A Foundation for the Persuasive Gameplay Experience

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ABSTRACT

Games are increasingly used for purposes that stretch beyond their primary strength as medium for entertainment. The interactive nature of games provide players with various opportunity to deal with complex (societal) issues on a more involved and personal level, far more than any other medium affords. As such it is not surprising to see that games offer a great platform for persuading players to adopt a particular perspective on events that occur in the real, physical, world. Games for persuasion, or games for attitude-change, have been a topic of discussion over the past decade. Concrete design strategies however, to analyze persuasive gameplay or guide the designer in embedding persuasive messages in gameplay, are scarce. As such, to advance the discipline we have set our focus on the development of strategies that aid the persuasive game design process. In this paper we describe the Attitudinal Gameplay Model as foundation for the Persuasive Gameplay Experience. The model serves as an overview of what game elements can be utilized for persuasion, how they are interrelated and what mental processes of the player are important to take into account.

Keywords

Persuasive Games, Persuasive Gameplay, Games for Change, Games for Attitude Change, Game Design Strategies, Persuasion

1. INTRODUCTION

The Landlord's board game, designed by Elisabeth Magie in 1904, the earliest predecessor of the well known Monopoly game, was created with the deliberate agenda in mind to address issues regarding monopoly on land ownership [20][46]. And Sugoroku, a series of Japanese board games, was used as platform to arouse national passion or create sites for social critique during the middle ages [20]. GEOlino's Meltdown, a more recent board game designed by Kolle Rebbe, was created with the intent to raise awareness on climate change and stir up further dialogue among pupils on the topic [33]. In the game Meltdown players have to guide a parent polar bear together with polar bear children over real slowly melting ice floes in a race against room temperature.

The concept to use games as vehicles to promote ideological ideas, bring forth arguments or stimulate critical thinking is definitely not a new phenomenon, it is however with the advent of the computational era that the use of games for such purposes becomes increasingly more popular. This War of Mine, a digital game developed by game studio 11 Bit Studios in collaboration with non-profit charity Warchild [1] provides us with a peek into the life of civilians enduring the harsh phases of war. Based on interviews with experience experts the game promotes a more realistic and possibly more credible representation of what war could entail for the average civilian [12]. Spec Ops: The Line also provides a distressing perspective on war, but with a different setting and perspective, as through the eyes of a soldier [51].

We increasingly see games that go beyond the creation of rewarding experiences alone, implementing messages to persuade and leave the player with something to think about in perspective to events that occur in the real, physical, world. Designers who seek an outlet for presenting a different point of view on issues, people, objects or concepts that occur in the real-world essentially enter the realm of persuasion [42][35][38]. There is however little practical knowledge on how to design for the successful implementation of persuasion in games, let alone strategies that support this complex design process. In particular finding a balance between the persuasive message and the important engaging aspects of games seems difficult, often resulting in games that are too concerned with getting the message across and lose the engaging qualities that games require at their core.

Some have provided useful pointers for designing such persuasive games [17][15]. However, more practical strategies to analyze the player's moment-to-moment (persuasive) experience and more concrete strategies to aid the persuasive game design process do not exist yet. As such, our research focus is situated within the search for a deeper understanding of games as persuasive medium and the subsequent aim to develop strategies (methods, tools, models, etc.) to maximize the potential of games as a persuasive medium. Our first effort has resulted in the Attitudinal Gameplay Model as foundation for the implementation of persuasive messages in games. A model that should be useful for the designer in understanding how attitudes in gameplay are processed by

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the player and what game elements and mental processes are influential in the goal for persuasion. At the same time, the model serves as guideline in answering the overarching "how to design for" question in regards to the persuasive gameplay experience, providing direction for future research.

2. GAMES FOR ATTITUDE-CHANGE

Games as a medium, just like written text, photos and film are capable of expressing certain values of their creators [21]. Unlike more traditional media however, games are unique in their interactive affordances and real-time rendering capabilities. Games offer a new dimension to the existing repertoire of media used to persuade [7][8][15]. Most other media present us with a one-way stream of arguments, leaving the audience with little opportunity to argue their own point of view; to discuss and further elaborate on why one should change their attitude(s). Games however present players with the unique capabilities to evaluate beliefs against a system that accepts input to a certain degree. The procedural nature of games as such promote new venues for the field of persuasion.

