

Persuasion and Empathy in Computer Games, An Ontological Perspective

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Abstract

This paper is a critical reflection on persuasion and behavior-change in serious computer games, with a particular focus on the design and play of games that can influence players' real-world value judgments and actions through activating or manipulating empathy. Various models of behavior change and persuasion have been proposed that provide conflicting conceptualizations and design recommendations, while the literature investigating empathy is similarly clouded. In this interdisciplinary examination, we aim bring clarity the complicated design principles of persuasion and empathy, drawing a distinction between attitude and behavior change as a design intention and focussing on two core aspects of game persuasion: procedural rhetorics and empathy arousal. An operationalization of empathy is proposed which takes into account emotional, cognitive, dispositional and situational aspects of empathic experience. We then initiate an ontological analysis to examine the complexities of in-game communication, persuasion and empathy, attitudes and behaviors. A *model of Action-Intention (mAI)* is described to dissemble the interplay between one's own actions and intentions as a player and those of others (including Non Player Characters, and the designer) within the imaginary 'magic circle' of the game. The mAI reflects concepts and properties from empathy research, *Theories of Reasoned Action* and *Planned Behavior*, models of persuasion and behavior change and is inspired by the foundational ontology DOLCE. Applying the mAI, we examine the mobile/online game *Phone Story* (<http://www.phonestory.org>) and analyze its challenging matrix of gameplay and design elements. The four levels of this game enact a series of ethical and environmental conflicts concerning mobile phones, with a strong narrative message of each player's complicity in an inhumane and unsustainable industry. Our discussion explores each level as the player is presented with different configurations of procedural rhetorics, empathy arousal, action and intention, often utilizing sharply contrasting mechanisms. Our approach offers a fresh perspective on persuasion and empathy serious computer games, with implications for the design of game mechanics and player interactions and contributes to the application of ontologies in the study of computer games, demonstrating their potential to inform game design tactics and strategies for attitude and behavior change.

Introduction

Many serious or educational games are not explicitly persuasive, but we consider any game or artifact that has an intended response, preferred attitude or behavioral outcome on the part of players to be of persuasive design. In our development of game-based communication strategies we identify two central techniques of persuasive design, procedural rhetorics and empathy arousal. Procedural rhetoric is a messaging that is imparted through the processes of gameplay, while empathy arousal is facilitated by game and play dynamics that manipulate player empathy. In the literature on persuasion these techniques are investigated largely as a means of promoting pro-social behavior, but they need not be exclusively applied as such. The interaction, learning and emotive potentialities of computer games can be used to great

effect, facilitating role-play, transmitting different perspectives, initiating “safe” spaces from which to address challenging issues, and indeed, imparting persuasive messages that target player empathy. While games and perspective-taking exercises have long been used to investigate the perceptions of self and other, and to evaluate empathic responses [16, 3], a veritable pantheon of digital empathy-related games has formed in recent years.¹ However, given that the conceptualizations of empathy applied to these games vary widely, as do evaluation protocols, change metrics, and gameplay experiences, the design space remains confused, without consensus on the actual efficacy of games to foster empathy or real-world attitude and behavior change.

What many empathy-centric games all have in common is an absence of the “other”, or the subject towards whom the emotional response of the player is being encouraged. This situation is compounded by a second form of role-playing, between the player operating the game device in the real world, and the player-subject [47], operating within the norms and constraints of the game world. Both the player’s actual self and the perceived other are absent, in an engagement that is situated in an “unreal” world of the game [17], and yet the objective is that empathetic stimulation in a game should influence behavior the “real” world. This area of research is evolving and conflicted, with early recommendations for eliciting empathy through games include explicitly directing, or implicitly encouraging players to empathize, and providing clear suggestions as to how players’ actions can address the issues in the game [6]. More recent research suggests the embedding of the persuasive message in more surreptitious manner is necessary to counteract a resistance to persuasion [18] by players. These two extremes of overtly guiding players towards a preferred response, or camouflaging the persuasive message or intention of the game are not easily reconciled, nor are they mutually exclusive.

