
Games Against Health: A Player-Centered Design Philosophy

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Abstract

This paper announces the “Games Against Health” (GAH) research agenda, a criticism of, and response to, the cultural imperialism of the “Games for Health” paradigm. Committed to player-centric design ethics, GAH seeks to dismantle the “games for health” myth as neo-liberal elitist diktat. We acknowledge the values, tastes and pleasures of billions of game players worldwide. We argue that game designers should engage more efficiently in the disimprovement of player health and wellbeing in order to cater to those players’ existing preferences. We hope the paper can serve as a convenient reference for those designing psychotic, sociopathic or antisocial games.

Author Keywords

Game; Play; Eat; Sit; Still

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

The Games Against Health (GAH) movement has been inspired by the recent trend in HCI to study and design games for health-related behaviour change. Despite the high number of diverse studies carried out in order to utilise games and game elements in health contexts,

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CHI'15 Extended Abstracts, April 18 - 23, 2015, Seoul, Republic of Korea
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ACM 978-1-4503-3146-3/15/04...\$15.00
<http://dx.doi.org/10.1145/2702613.2732514>

"BAD HEALTH" AND GAMES Behaviours considered in "games for health" research as "bad health" indicators (see What Players Want) are usually deeply entwined with the pleasurable activity of playing a console or computer game.

these studies usually imply one type of goal: the promotion of an ideologically-informed "good" health and behavioural change among players towards that end. At the same time, billions of players around the globe choose to enjoy commercial digital games, generating great enjoyment from console- and computer-based activities that tend to rely on sedentary indoors behaviour.

The games against health movement embraces player preference as a critical part of player agency, arguing that we may more readily achieve a wholesome game culture by responding to what is enjoyed by players rather than what is prescribed by well-meaning HCI researchers who take the position of benevolent emancipators come to correct the players. The GAH movement therefore rejects the antagonistic and incongruous use of games to improve health, and promotes an alignment with a more organic function of games as they have come to be accepted and understood by the players: as potentially sociopathic health-destroying technologies.

Academically speaking, perhaps the biggest influence on the games against health movement is a paper by Zagal, Bjork and Lewis [17] that describes "dark" game design patterns, which actively oppose the best interests of players. These are exploitative mechanics that use negative effects often for the monetary benefit of the developers. For example, purposefully designing tedious and repetitive sections of a game that can be skipped through payment is a dark design pattern. In contrast to Zagal et al.'s exploration of these mechanics at arms length, the current paper uses dark patterns as a starting point to identify a space for potential design that purposefully aims to harm the health of the player

over short- and long-term. We believe that our unscrupulous capitulation to market forces and player decisions speaks directly to the identified conference theme of "changing perspectives."

The Need For GAH

The past decade has seen a significant amount of research in HCI aimed towards investigating the potential of games to facilitate healthy behavior [8]. Game design research interests range from the imposition of healthier eating [13], to exercise regimes [4], to adherence to prescribed therapeutic interventions [5][6]. The authors of such work instrumentalize game design to bring about significant and potentially undesired change in the behavior of players.

Critiquing Games for Health

A troubling aspect of Games for Health is the unacknowledged conception of a player as a deficient or broken entity in want of repair. Rather than understanding the complex life worlds of players, scientific interest usually revolves around how well an unchallenged type of behaviour change has been facilitated through a certain game design method. Not only does this suggest that games for health initiatives colonise the space of players for their own scientific or therapeutic purposes, they also impose an ideology of change that unilaterally invalidates and discards players' current preferences for games; preferences that may afford "bad" health (see Bad Health and Games for dramatic emphasis). The paradigm of behavioural change in games for health research demonstrates an unfortunate type of cultural imperialism. Health experts, scientists, and designers team up as the emperors imposing their benevolence

WHAT PLAYERS WANT

The enormous popularity of triple-A titles suggests that players' pleasures involve sitting still hour upon hour, conserving energy, while carrying out mindless repetitive tasks. Indeed, the number of people worldwide who choose to relax and enjoy the luxury of a low exertion, ludic lifestyle is growing every day. Researchers ignoring this reality about the tastes of video game players not only run danger of reenacting cultural imperialism, they also miss out on the many opportunities of GAH for game design.

on a will- and pleasure- less army of player-subjects. Indeed, the insidious collection of player data suggests that Games for Health are instrumentalised primarily for the good of health insurance companies.