In his influential book *Persuasive Games, The Expressive Power of Videogames*, Bogost argues that we are essentially dealing with a new type of persuasion, decribed as Procedural Rhetoric [7][8]. Procedural Rhetoric is seen as "The art of persuasion through rule-based representations and interactions rather than the spoken word, writing, images or moving pictures", or as Bogost simply explains by "using processes persuasively" [8]. It closely relates to the *medium* category of Fogg's Functional Triad, indicating that "Simulations can persuade people to change their attitudes or behaviors by enabling them to observe immediately the link between cause and effect" [22]. Bogost consequently defined Persuasive Games as "games that mount procedural rhetoric effectively" [8]. Some however argued that Bogost's definition for persuasive games is too narrow and incomplete in the sense that games also encompass persuasive features other than procedural rhetorics, such as persuasion through the game's audiovisual elements [14][15][27]. Bogost seems to mention such elements throughout his work but positions them more as seperate to procedural rhetoric [7], rather than in the more synergetic relationship we adhere to. Frasca likewise concludes: "Even though I agree that rules are an essential aspect of game rhetoric, they cannot work independently from objects, ideas, texts, sounds and images." [27], a statement further elucidated by de la Hera [15] . E.g. In the game September 12th, created by Frasca, the rules and procedures of the game are important to construct the persuasive argument, yet the styling is responsible for providing the eventual meaning of the rules and procedures. Changing the audiovisual elements to a style in which you drop packages of food supplies will completely change the message (even if the rules and procedures stay the same).

De la Hera presents a set of "dimensions" through which games can channel persuasion. De la Hera mapped these dimensions into a conceptual model, promoting that persuasion in games can be grouped on three levels: The Signs, The System and The Context [14][15]. The Signs deal with the game's Visual Persuasion, Sound Persuasion, Haptic Persuasion and Linguistic Persuasion. This level is related to the study of semiotics, elaborated by Salen and Zimmerman as to how games convey meaning (specifically through the interrelationship between signs presented within the same system) [46][14]. One level higher we find the System in which the Cinematic Persuasion, Procedural Persuasion and Narrative Persuasion is situated. This level is essentially responsible for the presentation of the Signs and their interrelationship. On the top level we find the Context of the game, explaining the persuasive dimensions that are used to keep the player hooked, including Social Persuasion, Tactical Persuasion, Affective Persuasion and Sensorial Persuasion. The presented model is useful as it provides an overview of what persuasive properties games can encompass. From a more practical point of view, the model is primarily useful as tool for game analysis, but provides little grip on explaining our primary interest, questioning how to design for persuasion through games.

This how question, one we have determined as essential for advancing the use of games as persuasive medium, surprisingly remains a rather under-explored area. In general we see two aspects that are important for successful persuasive gameplay: The inclusion of strategically placed game elements that bring forth the persuasive message and the overarching stimulus to keep players engaged, offering rich and rewarding experiences. Work focused on the engaging properties of gameplay have been flourishing over the past decade, already resulting in several initiatives such as the Game Design Lenses by Jesse Schell [47], The PENS Framework by Ryan and Rigby [45] and the Playful Experience Framework by Korhonen et al. [34]. The engaging aspects of gameplay are the indispensable vehicles to drive successful persuasive gameplay and account to several gameplay qualities that stimulate the *transfer* of attitudes, a process explained in section 3. Game design strategies for persuasion however are still in their infancy stage, likely as they are not fundamentally concerned with the gameplay qualities that deal with the the creation of engaging experiences. Yet, understanding attitudes in gameplay, how to design for persuasion through games and what game design strategies can support designers in maximizing the persuasive properties becomes increasingly relevant. In particular if we want games to occupy a more significant position in contemporary media used for persuasion.

2.1 Persuasive Technology

Within the field of Human Computer Interaction (HCI) we notice that Fogg's perspective on Persuasive Technology is most dominant as an umbrella for computational persuasion (essentially including digital games). This is likely due to his extensive work translating the concept of behavior-change through technology in more practical strategies, stimulating a more approachable format for industry [23][26][24]. Fogg defines Persuasive Technology as "interactive computing systems designed to change people's attitudes and behaviors" [22]. While this would provide us with a more concise starting point in regards to Persuasive Games there are two aspects that are somewhat troublesome from our perspective. First, we do not want to limit ourselves to the computational (digital) landscape. Some persuasive games work well (or even better) in an analog format, take GEOlino's Meltdown for example [33]. Such kinds of analog games are great at promoting a more interpersonal, intimate dialogue among participants.