While we can synthesize our core concepts of persuasion and empathy from an expansive body of literature, what is lacking is a comprehensive and solid ontological analysis of the nature of the entities involved. Furthermore the mechanisms of attitude-behavior change, persuasive approaches and empathic response take on unique characteristics when shaped by the constraints and affordances of the computer game. Several theoretical investigations of actions-intentions and behavior have been made in philosophical fields [2, 9, 10, 13, 40, 46, 51] however these are based on the general ontological characteristics of actions, intentions and behavior, and are not focused on analyzing entities from a computer game point of view. To address this we propose a *model of Action-Intention (mAI)* to clarify the notions of behaviors and actions and describe the relationships between actions and intentions with a particular focus on the disembodied communication of computer games. This model then informs our examination of persuasion and empathy with an ontological perspective.

The paper is structured as follows: we begin with the discussion of attitude and behavior change, and examine several models of persuasion or influencing. This is followed by an operational definition of empathy and the introduction of model of Action-Intention (mAI), complete with examples and ontological grounding. This discussion then centers on the curious and confounding mobile game Phone Story which we dissect level by level, using the clarity provided by mAI to expose persuasive strategies and potentially empathy-inducing player experiences the game initiates. The paper summarizes with an examination of the use

¹ For example http://www.gamesforchange.org/game_categories/art-and-empathy/.

and impact of ontological analysis towards understanding game systems, interactions and design, and propose several avenues of future research that have emerged.

Persuasion and Games

Games present a few distinct advantages for enhancing behavioral factors when compared to traditional mediums like film or literature. The first is that games are interactive, presenting the player with a sense of agency that allows them a deeper reflection of their actions. The second is that games as a medium often support a more dynamic interplay of sensory stimuli, combining audio, visual and haptic inputs to achieve a more effective result. Persuasive games, or games that potentially change player attitudes and behavior are the focus of a host of research that seeks to understand the underlying mechanisms. The topic is interdisciplinary in nature, contributed to by a wide range of fields, including philosophy, psychology, sociology, linguistics and artificial intelligence [52]. Many of the techniques used in persuasive games have been extrapolated from social psychology in particular, a theoretical view that is often adopted to explain the processes that may achieve persuasive goals [18, 32, 33]. These goals usually revolve around some form of attitudinal or behavior change.

The *Theory of Planned Behavior (TPB)* explains that a person's attitude, perceived norms and perceived control can be used to reliably predict the occurrence of a behavior action [39]. Although the TPB has been a staple for psychosocial interventions, we are not aware of any instance where it was used directly for persuasive game design. The *Fogg Behavior Model (FBM)* is a theoretical model that evolved from the TPB, it has achieved wide use in persuasive technology design, specifically persuasive games and gamification [32]. The FBM posits that three factors must converge simultaneously for a behavior action to happen; the user must possess a sufficient amount of motivation and ability to perform the behavior. In addition to motivation and ability, the user must be called to action using a well time trigger, this takes the form of an alert that signifies, to the target of persuasion, that it is the right time to perform the behavior [24]. Although more technically-suited, FBM has been criticized for being simplistic, prioritizing model-driven artifact prototyping over a deep understanding of behavioral determinants [17]. It has been noted that the FBM typically focuses on compliances rather than supporting an understanding on how the attitudes that shape behavior is formed. Attitude has been shown to be one of the most reliable predictors of behavioral intent, which in turn can potentially result in behavioral action [32].

Attitude can be described as “a learned, global evaluation of an object (person, place, or issue) that influences thought and action” [41]. Much of what is written on the attitude changing properties of games has, once again, been extrapolated from social psychology theory. The developers of TPB posit that attitude is comprised of two main components. These two components are the cognitive and the affective; your expectations of a certain object and your feelings towards it. Persuasion through gameplay enhances these two components by presenting symbolic arguments that erode or strengthen cognitive and affective factors, it is the manipulation of these factors that may manifest attitudinal changes [32]. Because the object of interest in the persuasion usually exists outside of a game, one goal of the game is to convincingly model aspects of the object in a way that it can be related to its real world counterpart [32]. This means that even though there is a relationship between them, attitudes towards a game object or subject are essentially distinct from their real-world equivalent. This distinction is also extended to cases where the player inhabits the role or

character in the game. Considering the relationship between in-game and real-world subjects, the persuasive goal of a game for attitude change is achieved when there is a transference of the in-game player attitude state into the real world [3].

