Education Conference, Dwyer, Griffith and Maxwell described the innovations in their process that allowed the EDGE simulation to out-perform previous production pipelines for military simulation design. Their approach relied on constructing a cross-platform environment where members of the design team could rapidly exchange content and delegate talks using a "sprint" and "scrum"[3] approach. (Dwyer et al. 2011) This collaborative environment was facilitated by a careful legalistic framework, where commercial software packages were licensed in order that the design team could work in an open framework, but maintain control over the intellectual property of their work as licensed government property. This production process forms an important contrast to that of the Clements High student modder. The scrum and sprint process suggests that the team was

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[3] According to the authors, this design approach was developed by Japanese organisational theorists Hirotaka Takeuchi and Ikujiru Nonaka, inspired by the rugby formation of an entire team moving forwards in tight formation whilst constantly exchanging the ball between one another.

of a suitable size and composition to create training simulations quickly and efficiently and that the EDGE team were able to construct their own contractual enclosure to control intellectual property and how they were remunerated for their work. So while their iterative production process shares much in common with modding communities, the size of their team and their protection and remuneration within a licensed software environment places them at the opposite end of the production ecosystem described by Küchlich. The modder and the developer work on different sides of the End User License Agreement.

Unlike the EDGE MMO simulation described in the 2011 conference paper, the 2017 school mass-shooting simulator was built as a first-person shooter using the Unreal Engine (BBC 2017), using a reported budget of $US5.6 million (Fussell 2018). Whilst the simulation is only available to law enforcement and first responders, online demonstrations give a reasonable overview of its procedure. The player can select to play the role of a teacher, school staff member, law enforcement, law enforcement school resource officer, student or the school shooter. As a teacher, the player can barricade classroom doors and attempt to evacuate children, as a law enforcement officer, the player can shoot the school shooter, and as the shooter, the player can shoot children.

Figure 2 The EDGE Simulation (screenshot), "Can a Videogame Help First Responders Deal with a School Shooting?" BBC Click, September 2017.

Whilst Department of Homeland Security spokesperson John Verrico describes the EDGE simulation as a "virtual fire drill" rather than a game, (Fussell 2018) its implementation of the first-person shooter avatar prosthetic and game mechanic very clearly satisfies the common medium of representation that I identified earlier in this paper. Much like the Clements High CS mod, the EDGE simulation militarises the school environment by its use of an FPS engine and the world of the camera-gun. But the EDGE simulation operates at a lower level of abstraction in relation to the school mass-shooting phenomena than the Clements High CS mod. In the CS mod, the school environment is appropriated for a competitive shootout

between the two opposing CS factions (the terrorists and counter-terrorists), whereas in the EDGE simulation, the school environment permits the player to shoot children. Both of these examples could certainly be interpreted as an inappropriate militarisation of the school environment, however, in the next section, I will take a step back from the case studies and examine the sociological factors surrounding school mass-shootings and their relationship to media representation. In doing so, I will demonstrate that despite their representational similarity, a clear line can be drawn between the values of my two case studies, using the contextual difference of their authorship and their play. Whilst both games appropriate the violence of the school mass-shooting, I argue that they communicate entirely opposing values.

School mass-shootings and Social Disintegration Theory

In this section, I will put computer game studies to one side, and examine a body of sociological research into the school mass-shooting phenomenon. Over the course of this section, I will demonstrate that the causal factors described in the literature further illustrate how dramatically the values of my two case studies differ. As I lay out the key points from this research, the reader should keep in mind the authorial contrast between an amateur student modder and a professional game developer contracted by the US Department of Defense and the Department of Homeland Security.

In 2013, four researchers from the Institute for Interdisciplinary Research on Conflict and Violence, Germany – Nils Böckler, Thorsten Seeger, Peter Sitzer and Wilhelm Heitmeyer – edited a collection of international research papers concerning the phenomenon of school mass-shootings, as well as a number of meta-analysis papers that amalgamated empirical research concerning numerous facets of this phenomenon. In their contribution to the volume, Böckler, Heitmeyer and Seeger provide a conceptual framework for school mass-shootings based on their review of the available empirical studies. They propose 'Social Disintegration Theory' as a container concept for the most statistically relevant factors that emerged. To summarise their findings, school mass-shooters are predominantly male, white and coming from middle-class families in rural or suburban areas of developed industrial economies. The United States of America, Germany and Canada account for the majority of these incidents. Social Disintegration Theory is characterised by a perceived loss of control at both an individual and a societal level. The following quote from Böckler, Heitmeyer and Seeger summarises this:

1. On the individual level loss of control relates to the situation of the perpetrators and their loss of control over their own lives. This is (a) evoked through negative recognition and erosion of recognition in families, schools, and peer groups as agents of socialization, which (b) raises issues of social disintegration.