The second remark on Persuasive Technology is more substantial and argues that Fogg's scope on "persuasion" is somewhat limiting. Most of Fogg's contemporary work is essentially focussed on gaining compliance, devoting little attention to how attitudes are shaped to influence consequent behavior through the interaction with technology. A rather surprising focus since it ignores the more substantial attitude-behavior relationship that is inherent to persuasion [3][38]. Bogost argues that "Persuasive Technology is not fundamentally concerned with altering the user's fundamental conception of how real-world processes work. Persuasive technology works in the service of existing material ends, rather than the reasons one would want to pursue those ends." [8]. Bogost, commenting on persuasive technology from a more rhetorician perspective, boldly argues that *Manipulating Technology* might have actually been a better name for Persuasive Technology [8]. Conversely, we believe that games should become more like interactive documentaries, to convey ideas and values, presenting arguments about how things work in the real-world from a particular perspective. Games are great at providing people a more involved experience, an environment in which they can reason by themselves why certain perspectives are worth considering. We believe it to be a more sustainable approach towards changing behavior in the longer run, situated from a more internalized motivation rather than the often arbitrary abuse of game principles to make real-world tasks extrinsically more enjoying (without providing *why* one should engage in particular behavior).

2.2 Persuasive Gameplay

We have chosen to focus on persuasive gameplay rather than persuasive games as expression for our field of interest as it better captures the various moment-to-moment situations of the player(s), playing the game, in context. It also better captures the notion that persuasion is independent from game categorization (serious game, entertainment, etc.) and genre (real-time strategy, first person shooter, platformer, etc.). Practically all games are capable of holding a persuasive intent embedded by the designer, even if this is not the primary focus of the end product. The collection of persuasive gameplay experiences encountered by the player, throughout the game, eventually determines the resulting change in attitude(s) (as induced by the game). In general we see persuasive gameplay as "*the designed experience, occurring when the game is set into motion by the participating player, that attempts to shape a player's attitude towards an object or concept as represented by the game*". We use this description as guideline to indicate what persuasive gameplay entails within our current research focus, and as means to identify when persuasive gameplay occurs.

2.2.1 Designed experience

Gameplay is a concept that has been described by Salen and Zimmerman as "the experience of a game set into motion through the participation of players" [46]. We added *designed* to capture a collection of aspects that are essential in defining persuasive gameplay. Ralph and Wand elaborate that *Design* is defined as "the specification of an object, manifested by an agent, intended to accomplish goals, in a particular environment, using a set of primitive components, satisfying a set of requirements, subject to constraints" [44]. The specific inclusion of "accomplish goals" (the persuasive intent and engaging experience) and "in a particular environment" (to indicate that persuasive gameplay is influenced by the context in which the game is played) exemplifies several important properties that account to persuasive gameplay. Gameplay is a dynamic property of games and as such the designer is promoted to design game elements that increase the likeliness of the envisioned gameplay experience to happen (or to be persuasive, as objective within persuasive gameplay) [28][30].

2.2.2 Attempts to shape a player's attitude

Persuasive gameplay is characterized by the attempt to influence an attitude of the player(s). An attitude, according to Perloff, is "a learned, global evaluation of an object (person, place or issue) that influences thought and action" [42]. As such we conclude that attitudes can be learned through persuasive gameplay [50], and that attitude-change as result from this process is capable of influencing consequent behavior-change (a property that designers often seem to be after). Following the Expectancy-Value perspective developed by Fishbein and Ajzen an attitude consists of two components that we can shape (through gameplay): the *cognitive* (beliefs) and the *affective* (feelings) [19]. "An attitude is a combination of what you believe or expect of a certain object and how you feel about (evaluate) these expectations.", as elucidated by Perloff [42]. Persuasion is the process in which an attempt is made to strengthen or weaken either the cognitive or affective component(s) of an attitude by presenting arguments (through gameplay). This process essentially attempts to make an object or concept to be more or less "likable" to the player. A third attitude component, *behavior*, refers to the player's past behavior or experience and is often used as time-saver to avoid the need for re-evaluating objects or concepts when encountered again [35][5][16]. By targeting the cognitive and affective attitude component through gameplay frequently enough we can cause an attitude's behavior component to change as well (i.e. changing past experiences) [35].

2.2.3 Object or concept as represented by the game

Persuasive gameplay is focused on shaping the attitude towards an object (person, place or issue) or concept (a notion or idea), that is fundamentally external to the game. The game presents a (deliberate) representation of an object or concept that exists in the real, physical, world. The primary aim of persuasive gameplay as such is not to shape attitudes towards the *representation* of the object or concept presented in the game, but fundamentally towards the actual *represented* object or concept, that exists in the real, physical, world.