Socio-Political Concerns

Games for Health forms part of a larger landscape of designing interactive software, sensors and apps that attempt to solve societal 'problems' by motivating and aggregating the effects of individual behaviour change. This idea has been applied to all manner of areas by the HCI community but, most commonly, the focus of such attention has been on either sustainability or public health. Though the community is clearly motivated to do 'good' when engaging in this research (we draw attention to the well-meaning theme for CHI 2016, <http://chi2016.acm.org/>) it is also open to accusations of developing the means to expedite top-down, and ultimately questionable, political agendas.

For instance, Thaler and Sunstein [14], and their acolytes, have not so much nudged, but rather, bludgeoned researchers and politicians alike into believing their assertion that government-led behaviour change interventions are an essential facet of a modern democratic (big) society. They, for instance, suggest that their idea of so-called libertarian paternalism "might seem to be an oxymoron, but it is both possible and desirable for private and public institutions to influence behavior while also respecting freedom of choice." At face value, the logic in this seems questionable at best; however the usefulness of libertarian paternalism lies in its perceived alignment with the current consensus towards neoliberal policies in Western government.

The politics of behaviour change, and by implication Games for Health, are therefore inescapably intertwined with neoliberalism [9]. Moreover, if Thaler and Sunstein are to be believed then Games for Health developers are merely competing for the attention of players who are at any time being courted by any number of other "agents of nudge" including government, media and the irrational self. The introduction of GAH as an additional competing focus of attention, by calculated intention, not only fits happily with a neoliberal agenda (it is "desirable for private and public institutions to influence behaviour") but also undermines it by offering players an alternative perspective that removes the weight of any responsibility they might feel they have to solve society's problems; problems that are perhaps more reasonably addressed through competent, fair and democratic local and national governance as well as care management.

Ethics of GAH

From an ethical GAH perspective, "bad health" must be recovered as part of the players' catalogue of active choices. We further argue that, in the spirit of user-centered design, experiences and values of end-users should be incorporated in the design of technology that has the potential to significantly impact upon their lives [16]. Instead of reproducing an imperialist pro-health rhetoric, feeding the toxic top-down "improvement" paradigm, GAH starts where players are. We must recognize the widespread pleasure we as players take in games that allow us to dis-improve health, and act masochistically. We need to harness scientific findings in the field of "games for health", game design research and elsewhere to develop thoughtful design solutions catering to these needs. This is one of the core beliefs

and contributions of the games against health movement and a focus of our analysis below. If video games are inherently unsuitable and ethically questionable as tools for health intervention, then from a familiar neo-liberal platform we argue there is much to be gained by accepting this unalienable truth and milking it. We call on the research community to step up and join us in this great undertaking.

Dark Game Design Patterns

This section will briefly introduce the notion of Dark Game Design Patterns, which offers a useful framework to talk about applied GAH strategies. Zagal, Bjork and Holopainen [17] refer to dark game design patterns as “used intentionally by a game creator to cause negative experiences for players which are against their best interests and likely to happen without their consent.” We read this definition from a player-centric perspective in regard to the potential pleasures derived from acting “against one’s best interests”, making a “negative experience” or engaging in “non-consensual” activities.

Zagal et al identify three types of dark game design patterns; those concerned with time, money and social capital. *Temporal Dark Patterns* take more time to undertake or complete than the player initially anticipates. They are criticized as a way of cheating players out of their time. Patterns such as Grinding, and Playing by Appointment are examples of temporal dark patterns. The former force players to undertake repetitive, tedious tasks to progress within the game, while the latter force the player to play at specific times, thus constraining their work and social life. *Monetary Dark Patterns* deceive players into spending more money than they anticipated. For example, Pay-

to-Skip patterns allow players to advance past challenging (or impossible) game sections through payment of real cash. Monetised Rivalries is a pattern that encourages players to spend money to achieve in-game status such as standing on a leaderboard, and has also been described as pay-to-win. *Social Capital-Based Dark Patterns* compromise player’s social capital (roughly defined as the value of their social standing and social relations). For example, Social Pyramid Schemes block player advancement within the game unless players convince their friends to join. Impersonation patterns send players false in-game notifications of their friends’ in-game activity.

Even though these three areas of dark design suggest a link to psycho-social health, this context is perhaps purposefully left untapped by Zagal et al [17]. This is where we hope to fruitfully expand the discussion of dark patterns, drawing on “games for health” research, strategies used by commercially successful games, and available technologies to elaborate on the GAH vision.