2. Societal loss of control consists in the following factors: (a) failure to respond to the crucial factors influencing the scientifically known setting of the act; (b) the largely unexplained systematic interaction between the processes triggering the act; and (c) insufficient knowledge of the trigger causes.
(Böckler et al. 2013) p.28

Social Disintegration Theory hinges on the relationship between a negative recognition gap experienced by the individual, and the social environment that incubates this experience. At

the individual level, adolescent white males in Western industrial countries are socially conditioned to expect and be expected to achieve a degree of upward social mobility (this conditioned expectation is correspondingly less present in women or people of colour). Competition for social status and employment define the risk of "failure" within this framework. In the specific case of North America, adolescent males must negotiate the cultural script of "a specific stereotypical image of masculinity according to which being a man means fearlessly and steadfastly facing the challenges of life". (Böckler et al. 2013, p.43) According to Katherine Newman's report in the same volume, parents, school communities and the media are collectively complicit in upholding the "cultural script" of masculine standards that provides the yardstick for success and failure against which male adolescents must measure themselves. A disproportionate community focus on adolescent social hierarchies, sporting achievement and family prestige compounds the lack of recognition felt by those who have been conditioned to expect it but do not achieve it. (Newman 2013) In reference to a previous study by Newman (2004), Böckler, Heitmeyer and Seeger write:

"...the media is one of the main vehicles that propagate this cultural script, as films and sports coverage regularly portray masculinity in connection with aggression, or even with violence involving severe injury to others, as an acceptable means of attaining one's own goals" (Böckler et al. 2013, p.43)

Böckler, Heitmeyer and Seeger summarise the statistically significant contextual factors for the individual experience of Social Disintegration Theory as follows:

"The background against which school shootings occur is characterized by great ambivalences relating to loss of control. Adolescents growing up in today's society lose control over their own lives under the influence of social pressure and structural insecurity about the possibility of realizing their life-plans. This process is based in social dynamics of integration and disintegration: The thwarted desire for recognition generates an addiction to recognition, and this addiction fosters a desire to exercise control over others. Violence is a means of exercising control." (Böckler, Heitmeyer and Seeger 2013 p.51)

Within the lived condition of Social Disintegration Theory, the authors describe the "violence-affirming setting" as one of the social factors that condition adolescents to turn to violence as a means to gain recognition. From the school hallways to the sports field and business environments, violence and domination are presented as an appropriate response to the desire for recognition within North American social hierarchies. (Bockler et al. 2013, p.2)

Within this violence-affirming social setting, Böckler, Heitmeyer and Seeger also examine research into the media consumption patterns of school mass shooters, to contextualise the apportioning of blame towards violent media such as films and computer games. The reader should remember that the assumed causation between the risk of violence and computer game modding was the key implication behind the expulsion of the Clements High School CS modder. Peter Sitzer's meta-review of media content in the genesis of school shootings demonstrates that whilst numerous studies show a significant causative link between aggression and violent computer games, this causation disappears when results are corrected for methodological biases, and aggression (as intention) is replaced with violence (as an act committed) as the effect being measured. (Sitzer 2013, p.287-9) Regarding the most statistically relevant media, one in eight school shooters shows an interest in violent computer games, one in four shows an interest in violent films and books, one in three express their violent desires through creative writing and half of the school shooters express their violent

desires through drawing. (Sitzer 2013, p.289) In reference to the representation of school shootings in computer games, Böckler, Heitmeyer and Seeger write that the available evidence does not point to computer games as a motivation or trigger, but as correlation components within a broader pattern of media consumption, computer games can influence how adolescents envisage violent acts. (Bockler et al. 2013, p.36)

Regarding the consumption of news media, Sitzer cites a number of studies that show how blanket media reporting on school mass-shootings is causatively linked to imitation and copycat threats (but not necessarily acts). The Columbine shooting was the largest media event in 1999, and the third most watched story of the 1990s. In the 10 days following the event, the Pennsylvania Emergency Management Agency registered 354 threats of school violence, which declined rapidly over the two-month period following the event. (Sitzer 2013, p.293) The media focus on reporting school mass-shootings compared to any other form of gun violence on school premises positions school mass-shootings as a reliable source of recognition for school shooters, who often rely on the media to disseminate their own media material. (Sitzer 2013, p.299) According to Böckler, Heitmeyer and Seeger, news media not only serve to redress the recognition imbalance felt by the school mass-shooter, but media coverage also functions as an exercise in political optics in the social sphere of their theory, where the loss of control represented by the aberrant violent act is followed by attempts to regain control manifested as acts of domination. They write:

"Media reporting on school shootings has great audience appeal, while politicians can exploit fears of the supposedly ubiquitous danger of school shootings in order to win voters, by demanding demonstrative, high-profile security measures and calling for a zero-tolerance policy ...Such demonstrative attempts at control are an expression of the safety imperative prevalent in modern societies, which is coming to rely less and less on socially integrative welfare strategies and is instead casting an ever-widening net of surveillance and monitoring strategies..." (Böckler et al. 2013, p.50)

The summary I have given here of the risk factors and media patterns in relation to school mass-shootings is brief and far from comprehensive. What I have attempted to show is that the causal risk factors underneath the umbrella of Social Disintegration Theory are nuanced and multifarious, as are their correlations in media representation and consumption. Across Böckler, Heitmeyer and Seeger's review, as well as throughout the papers reproduced in their compendium, the clear theme is the overlap between sociological factors and the varying degree to which community and government responses address these factors, or simply perpetuate them by various attempts to assert dominance and control. In light this research, I will now make my final differentiation between the Clements High *CS* mod and the EDGE simulation, based on the relationship between their authorship and the causal factors associated with school mass-shootings. I will argue that the Clements High School mod and the EDGE Simulation fall on different sides of Social Disintegration Theory, the first representing the experience of the adolescent, and the second representing the violence-affirming setting of their social context.

Differentiating the case studies as symptom versus cause

So far in this paper, I have shown that the Clements High School CS mod and the EDGE simulation share the common representational system of the FPS, and enact a similar transgression by applying this representation to the subject of a North American high school, where school mass-shootings are controversial social phenomena. I have shown that despite these similarities, the modes of authorship for these case studies are strikingly different. One is an amateur mod made by a school student, and the other is a multimillion-dollar training tool made by professional developers working for North American government agencies. In this section, I show how these differences in authorship, compounded by the differences in their gameplay procedure, reveal opposing sets of values in relation to Social Disintegration Theory and the school mass-shooting.

The Clements High CS mod exemplifies the precarious economic position of the modder, where unpaid labour and creativity is enclosed by the terms of the End User License Agreement, and capitalised only by the license holder, in this case, the Valve Corporation who own *Counter-Strike*. The production process of the EDGE simulation mimicked a modding ecosystem but sat on the opposite side of the proprietary enclosure, where the labour and creativity of professional developers were protected and remunerated by licensing agreements negotiated within the Department of Homeland Security. Küchlich's key criticism of modding culture is that it exemplifies the economic challenges that face contemporary adolescents who are beginning their working lives. The economic inequality and lack of upward social mobility that contributes to the recognition gap within Social Disintegration Theory are exemplified by the economic configuration of modding culture, especially when compared to the reported $US5.6 million budget allocated to the contractors who produced the EDGE simulation. (Fussel 2018)

Regarding the violence affirming setting of Social Disintegration Theory, the Clements High mod is consistent with the overall conventions of *Counter-Strike*, where non-game and non-military environments are transgressively appropriated for the competitive war-game. In the context of authorship and values, the appropriation enacted by the EDGE simulation is something altogether different. In their 2014 paper "Reality and Terror: The First-Person Shooter in Current Day Settings", Michael Hitchens, Bronwin Patrickson and Sherman Young write that there is a correlation/causation problem in attributing the militarisation of society to the profusion of military-themed computer games – put simply, are games militarising society, or are games reflecting the militarisation of society? (Hitchens et al. 2014) In the contrasting cases of the Clements High School CS mod and the EDGE simulation, we can answer this question conclusively. The appropriation by a student of their school environment reflects the transgressive practice inherent to CS modding and makes a grab for attention in relation to a controversial phenomenon that is close to their lived experience (the school mass-shooting). In relation to the 'simulation gap' and 'congruence requirements' mentioned earlier in this paper, the transgression of the student expresses an insider's perspective of a violent phenomenon in relation to which their only limited agency might be to become a victim. By contrast, the appropriation of the FPS simulation by a US government agency in response to the school mass-shooting phenomenon reflects an outsider's perspective, where a position of powerful agency is used to further militarise the situation and perpetuate the 'violence-affirming setting'. The application of a military simulation developed by the US Department of Defense to the phenomena of the school mass-shooting does not address the causes identified Social Disintegration Theory. Instead, as shown by Böckler, Heitmeyer and Seeger, it exemplifies the desire to reassert social control

via military force, rather than to address underlying sociological causes. This is the underlying value statement behind the transgressive appropriation of the EDGE simulation – a US Department of Defense tool being used by the Department of Homeland Security, presenting the first-person shooter representation as an appropriate governmental response to the violent phenomenon of school mass-shootings.