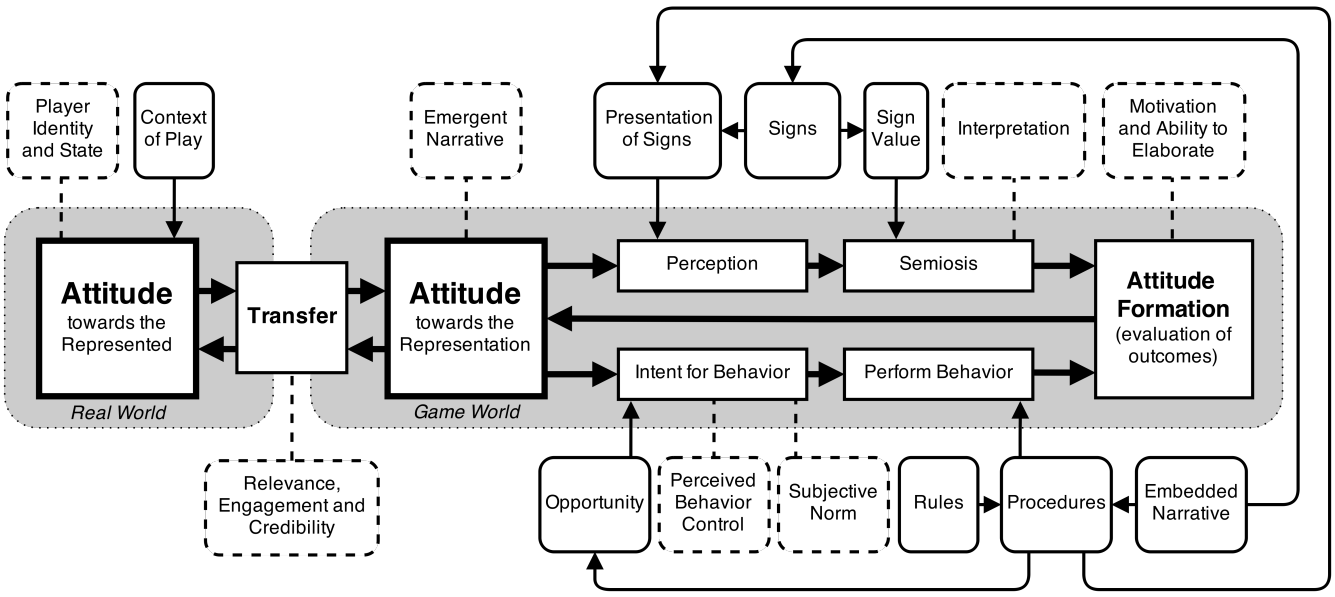

Figure 1: Attitudinal Gameplay Model for the Persuasive Gameplay Experience

3. ATTITUDINAL GAMEPLAY

Our first step towards design strategies for the persuasive gameplay experience is the thorough understanding of the player's gameplay process, and in particular how *attitudes* play a role in this. This is useful for the designer as it provides an overview of where and how specific influences matter to persuade the player (i.e. influence attitudes). In Figure 1 we have visualized this gameplay process, identifying the most essential components (or category thereof) to take into account when designing for persuasive gameplay. The model ultimately serves as a reference for constructing the persuasive gameplay experience. It also supports the perspective that there are essentially two synergetic routes in designing for persuasive gameplay that have to complement each other in the goal of presenting persuasive messages. It also promotes a better understanding of the difference between attitudes that the player holds towards the *representation* of the attitude object or concept (in the game-world) and the actual *represented* attitude object or concept (that exists in the real-world). There are several qualities of the gameplay that the designer can control to influence the *transfer* between both worlds. *Transfer* is the process of adopting attitudes from the the game-world into the real-world (and from the real-world into the game-world), the light grey areas in the model indicate these different worlds. Since we specified persuasion as a process primarily aimed at *attitude-change*, a central role has been reserved for attitudes in the model. And although not visualized, an attitude we hold in the real-world naturally influences a real-world intent for behavior [35][39]. The process visualized in the grey area of the game-world represent the gameplay process in which persuasive elements can be embedded by the designer. Surrounding the grey areas *Game Elements* (rounded solid borders) can be found that the designer can utilize to persuade the player. The *Mental Processes* of the player (rounded dashed borders) influence the gameplay experience and persuasive effect. Both influential *Game Elements* and *Mental Processes* are placed according to their function and relation to the individual parts of the gameplay process. The *Game Elements* are interrelated through a flow diagram to indicate dependencies, supporting the designer in uncovering how game elements are related to maximize persuasiveness. The *Mental Processes* are related on a more holistic level and represent the moment to moment situation of the player's thoughts and feelings, influencing and influenced by the interaction process. From a birds-eye perspective we can divide the model in four sections. The first section explains the *Attitude and Transfer*, the second section explains the *Semiosis Route*, the third section explains the *Behavior Route* and the fourth section explains the *Attitude Formation*.