Of course, this challenge presents a series of complex dilemmas for a player of a persuasive game. One of these dilemmas is that although the player's conception of game objects is often constructed from real-world experiences, their persuasive experiences with those objects are confined to the sandbox simulacrum of the game world. This casts some doubts on whether a player's attitudinal changes are towards real-world subjects or merely their renditions in the gameworld. Despite the relatively scarce research on games that impact real-world attitudinal changes, there have been some studies [18, 32] that attempt to formalize the attitude transfer process in games.

When looking at the body of research in persuasive games, several approaches are routinely employed to elicit attitude change, and we focus on two of these, procedural rhetoric and empathy arousal. Although a combination of the two approaches is often used, sometimes unwittingly, it is helpful to examine how each approach contributes to persuasive goals.

Procedural rhetoric refers to the way games use rule-based interactions and processes to persuade players [7]. An example of a game that mounts procedural rhetoric is *The McDonald's Videogame* by art collective Molleindustria [38]. In the game the player has to manage four different levels of the McDonald's franchise. The choices the player makes directly impact the four levels and the player has to make morally compromising decisions to achieve business goals. The game's intent can be seen as using causal simulations to allow the player to realize the necessary "evils" that come with the global food industry [8]. These simulations allow the player to gradually realize and reflect on their actions in the game and ultimately, the importance of the causal relationships in their own lives. The message is transmitted through play, and by engaging the processes of the McDonald's game, players can acquire some understanding of the corporation's business model and its consequences. Procedural rhetoric relies on processes and rules to direct the attention and actions of a player, and the affordances of games to situate players within game constructs that embody real-world processes and their consequences open unique opportunities for communication, and to potentially influence players' thoughts, beliefs, attitudes and emotions.

Like the games that use procedural rhetoric to change people's attitudes or behavior, empathy arousing games use empathy to accomplish the same persuasive goals. Kors et al. [33] assert that new research in game design is exploring the potential of games to foster empathic concern for issues or people with whom they have no direct contract. According to Kors et al. [33], one strategy of gameplay that empathy-arousing games utilize is encouraging a player to take the perspective of the subject of empathic concern in order to advance in a game. This can be playing the role of a refugee fleeing a war-torn country or civilian non-combatants in a warzone. In most cases, an empathy-arousing game puts the player in control of the affected character(s), other times empathy is directed to Non Player Character (NPC) in the game. In both cases, objects in the game are modelled to a certain likeliness to their real-world equivalents to support the transfer phenomena [5] discussed earlier. An example of a game that utilizes empathy to facilitate attitude change is the survival video game *This War of Mine* by 11 bit studios. The game is inspired by the 1992-95 Siege of Sarajevo during the Bosnian War. It puts the players in the role of several non-combatant characters in a war zone that

must do whatever it takes to survive, at times forcing players to scavenge, craft supplies, steal and sometimes even kill to stay alive [49]. The intent of the designers is to sensitize players to the harsh reality of war and how citizens are unwillingly dragged into it. The game was developed with the support of War Child, an anti-war charity, and allows players to take a real-world action by providing an option to make a donation if they feel like it [33].

The methods detailed above have generated a lot of interest among persuasive games designers for their apparent real-world implications. However neither procedural rhetoric and empathy-arousal have been reliably proven to lead unquestionably to attitude change. Often the unduly brief and/or experimental nature of evaluation in studies examining persuasion give the impression of generalizations based on tentative observations. And while a solid interdisciplinary research base informs us on many of the functional mechanisms regulating cognitive and affective states, the interplay between these states and their potential effects on player attitudes when arising within a game is complex research territory scattered with unresolved issues. One major problem is that of attempting identification and measurement of poorly defined, misrepresented or ambiguous constructs, arguably none of which is more problematic than empathy.

Empathy

Empathy is a complex sociocultural construct that is intrinsically linked to interpersonal communication and identity. Extensive research on empathy in social sciences and psychology has unearthed diverse, sometimes conflicting perspectives on its implications, required antecedents, measurement and impact [44, 55]. A recent review identified no fewer than 43 distinct conceptualizations of empathy in the literature [12]. Yet regardless of how variously empathy can be defined, the potential of the mechanisms that impact empathy to investigate self-other identities, to encourage prosocial behavior and moderate antisocial behavior is widely accepted [44]. In order to condense this diversity of perspectives into a functional operationalization, we define empathy in three aspects, (i) empathy is an emotional disposition that is more or less influenced by contextual factors, (ii) empathy is an emotional response that is more or less influenced by cognitive factors, and (iii) empathy does not have a concrete behavioral component, but can function as a motivating factor.