Understood in terms of embedded values through authorship, the application of a game of military vision for the purpose of training first responders reveals a desire to militarise this civilian social phenomenon, rather than to de-escalate the violence-affirming setting by addressing causal factors indicated in the literature. Social Disintegration Theory allows us to see very clearly what was simulated by the EDGE training tool, and what was not. Included was the perpetuation of values associated with causal factors, and excluded was the attempt to challenge or defuse these causal factors. Put very simply, the student's representation of their school using the camera-gun reflects the broader context of the Social Disintegration Theory that they are living in, whereas the Department of Homeland Security's representation of schools using the camera-gun perpetuates the militarisation of the civilian environment, and neglects underlying sociological causes.

Conclusion:

In this paper, I have shown that the material authorial contrast between a student modder and a government agency, and their positions relative to the phenomena of the school mass-shooting can be used to identify different sets of values communicated by two relatively similar computer game representations. The distinction between the modder and the developer, relative to the affordances of the End User License Agreement establishes an economic paradigm that is similar to the broader patterns of inequality that characterise the contemporary labour market. I selected two case studies that both use the representational structure of the first-person shooter game and the representational subject of the North American high school. The first case study is a relatively straightforward example of *Counter-Strike* map-making, distinguished only by its relationship to a particularly sensitive combination of student author and high school subject matter. The second case study is a military training tool, based on commercial computer game technology, applied to a civilian environment, distinguished by the government's use of an FPS system to create a simulation within which the player can shoot children. I introduced Böckler, Heitmeyer and Seeger's Social Disintegration Theory as a way to examine how the contrasts in authorship between these case studies relate to the available evidence surrounding the causes of their common representational referent – the school mass-shooting. I found that a clear case could be made that, when compared to the sociological factors encompassed by this theory, the Clements High *CS* mod is best described as a symptom of the conditions experienced by American adolescents, whereas the EDGE simulation perpetuates causal factors, most notably the re-enforcement of military vision and a violence affirming-setting. Over the course of this paper, I hope to have provided a useful example of how two controversial violent computer games can have opposing sets of values when understood in relation to the material circumstances of their authors. I hope that by adjudicating the values of these case studies according to available evidence, I can add nuance and sophistication to discussions of violence in computer games, and how such representations have the potential to represent the symptoms of a social phenomenon as well as perpetuate its cause.

Games

COUNTER-STRIKE. Valve Corporation. PC, 2000.

ENHANCED DYNAMIC GEOSOCIAL ENVIRONMENT (EDGE) SIMULATION. Cole Engineering Services & US Department of Homeland Security, 2017.

References

AgentFSB. (2007). *"CS 1.6 CZ Map Expelled Clements HighSchool Student(Action)"*. YouTube video. Accessed 21/06/2018.

Bale, John. (2003). *Sports Geography*. New York and London: Routledge.

Barthes, R, (1978) "The Death of the Author," in Image, Music, Text, trans. Stephen Heath, New York: Hill and Wang.

Bayliss, P. (2010). *Videogames, Interfaces, and the Body: The importance of embodied phenomena to the experience of videogame play.* Doctoral Dissertation, Melbourne: RMIT University.

BBC Click. (2017). "Can a Videogame Help First Responders Deal with a School Shooting?" YouTube video. Accessed 15/01/2018.
[https://www.youtube.com/watch?v=BQLCfb5Cpo8].

Böckler, N., Heitmeyer, W. & Seeger, T. (2013). 'Social Disintegration, Loss of Control, and School Shootings' in *School Shootings: International Research, Case Studies, and Concepts for Prevention*. N. Bockler et al., eds. New York, Heidelberg, Dordrecht, London: Springer.

Bogost, I. (2007). *Persuasive Games: The Expressive Power of Video Games*. Cambridge, Mass: MIT Press.

Bogost, I. (2006). *Unit Operations: An Approach to Videogame Criticism*. Cambridge, Mass: MIT Press.