3.1 Attitude and Transfer

Attitude(s) has received a prominent position in the model, presented as a central hub. The model indicates that there are two parts of attitude acquisition that the designer has to take into account. Because the game presents a synthesized representations of the *attitude object or concept* in the real-world a process known as *transfer* applies. In a game the attitude-change essentially first happens towards the synthesized representation and not directly to the attitude object or concept in the real-world. Pulling the two apart allows the designer to identify gameplay qualities that are expected to improve the transfer of attitudes between both worlds. At the same time this helps to avoid misunderstanding when certain persuasive strategies do not have the expected results, as the bottleneck does not always have to be caused by the quality of the persuasive message itself. As such, the designer with persuasive intent should not exclusively focus on embedding persuasive messages in gameplay, it is of equal importance to stimulate this *transfer* process. Muchinsky defines *transfer* as "the application of knowledge, skills and attitudes acquired during training to the environment in which they are normally used" [37][32],

also known as *knowledge transfer* from the field of serious games, in which transfer of knowledge is essential (specifically in games for education). Furthermore, in particular to persuasive game design, Visch et al. describes the same transfer as the "effect of user experienced game-world on forming, altering, or reinforcing user-compliance, -behavior, or -attitude, in the real-world" and likewise argues that the transfer process is often neglected in the design process of persuasive games [49]. A similar type of transfer is also described in recent work done by Ortiz de Gortari and Griffiths, who study the phenomenon of game-world elements that transfer into the real-world [40]. We have identified three aspects that serve as overarching collection of gameplay qualities that the designer can focus on in stimulating the transfer of attitudes; *Relevance*, *Engagement* and *Credibility*. See Figure 2 for an exemplification of Attitude and Transfer.

3.1.1 Relevance

Relevance deals with how pertinent the topic of the gameplay (and more importantly the attitude object or concept) is to the player. According to O'Keefe, "As a given issue becomes increasingly personally relevant to a receiver, the receiver's motivation for engaging in thoughtful consideration of that issue presumably increases" [38]. This relevance is primary determined by the player's personal identity (culture, interest, etc.), state (mental and physical) and the context (including situational aspects) in which the game is played. The designer is capable of causing the attitude object or concept to become more relevant to the player. By introducing important aspects of the attitude object or concept that the player might not have considered before. Or by actively creating new relations with the player (e.g. through the identification with characters that promote aspects of the attitude object, a quality that has already shown success in narrative persuasion [13][42]) the designer can guide the player to develop new interests. In a broader sense we also account to *relevance* as determinant for the the degree to which a player can (correctly) correlate the representation of the attitude object or concept (in the game-world) to the represented attitude object or concept (in the real-world).

3.1.2 Engagement

Engagement in games is likely one of the most important aspects for gameplay and generally relates to how engrossed we are with what happens (during gameplay). Existing definitions however are quite diverse and the positioning of engagement in relation to phenomena like immersion, presence and flow is still rather diffuse [9]. For the Attitudinal Gameplay Model we have chosen to view engagement as umbrella for several gameplay qualities including immersion, presence, flow, involvement and enjoyment to indicate qualities that can have an influence on the persuasive gameplay experience. Several studies have already indicated the influence of these gameplay qualities on the transfer of attitudes. Presence and Immersion for example have shown positive influence, using virtual reality, in overcoming certain phobia [29][41][22]. Persuasive messages embedded in gameplay are only as good as to what level the game is actually played. As such, the designer of persuasive gameplay should focus on both the implementation of persuasive messages as well as on the engaging properties of the gameplay [10].

Figure 2: Unlike most video documentaries, a game's synthesized representation often lacks a direct link to a concrete real world event. This War of Mine by 11 Bit Studios [1] hints to a city under siege in a fictitious (East European) western society (e.g. due to the destroyed city, ethnic representation of the characters and the launch trailer presenting a survivor of the Bosnian War [12]). The game offers a *representation* of citizens that have to endure the harsh influences of war, presenting the player with the conceptual dilemma's they have to face during war. Based on this representation the player *transfers* applicable attitudes from the *real-world* (and attitudes shaped through similar games). These attitudes are useful in making sense of the given game-world. With persuasive gameplay the designer attempts to shape the player's attitude and aims for this attitude to transfer to the player's real-world attitudes. This War of Mine argues that war is cruel and that citizens are among the most affected. The designer hopes that the player eventually agrees with this argument and changes (likely reinforces) his or her attitude to real-world citizens currently in war. Based on this attitude they consequently ask the player to donate to War Child, supporting the attitude to become a real-world behavior-change. This transfer process is further stimulated by several aspects. From a West European point of view This War of Mine can easily be related to the current war in Donbass (Ukraine), increasing *relevance*. The game has been been developed in collaboration with charity War Child and various experience experts [1][12], increasing *credibility*. And the game has been designed as an entertainment game, keeping a strong focus on offering the player an *engaging* experience.