One widespread, but not universal interpretation of empathy describes a matrix of dispositional empathy, a stable character trait that is brought fully established to any engagement, and situational empathy that arises as a response to an engagement [6, 44]. Dispositional empathy is influenced by biological, neurological, experiential, social and likely many other factors, and can be measured on several scales for example the Interpersonal Reactivity Index (IRI) [16], and the Empathy Quotient (EQ) [4]. However situational empathy, which is influenced by equally diverse aspects derived from the context of an encounter is much more difficult to evaluate [55]. In our operationalization of empathy, we accept that there can be significant interplay between an intrinsic propensity to empathy and an empathic response that can be stimulated by a particular situation. However it must be noted that contextual factors can both positively and negatively impact empathetic response, for example a strongly emotive, face-to-face experience may override the dispositional characteristic of an individual with a low propensity to empathy, and result in an empathic response that leads even to a helping behavior [55]. Similarly, in a complex social situation, or one in which the persuasive message is strongly explicit or overtly authoritative, empathic

response may be hindered [31]. Thus we define this core component of empathy as an emotional disposition that is more or less influenced by situational factors.

A second widely discussed and disputed paradigm of empathy research is the negotiation between emotional empathy and cognitive empathy. The latter is understood as the capacity of an individual to understand, or actively engage with the feelings of an other, while the former is focused on the emotional experience that is initiated by an emotional stimulus [12]. Cognitive empathy can occur spontaneously or be actively cultivated, for example through perspective-taking exercises, actively trying to understand another's feelings, relating the other's situation to one's previous emotional experience, imagining how another feels in their situation (imagine-other perspective), projecting oneself into the situation of another and imagining how one would (imagine-self perspective.) [5] Emotional empathy likewise has a range of manifestations, categorized as reactive empathy, that is, experiencing an emotion in response to the situation of the other, and parallel empathy experiencing the emotion of the other, or an emotion one perceives in the other. [48] The intricacies of these two forms of emotional response rely much on one's capacity for emotion and ability to recognize and interpret the emotional state of the other, and give rise to a variety of other responses that are often confused or interchanged with empathy, such as compassion, sympathy, concern or pity. While cognitive empathy can certainly contribute to an empathic response through the active engagement with the emotional state of the other, cognitive processes themselves likely cannot account for the emotional component of empathy [12]. Therefore we define our second core component of empathy as an emotional response that is more or less influenced by cognitive factors.

One final conflagration in the literature on empathy, and perhaps one most relevant to this current study, is the question of whether empathy has of necessity a behavioral outcome. Although empathy is commonly associated with prosocial behavior, evidence suggests that empathy influences behavior in conjunction with other emotions such as sympathy [19] and that empathy can be experienced yet have no behavioral consequence [42] or can indeed elicit quite negative reactions [44]. Therefore the third core component of empathy adopted in this definition is that while empathy itself does not have a behavioral component, it can function as a behavioral motivation [12].

The model of Action-Intention (mAI)

From a philosophical standpoint, *ontological analysis* provides well-grounded theories (e.g., identity, unity, change, parts, essence, causality) and real-world semantics to describe (clarify the meaning of) entities, their properties, and relationships [28, 53]. For instance, foundational questions in ontology are: “what is the nature of the entity X?”, “what is the property of the entity Y”, and “why and how the entities X and Y are related?”. If we start from the questions “what is a behavior?” and “what is the relationship between actions and intentions?”, we *naively* answer that a behavior is what an individual does and intentions somehow guide behaviors into actions. For instance, when asked what is the intention of the particular action “prepare the coffee”, we intuitively reply “to drink it”, or “to offer it to someone”, or “to prepare the tiramisù”. However, when we move beyond the *common sense*, there is a widespread confusion on the differences and the similarities between behaviors and actions and the relation between actions and intentions and their corresponding nature, especially in context applications, such as computer games.