Chamayou, G. (2015). *A Theory of the Drone*. New York: The New Press.

Dwyer, T., Griffith, T. & Maxwell, D. (2011). "Rapid Simulation Development Using a Game Engine - Enhanced Dynamic Geo-Social Environment (EDGE)" in *The Proceeding of the Interservice/Industry Training, Simulation, and Education Conference (I/ITSEC)*. Orlando: National Training & Simulation Association, pp. 1–10.

Flanagan, M. & Nissenbaum, H. (2014). *Values at Play in Digital Games*. Cambridge, Mass & London: MIT Press.

Flynn, B. (2005). "Imaging Gameplay – The Design and Construction of Spatial Worlds." in *The Proceedings of Imaginary Worlds - Image and Space International Symposium*. Sydney: The University of Technology.

Frasca, G. (2001). "Simulation 101: Simulation versus Representation." *Ludology.org*, 16–17. Accessed 21/05/2017.
[http://www.ludology.org/articles/sim1/simulation101.html]

Fussell, S. (2018). "Bleak New Game Trains Teachers How to Survive School Shootings" in *Gizmodo*. Accessed 13/-6/2018.
[https://gizmodo.com/new-vr-simulation-trains-teachers-how-to-act-during-sch-1821736475]

Galloway, A. (2004). Social realism in gaming. *Game Studies*, 4(1), pp.23–26. Available at:
[http://www.gamestudies.org/0401/galloway/%5Cnhttp://gamestudies.org/0401/galloway/.]

Galloway, A. (2006). *Gaming: Essays on Algorithmic Culture*, Minneapolis, London: University of Minnesota Press.

Galloway, A. (2006b). "Warcraft and Utopia", in *1000 Days of Theory: CTHEORY*, February.

Gestalt, (2000). "Minh Le of Counter-Strike team: Half-Life mod's designer interviewed" in *EuroGamer.net*, pp.1–6.
http://www.eurogamer.net/articles/counterstrike [Accessed February 10, 2018].

Hitchens, M., Patrickson, B. & Young, S. (2014) "Reality and Terror, the First-Person Shooter in Current Day Settings". *Games and Culture,* Vol. 9, Iss. 1, 3-29.

Ippolita, Lovink, G. & Rossiter, N. (2009). "The Digital Given: 10 Web 2.0 Theses" in *The Fibreculture Journal*, (14), pp.1–6.

Klevjer, R. (2006). "The way of the gun: The aesthetic of the single-player First Person Shooter" in *Doom. Giocare in prima persona*. M. Bittanti & S. Morris, eds. Milano: Coster & Nolan, pp. 1–11.

Küchlich, J. (2005). "Precarious Playbour: Modders and the Digital Games Industry". *The Fibreculture Journal,* Issue 5.

Newman, K. (2013). "Adolescent Culture and the Tragedy of Rampage Shootings" in *School Shootings: International Research, Case Studies, and Concepts for Prevention*. Böckler, N, Seeger, T, Sitzer, P, Heitmeyer, W, Eds. New York, Heidelberg, Dordrecht, London: Springer.

Nitsche, M. (2008). *Video Game Spaces: Image, Play, and Structure in 3D Game Worlds*, Cambridge, Massachusetts, London, England: MIT Press.

Sicart, M. (2011). "Against Procedurality". *Game Studies.* Vol. 11. Iss. 3.

Sinclair, B. (2007). "Student Transferred for Making Counter-Strike Map Based on School." *GameSpot*. Accessed January 15, 2018
[https://www.gamespot.com/articles/student-transferred-for-making-counter-strike-map-based-on-school/1100-6235913/]

Sitzer, P. (2013). "The Role of Media Content in the Genesis of School Shootings: The Contemporary Discussion" " in *School Shootings: International Research, Case Studies, and Concepts for Prevention*. Böckler, N, Seeger, T, Sitzer, P, Heitmeyer, W, Eds. New York, Heidelberg, Dordrecht, London: Springer.

Virilio, P. (1989). *War and Cinema: The Logistics of Vision*. London, New York: Verso.

Wales, M. (2018). "New Mass-shooting Simulator Aims to Help Teachers Respond More Effectively in a Crisis." *EuroGamer.net*. Accessed 15/02/2018
[http://www.eurogamer.net/articles/2018-01-05-new-mass-shooting-simulator-aims-to-help-teachers-respond-more-effectively-in-a-crisis]

Wirman, H. (2009). "On productivity and game fandom" in *Transformative Works and Cultures*, 3, pp.1–40.