3.1.3 Credibility

Credibility is a more holistic aspect of the game, a quality known as *source credibility* in theory on Persuasion [42][38]. It determines the degree to which the player thinks that what is represented in the game is believable. This does not only account to what is presented during gameplay, it also depends on aspects outside of the game such as who designed the game, their relationship with the attitude object or concept and the persuasive intent perceived by the player. It can for example depend on the support from third parties whom we might regard trustworthy or expert, or not [25][22].

As a designer it is important to understand that credibility influences how the player enters the game in the first place and as such also how the game is introduced (e.g. as part of an existing campaign or through a mandatory company training). Several methods are at the designer's disposal to increase credibility, such as by incorporating multiple perspectives on issues, and reason why one is preferred [42].

3.2 Semiosis Route

The first route, coming from the central attitude hub, is what we call the *Semiosis Route*. The process of *meaning-making* as introduced by Peirce (and Saussure), the study of Signs, also known as Semiotics [11]. As human beings we make sense of the environment around us by attaching meaning to the things we see, hear, smell and feel. As Chandler explains; "Anything can be a sign (words, images, sounds, gestures, objects, etc.), as long as someone interprets it as 'signifying' something - referring to or *standing for* something other than itself" [11]. From a designer's perspective it is important to understand that everything implemented in the game can convey *something*, and not only the signs meant to support the persuasive message. Not taking into account what other signs convey could potentially cause a discrepancy for the persuasive message. As such, in designing persuasive gameplay it is important to understand what all signs in the game mean, and how they could possibly affect the strength of the persuasive message [15]. The Semiosis Route consists of two phases, *Perception* and *Semiosis*. See Figure 3 for an exemplification of the Semiosis Route.

3.2.1 Perception

Perception is used to indicate the ability to perceive a sign. A player can only make meaning of a sign when it can be perceived. The perception of a sign is, outside of personal factors of the player, influenced by the designers choice on how to present the signs (or the affordances of the player that restricts or enables perception). The presentation of signs is determined by the placement of signs in the game world, their prominence, cinematic treatment or through cut-scenes.

3.2.2 Semiosis

The *Semiosis* process, or the process of meaning-making as explained, follows the perception phase. Saussure indicates that a sign has no absolute *value* independent from its relation with other signs in the same system [11]. As such it is important for the designer of persuasive gameplay to take the value of a sign into account, understanding what relation it has with other signs and how it is influenced by the context in which the game is presented. Peirce's definition of a sign, "Something that stands for something, to somebody, in some respect or capacity", hints to an extra aspect we have to consider, which refers to *interpretation* as Salen and Zimmerman indicate by explaining Peirce's definition [46]. Eventually, a sign's meaning (or collection thereof) is the result of the interpretation by the individual player, depending on the player's identity, context of play and the emergent narrative. Taking the value of a sign into consideration is important as it can guide the interpretation of the player, likewise influencing the persuasive message one constructs. There are two types of narrative, one we can control as designer and one that only exists in the players mind.

Figure 3: Meltdown by Kolle Rebbe [33] presents several signs (*perception*) that are interdependent (*sign value*) to convey an event related to the topic of imminent climate change (*interpretation*). The signs are the visual miniature polar bears in different sizes (visually representing a polar bear parent and children), the blue game board (visually representing water) and the ice cubes (both visually and haptically representing (melting) ice floes). The melting ice cubes in connection to the other signs and given context present an argument that the north pole will be gone if we do not put a halt to global warming. The melting ice cubes, under room temperature, essentially represent the current situation in the real-world. The only way to stop the ice cubes from melting is to put them back in the freezer, resulting in the argument that the only way to save the north pole is to reverse the process of global warming. Changing one of the signs will however cause the game to convey something completely different. Replacing the ice cubes for miniature oil drums for example will break the game's connection to climate change, representing an event that will more likely be related to a real-world event concerning oil spills.

The embedded narrative is a detailed planning of signs and procedures to tell a particular story. The emergent narrative is the internal narrative that only exists in the player's mind and is influenced by practically everything the player does in the game world (and social interaction around this), combined with the embedded narrative (if one exists).