In order to overcome this confusion we introduce and describe the *model of Action-Intention (mAI)*. The model brings clarity to the notions of behaviors and actions and describes the relationships between actions and intentions from an ontological perspective. In particular, the mAI aims to identify the reading interpretation of actions through the intentions that are affixed to actions. Imagine for instance, that we want to represent what is the relation between the intention of the *agent A* at time $t1$ to go on vacation and the action “buying the flight ticket” that the *agent A* performs at $t2$ [46]. We can assume that given an occurrence of action (e.g., buying the flight ticket), the intentionality is related to the question *why* (that action) [2], such as why the *agent A* performs the action “buying the flight ticket” at time $t2$? At first glance, actions seem to be correlated by intentions that could provide reasons that explain the actions. For the purpose of this investigation, it is important to specify the difference between action and behavior of agents more generally. In fact the *semantics* of the two entities are sometimes exchanged or confused. There is, however an agreement in the philosophical and ontological literature regarding the difference between the two entities [37, 51].

In general, a *behavior* is referred to “doing” something that we can observe and that may or may not be voluntary. From an ontological point of view, a behavior can be seen as a *perdurant/occurrence* (see DOLCE² ontology [27, 35]). A *perdurant/occurrence* is characterized by having different temporal parts and being partially present in time, such as “buying”. In general, one or more entities participate in the *perdurants/occurrences* and these types of entities are called *endurants*. An *endurant* is an entity that is entirely present in time, yet can also change in some way over time, for instance physical objects. As an example, the lasagna that I am eating now is an *endurant* (in this case is a physical object), a participant to the *perdurant/occurrence* “eating”. The lasagna is present in the space/time, but some parts of it are not present or totally present (e.g., parts of it are in my mouth or in my stomach).

More specifically, a behavior is interpreted as: (i) a *physical event*, (ii) a *disposition*, and (iii) a *process* [9]. A *physical event* is a physical state without an agent’s commitment. For instance, the involuntary physical event the “agent C yawns”. A *disposition*³, also known as “tendency” and “potentiality”, is a particular type of property (or quality) or a set of types of properties (or qualities) that explains the overt behavior of entities, such as agents. For instance, for each entity of type BATS, if BATS (x) is in the dark cave, BATS (x) has the disposition to “see in the dark”. Finally, a behavior can be interpreted as a process, that is a *stative* *perdurant* in DOLCE on the basis of its homeomericity. For instance, “yawning” is a process, this means that some temporal parts of the process “yawning” are not intended as “yawning” per se, such as “opening the mouth” is not equivalent to “yawning”.

An *action* is also *perdurant/occurrence* in DOLCE ontology⁴. What characterizes an action is the genuineness performed by an agent in order to achieve its intent (objective) [13, 35, 51], such as the activities of “cook the lasagna”, and “write a paper”. One or more entities can

² DOLCE (*Descriptive Ontology for Linguistic and Cognitive Engineering*) is a popular upper ontology that aims to capture the ontological categories of human cognition as well as the natural language(s). Then, DOLCE assumes that the categories taken into account are considered as artifacts of human cognition that depend from human perception. It is also important to underline that DOLCE is an ontology of *particulars*, namely entities that are not instantiated.

³ A disposition is a *quality* in DOLCE. For instance, qualities are: colours, masses, sizes, magnetisms, and tastes. Qualities are *particulars* and are applied to particulars, differently, properties are *universals*.

⁴ Actions are introduced in the “lite” version of DOLCE, called *DOLCE-Lite+* [35].

participate to actions playing different roles, such as “the chef cooks the lasagna”, and “the professor writes a paper”. Actions are divided into two main categories: (i) *physical actions*, and (ii) *mental actions* [37]. The former are related to a type of events that happen in the physical world by agents, such as “grab the ball”. The latter are types of events that belong to the mental world of agents, such as “plan the vacation”. It is also important to distinguish between mental actions and *mental behaviors*. This further classification involves the notion of control and voluntariness. Mental actions are intentionally performed in pursuit of an objective, while mental behaviors are not necessarily under the total control of an agent. What characterizes actions is the intentionality of the agent. If behaviors are treated as the unintentional manifestations of agents, actions are always driven by intentions to act. As expressed through this famous example [15], in the action “Brutus killing Caesar”, we assume that Brutus intentionally performed the action, then in that case he had the intention to kill Caesar. Prior to killing Caesar, Brutus likely performed the action in his mind, anticipating both his ability and the opportunity to kill Caesar.