3.3 Behavior Route

The second route, also coming from the central attitude hub, is the *Behavior Route*. The reason for Bogost to so heavily focus on the procedural rhetoric, as presented through the game's rules and procedures, rather than through signs is easy to elucidate. Attitudes based on direct experience happen to be stronger, and are more likely to predict consequent behavior [4][35]. And above all, from a medium perspective unique to games. At the same time however, the rules and procedures mean very little if there are no signs to support the same persuasive message. As such both *Semiosis Route* and *Behavior Route* have to work in synergy. Our implementation of behavior in the Persuasive Gameplay Experience Model is based on the the Theory of Planned Behavior by Ajzen [2][35] and the Mao model by Ölander and Thøgersen [39], two models that support the designer in determining

the likeliness of a behavior to happen based on several mental and (in games controllable) dependencies. See Figure 4 for an exemplification of the Behavior Route.

3.3.1 Intent for Behavior

Based on an attitude the player is able to develop an *Intent for Behavior*, often coming from the Semiosis Route. The *Opportunity* dependency is based on whether the procedures of the game provide the right situational conditions for the player to perceive a behavior as possible (and requires a synergy with the Semiosis Route) [39]. The opportunity can also serve as trigger to stir up an intention to initiate a behavior [23]. The designer can place specific opportunities throughout the game to influence the player in making specific attitudes actionable. Also, the designer can use false opportunities to present an indirect persuasive message on why certain real-world processes are potentially flawed. A good example of this is Frasca's September 12th, first providing a sense that you can defeat the terrorists, but quickly introducing the idea that engaging in the behavior only escalates the issue [27]. The *Perceived Behavior Control* dependency is based on the beliefs of the player concerning their ability to perform a particular behavior [2]. In the Mao Model this dependency also hints to the concept of building habits through the repetitive performance of a particular behavior [39]. The *Subjective Norm*, also known as the *Social Norm* in the Mao Model, is described as "the perceived social pressure to perform or not to perform the behavior" [2]. Although the game world offers more affordances for behavior that might not resonate with the Subjective Norm (in comparison to real-world behavior), it still makes perfect sense to factor it in as a dependency within a game environment. In multiplayer games (in particular in their analog form) a player's behavior is still influenced by the subjective norm, particularly depending on the relationship with other players and relevant for maintaining a pleasant play experience with them. A designer should keep in mind that the behavior of the player might find a strong influence from his or her direct social environment, which is particulary important when persuasive games are focussed on an emergent dialogue among participants [48]. e.g. Some players might be more comfortable in presenting their opinions than others. It is important to understand what implications this might have for the persuasive effect of the game, and how the designer could possibly influence, for example ease, the subjective norm for participating players (e.g. in games that address more intimate topics among youngsters).

3.3.2 Perform Behavior

Depending on how well the *Intent for Behavior* developed, a player performs (or not) the intended behavior. The performance of the behavior is determined by the *Rules* (embedded in the *Procedures*) of the game, providing feedback on whether a behavior went as expected or not. The outcome results is a specific consequence (e.g. success, no effect or failure). Based on the outcome of the behavior the player confirm whether his belief concerning the outcome of the behavior was correct or not. An unexpected feedback might result in cognitive dissonance. Cognitive dissonance refers to a situation in which the player holds conflicting beliefs or feelings [18][42]. Through affecting the performance of the player by specifying the rules a designer can actively create a discrepancy in the player's beliefs of how things work,

Figure 4: The first encounter with other American soldiers in Spec Ops: The Line by Yager Development [51] creates a conflicting experience; those who the player was set out to rescue actually happen to be hostile. The player feels in *control* over own actions and is given the *opportunity* to shoot back. The *subjective norm* should not be influential at this stage, although some players might try to act with moral thought and not return fire directly. The *Rules* however determine that it is necessary to return fire for progressing in the game, even though this feels conflicting with prior beliefs held by the player (i.e. that American soldiers are allies). The conflicting experience, known as cognitive dissonance [18][42], offers a unique gameplay experience that is frequently used in Spec Ops: The Line. It is not particularly interesting that the game ends by saying that one could have also just stopped playing the game to end the increasing level of violence, an argument that is directly targeted at the player (e.g. are you really a hero in shooter games?).

bended to compliment the persuasive message. Since people are likely to reduce such tension by changing their attitudes [35] it can be an affective strategy for creating persuasive gameplay. The outcome of this behavior consequently flows into the *Attitude Formation* in which the player evaluates the outcomes of the behavior [39]. The Behavior Route is potentially the most prominent strength in games as persuasive medium as it feels like a form of self-persuasion to the player, a type of persuasion that yields promising results in comparison to more direct types of persuasion [4].