There are a number of perplexities raised in the discussions on the nature of intention. From an ontological point of view, intentions are types of mental entities, more specifically *mental states*, which depend on physical objects (e.g. physical agents) [20, 27]. Examples of mental entities are “the agent D thinks about agent E”, and “agent F intends to finish her homework after dinner”. The former example is a mental act, while the latter is a *mental attitude* (e.g., intentions, beliefs, and desires). Mental attitudes are a state, something that does not change its nature while accumulates parts, mental acts or behaviors are dynamics. For example, the sum of two instances of intention, the mental state, are still an intention [20]. On the contrary, the mental act “the agent G pays attention to the teacher’s lesson”, has different parts that do not hold the nature of the whole, such as “remember an anecdote that was previously studied”.

We can classify intentions into three main classes: (i) *prior intention* [46] (also interpreted as *primary reason* [14]), (ii) the *intention-in-action*, and (iii) the *motor intention* [26, 43]. The prior intention is a mental action, which is a sub-category of action, [36] which is involved in the processing of an action plan. For instance, the intentional (mental) activity of planning how to obtain a job before to perform the activity “send the CV to company x”. Prior intentions are correlated with the activity of planning for the future, where intentions assume the role of coordinate plans [11]. The intention-in-action (or *situational intention*) is related to initiation of the action and supports the course of the action. It is correlated to the idea of “doing A with the intention of doing B”⁵. For instance, applying for the position of PhD in philosophy with the intention to obtain the PhD in philosophy. However, in this view is difficult to reconcile exceptions, as doing A intentionally without “reason” [2], and doing A with the intention of doing B albeit obtain C. Finally, the motor intention involves the low level scale of intentions which is applied to bodily movements, such as the muscle reflex that allows me to “kicking the ball”.

The capability of human beings to recognize the intentions behind the actions of other agents is a central component of social interaction contexts. The intentionality (and its recognition) is an historical and cross-cultural concept that allows us to draw connections between actions and mental states by which human individuals distinguish between intentional actions and

⁵ This is the simple view (SV) of action-intention. The SV is widely criticized (see [10, 11])

unintentional behaviors [34]. The problem of the other minds is at the core of reading and understanding the other agents. Human beings can only “know” another’s minds (and their content) through the events that happen in the external world. For instance, if the agent *H* enters into the supermarket, we can suppose with that the *agent H* intends to buy something (it is less likely, although it is not impossible, that the *agent H* intends to do a robbery). Since the main challenge that revolves around social cognition is the understanding of the other minds, we can only capture what is accessible to our perception (e.g., physical actions) giving a meaning to it, for instance through reading of the intentions. In fact human beings identify some classification patterns, for instance action expressions, type of behavior, tone of voices, and contexts in order to give a meaning to what human beings perceive [26]. The meaning, however lies in associating an intention to an action (voluntary or not).

Discussion: Phone Story

In discussion we describe and consider the serious game *Phone Story* released in 2011 by Molleindustria [38]. This is a game with a strong persuasive messaging that makes visible the unsustainable and inhumane practices of the mobile phone industry. We pay particular attention to the procedural rhetorics of the game and its potential to manipulate empathy and draw attention to the insights provided by the mAI. *Phone Story* is a critical game, not one that was specifically designed to elicit empathy but which the developers intended to “provoke a critical reflection on its own technological platform”, and designed such to “make the player symbolically complicit in coltan extraction in Congo, outsourced labor in China, e-waste in Pakistan and gadget consumerism in the West.” [38] Nevertheless, the game’s complex and curious matrix of role play and activities do indeed elicit emotional responses among players, and the very direct nature of the game’s messaging, its seemingly contradictory gameplay and its perspectives that switch between player and player-character in each level provide a unique space in which to investigate persuasion and empathy.

In *Phone Story*, players take the perspective of soldiers pressuring slave laborers to mine rare earth minerals, a factory manager preventing worker suicides to keep up production, a distributor throwing phones at mindless consumers, and a production line of toxic phone component recycling. The four levels are decorated in attractive illustration-style graphics, and each level is accompanied by one simple game-mechanic, such as kicking, catching, throwing, and sorting, actions that are simple to perform with goals that are intuitive to achieve. The game is accompanied by an artificial voice that is meant to be the voice of the phone itself, who narrates the entire game-play. The phone voice recounts: (i) the context of each level (e.g., “Majority of the world’s coltan supplies is located in the Democratic Republic of Congo” or “[...] this phone was assembled in China”), (ii) the role that the player can cover in this scenario (e.g., “[...] Then, you purchased this phone. It was new and sexy. You waited for it for months, no evidence of its troubling past was visible. Did you really need it? Of course you did! [...]) and (iii) the role of the phone industry (e.g., “We invested a lot of money to instil this desire in you”) [21]. The initial invitation of the game, is for the player to think of themselves, as mobile phone users, and their complicity in the larger harm perpetrated by the mobile phone industry.