3.4 Attitude Formation

The final section of the model deals with the *Attitude Formation*, the mental process of the player evaluating the outcomes of either the *Semiosis Route* or the *Behavior Route* and relating them to existing beliefs and emotions. Consequently this updates the cognitive and affective attitude component(s) towards the representation when successful. The Elaboration Likelihood Model (ELM) by Petty and Cacioppo provides a detailed process overview describing how likely one would change attitudes based on a persuasive message [43]. The ELM has already been adopted for research on the evaluation of persuasive games [31] and within research on the impact of entertainment games on attitudes [36]. The ELM indicates that there are two dependencies (Motivation and Ability) that influence the likeliness a player

elaborates on a given persuasive message (a higher elaboration and ability is said to results in a stronger attitude change) [35][38][42][43]. Both dependencies have several subvariables that influence how likely one will elaborate on a message; some are part of the player's identity while others are moreover influenced by the designer. Motivating aspect are Relevance, Need for Cognition and Responsibility [38][42]. Need for Cognition is depending on the player's tendency to think deep about things, which remains a rather personal trait. Although part of the Relevance and Responsibility can be transferred from the real-world, the designer can also cause a persuasive messages to become more relevant within the game-world itself. For example by presenting the persuasive message as important for the player's progression in the game, which likely influences the motivation of the player to elaborate on the message. Aspects for the Ability to elaborate are player Knowledge an Understanding of the matter, Available time, Distraction and Repetition of the persuasive message [38][42]. *Knowledge and Understanding* are personally related when they are transferred from the real-world, but can be influenced by providing specific knowledge and skills presented throughout prior events in the game. *Available time* can be provided after exposure to a persuasive message, allowing the player to take the time and reflect on the message. A similar patterns is quite common in games after an intense moment, such as a boss fight, giving the player a moment of rest. *Distractions* can be managed through the presentation of signs that construct the persuasive message. When certain signs are important for the argument the designer might want to avoid other distracting signs that could cause the player to miss the signs responsible for delivering the persuasive message. *Repetition* can be managed as part of the *Embedded Narrative* of the game, providing multiple moments of exposure to the persuasive message throughout the game. In the event of a successful persuasive attempt the player's attitude components are strengthened or weakened as intended by the designer (i.e. the attitude is shaped, as explained in section 2.2.2). In case of an unsuccessful persuasive attempt the attitude components remain unaffected, or shaped in a way not intended by the designer. After the *Attitude Formation*, the player returns to the central attitude hub where the cycle is repeated depending on the *Presentation of (new) Signs* or the opportunity to develop a new *Intent for Behavior*.

4. CONCLUSION

We presented a multidisciplinary approach to understanding persuasive gameplay, both by elucidating a position within the field of games used to persuade and by providing an introduction to what shaping attitudes through gameplay entails. This paper is meant as foundation for future research on the formulation of game designs strategies (methods, tools, models, etc.) to maximize the persuasive potential of games. With the Attitudinal Gameplay Model we provide an overview of the gameplay process with *attitudes* as central hub. We have chosen for attitudes as central hub to accommodate for persuasion, a concept inherently concerned with the attempt to shape attitudes. The model visualizes several relevant attributes that can be utilized by the designer for the implementation of persuasive messages in the gameplay process. Divided over four sections the model introduces several key aspects that form the foundation for analyzing and conceptualizing the persuasive gameplay experience. The presented aspects are the need for gameplay qualities that promote a transfer of attitudes between the game-world and the real-world (relevance, engagement and credibility), the concept that there are essentially two synergetic routes to persuasion (semiosis and behavior), and the sense that the persuasive strength of gameplay is influenced by several player variables (such as player identity, player context and player state). With this we made a first step in addressing the lack of practical persuasive game design strategies for designers to conceptualize and develop the persuasive gameplay experience.

5. FUTURE RESEARCH

This paper was a first step in understanding what persuasive gameplay entails and what elements are influential in this complex process. It provides us with a foundations for the future development of game design strategies that address the individual aspects required to successfully drive persuasion through gameplay. We are currently using the model as tool in analyzing games that hold such persuasive gameplay. From this analysis we plan to distill recurring game design patterns [6] for persuasion that should inspire the collection of game design lenses [47] to maximize the persuasiveness of gameplay. Through the evaluation of these game design lenses for persuasion in collaboration with industry partners we plan to construct a design framework that should support the designer in going from introducing a *persuasive intent* to the eventual design of the *persuasive gameplay experience.*

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