The main takeaway from our examination of this game referring to the mAI is the effect of a *lack of choice* afforded to players. The lack of choice in player actions leaves the player simply to act out the dilemma proposed by the game. Without any agency to intervene in the

situation, potential for player presence is reduced, and as actions available to the player are predetermined, the player without choices is not totally responsible [40] for the acts performed during the game. The player acts in a *goal-direct* way (e.g., complete the level) that implies a performed voluntary *pro-attitude* [13]. Yet, despite the goal-direct action, there is still no real decisional capacity for the player, and in mAI, these actions are seen as dissociated from their intentions, and therefore their meanings. In such a situation, players cannot exhibit actual behaviors, as only when the context affords player agency can their disposition, attitudes and characteristics manifest without intention.

The first level of play depicts child workers being oppressed by soldiers, a scene that initially inspired the examination of potential empathic experiences available to this game. Here the designer enhances the cognitive and affective factors by symbolically drawing out elements of oppression. This can be seen from the way the child workers are animated to show visible signs of exhaustion and suffering. This semiotic presentation of suffering is likely to induce some form of emotional empathy from the player, and that emotion should reflect or respond to the situation of the miner. Recognition of similarities between the player and the oppressed miner could come from a player's direct experience of poverty and forced labour in Africa, or more likely from their own more benign work situations, in which they nevertheless felt overworked by demanding managers, and these similarities should stoke empathic response towards the figure of the oppressed.

However the process by which the player discovers that the only way to get the child workers to continue laboring is by threatening them with violence reveals a dual consequence of the procedural rhetoric. The player is engaged in some form of perspective taking with the soldiers, whose role they inhabit in the game world, and who must intervene with threats in order to advance the game. Some reflection on the situation of the soldier, a cognitive empathy, perhaps coupled with some prior knowledge of the issue suggests that the soldier may also be in a desperate situation, and also have no choice but to drive the workers to meet their quotas. At the same time, the procedural rhetoric stipulates that the only action that is available to players is "forcing" the workers to toil without breaks in order to pass the level. The game does not offer any escape from the narrative message that everyone (with a mobile phone) is complicit in these crimes, and the player must enact the oppression in order to pass the level in fulfilment of the game. In strictly prescribing players' actions, the game reinforces the idea that anyway, we don't have a choice, and a possible identification with the soldier-oppressor.

By extension, the player also does not have a choice because of the perception that modern life necessitates ownership of a portable digital device. In this case, the rhetoric of powerlessness reinforced by players' real-world perceptions could potentially shift empathic responding even away from the slave laborer and the soldier, to the player themselves in a form of self-pity. This exposes the complexities of emotional empathy and its cognitive components, as the design sets up to competing empathic perspectives, one of soldier which the player inhabits and one of NPC. This no doubt creating some kind of conflict that in the real world would inspire reflection before action, and yet the potential for action in the game is severely constrained.

Focus of player action in the second level is shifted to helping behavior, yet any feel-good factor from this action is short-lived. The scene is one of a factory from which workers begin

to jump to their deaths, while the players control a rescue crew attempting to catch the workers, “saving” them from suicide. The depiction of people who are actively attempting suicide is another that can be expected to illicit an emotional response, perhaps empathy, or pity, or shared despair. The narrative throughout draws the player’s attention to the potential target of the empathy, overworked and distraught workers, and describes the factory manager’s installation of suicide prevention nets at the factory.

As the player rescues each jumper, they immediately return to the factory. In the event that not enough workers are saved, the end screen tells the players that factory quotas have not been met, to try harder. The procedural rhetoric here, having the player enact the inhumane industrial practice, reinforces the message of culpability. It also, potentially suggests the inevitability of the process, and an acceptance that the player, as the factory manager, must simply do what must be done to pass the level. The game challenge in this level initially takes on a more positive form with gameplay actions directed towards saving the falling workers. Rescuing each worker after one bounce is a relatively easy task yet the game makes it impossible to catch all the “jumpers”. The level is won when the player realises that winning is achieved only by committing to saving a certain number of workers and letting some fall to their deaths. The procedural rhetoric in this case has the player enacting the concept of “acceptable loss” that pervades labor-intensive industries.

In level three of the game, the action of the player is “throwing” phones to the blind masses, who run across a street and smash into a glass wall. Player action is again helping, as successful throws save people from crashing into the glass. However the game narrative critically associates the player action with the negative media marketing and consumer capitalism that drives the people to [run into the glass chasing the next phone]. The narrating phone explicitly intones that the player is one such mindless consumer who is at the mercy of corporate advertising machine.

In this case, the player has an unusual dual representation within the game, as the player inhabits the character of the distributor throwing the phones, and as one of the mindless consumers running toward the glass. When the game is played on a phone, potentially in a public environment of a shopping mall or high street, the presence of large paned glass could conceivably heighten the experience of self reflection. The potential is high for empathic, sympathetic or pity responses from players towards themselves when they recognize themselves in the running masses. This, accompanied by the aggressive, accusing stance of the narrative is likely to provoke a defensive, protective stance from many players that can impede the game’s suggestion. Here its important also the possibility of a player's’ intention to anyway buy a new phone, regardless if they embrace or reject the idea that they do not really need it and are just following the marketing. The action “buy a phone”, and the behavior “follow trends blindly” exhibit different levels of intentionality.

Level four of Phone Story is the only level in which the player does not inhabit an avatar in the game, instead the player becomes a function of the recycling machine. The only action possible is to distribute the correct components to the workers, who are the potential target of empathy as the narrative describes their toxic working conditions. The overall action itself is positive, contributing to the recycling of phone components, however the lack of any other option available to the player again supports through the procedural rhetoric, 1As expressed in the Theory of Planned Behavior, the self-assessment of a person’s ability and opportunity

to carry out an action, and its contribution to developing intentions will be impacted by the perception of likely, or unlikely success.

While providing a fun, engaging and certainly impactful experience that educates on issues of unsustainable mobile phone industry practices and consumption, examination of the game with mAI reveals several potential breakpoints in which empathic responses, such as they may be initiated throughout gameplay, may in fact have negative impact on the persuasive intention of the game. In particular, the lack of choices available to the player constrain the potential of the game to facilitate any behavior on part of the player, as they must mechanically follow through the prescribed actions in order to fulfil the game. The focus of the narrative could also be experienced as too preachy or authoritative in its frequent reminder that the player is complicit in the desperate situation of the workers. Furthermore, the availability of the game in obsolescence mode, presented as a fast paced gameplay without the narrative message or interim waiting screens, risks to negate the impact of the serious game. Reduction of the artefact to its playable components with a catchy music theme exposes the simplicity and transient nature of a player's engagement with such a game. Should this experience of exhausting oneself of the entertainment value of the provided mechanics be connected in some way with the conceptual messaging of complicity, this concept may also only be engaged for a short time then discarded.

Conclusion

In this paper we have proposed a critical analysis on persuasion and behavior-change research as regards computer games, with a particular focus on the design and play of games that can influence players' real-world value judgments and actions through activating or manipulating players' empathy. The novelty of this reflection is related to apply an ontological analysis largely inspired by the foundational ontology DOLCE, in order to disambiguate the notions of behavior and action and the relationship between actions and intentions in this context. We lay bare the core concepts that underlie empathy in games in hopes of inspiring a more in-depth investigation on how persuasion can be studied in interactive computer games. By doing this we also hope to offer a conceptual approach that designers can use to understand persuasion in games before and during the game design process. More importantly the body of research in persuasive games is related to philosophical thinking in order to form a bridge between the two fields of inquiry.

This work provides a preliminary investigation and we are aware of the necessity of further characterizations, such as developing practical *ontology-based* guidelines for use in the design of persuasive games. Future work may involve a more rigorous formalization of the mAI applied to a wider range of empathy games. We are curious to study how the results of empathy game evaluations correlate with their analysis through the mAI, potentially opening up an avenue for the development of *mAI-driven* model for persuasive game design.

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