Games Against Health Design Patterns

In order to identify the state of the art in anti-health game design, this section discusses two types of data; design patterns observed in games research (particularly ‘games for health’ research), and examples of patterns that have already been unscrupulously applied in commercial games. Two classes of patterns have been identified – those actively promoting sedentary behaviour, and those interrupting healthy behaviours. Within each of those classes we outline a number of dark game design patterns, describing, for each pattern, “possibilities for the instantiation of [that] pattern and the potential

THE GOLDEN RULE

Games against health should aim, as much as possible, to encourage long sessions of game playing and to minimize player movement and disruption within those sessions.

consequences that pattern may have in a game's design" [17].

Sedentary-behaviour promoting patterns

The idea that sedentary behaviour is bad for people's health, while movement and activity are positive, is a common theme of games for health research. Indeed, some studies (i.e., [11]) have suggested that even short bursts of infrequent activity can offset the dangers of sitting still for extended periods of time. Games against health should aim, as much as possible, to encourage long sessions of game playing and to minimize player movement and disruption within those sessions. Dark design patterns related to sedentary behaviour persuade players to sit down and avoid movement or exertion more than they anticipated or expected. We have identified three types of sedentary behaviour promoting patterns; those that measure gross player movements, those that measure fine player movements, and those concerned with game play rhythms. Of course well-reported dark patterns such as those developed by behavioural psychologists and behavioural economists should also be used, where appropriate (see [10]).

MEASURING GROSS PLAYER MOVEMENTS

The vast array of sensing technologies available for use by games designers presents the possibility for a huge range of dark design patterns based around reducing activity and exertion, and promoting sitting down quietly. Player movement can be easily tracked on a gross (GPS) or fine (accelerometers, cameras, infra-red) level. Recent years have seen the wide proliferation of games that use monitoring technology to measure and promote gross player movements. For example, location tracking games, such as *Zombies*,

Run! use engaging narrative and game mechanics to encourage walking and running in the real world.

In these games, players are distracted from the aversive nature of exercise by mechanics that are predicated on and reward physical activity. In terms of design patterns, exergames make in-game progress (advancement of narrative, leveling up, social comparison) dependent on measurable real-world exercise. Popular exercise tracking applications such as Nike+ and Strava also include gamified elements such as leaderboards, high scores and inter-player challenges.

Of course, exactly the same technology and design patterns can be used to dis-incentivise gross player movements and exercise. Since smart phone ownership is so widespread, and most include GPS and accelerometer devices, we can design game patterns that make player advancement dependent on minimizing real world exercise. For example, players can be incentivized to take the car instead of walking, and to take the lift instead of the stairs. They can be rewarded for taking short cuts and increasing the total time taken to make a common walk.

MEASURING FINE PLAYER MOVEMENTS

There are also many examples of games that measure finer-level player movements, with the similar intention to increase overall levels of activity and exertion and lower sedentary behaviour. For example, Nintendo's Wii console has game controllers containing accelerometers. Players are required to make physical movements with their arms such as swinging and shaking in order to advance in games. Indeed, the Wii Fit add-on is specifically aimed at improving activity

GAMING ECOLOGY

Games can be designed to fit seamlessly into the gaps in the play of other games.

and exercise levels. Nintendo Wii has also been used in many research projects aimed at lowering boundaries to physical activity (e.g., [15]).

The Microsoft Kinect, which uses a combination of video cameras, infrared sensing and computer vision to track extremely fine (i.e., individual fingers or facial muscles) player movements within the living room, has been used in similar health-focused projects. Both of these systems facilitate game design patterns in which in-game progress is dependent on the accuracy and extent of physical movements made by players. Players learn to control their movements accurately due to feedback delivered by the game. Generally, games on these systems reward greater movement and activity.

Of course, exactly the same technology and design patterns can easily be used to dis-incentivise even fine player movements. Players can be incentivised, through in-game progress and rewards, for making as little movement as possible while playing their games. Through game-based bio-feedback processes [12] players can be trained to gradually make less and less movements while playing their games. This design pattern is potentially most powerful in contexts where physical activity has very little to do with the game narrative. For example, in car racing games, it could be made impossible for a certain lap time to be achieved if the player is making any discernable movements on their couch, other than controlling the car. In fighting games, the health of the player avatar could be dramatically reduced when players are detected as moving, and boosted while complete stillness is observed.

GAME PLAY RHYTHMS

Game design patterns that involve the measurement of player movement are ideal for minimizing player movement within game play sessions. However, other methods are necessary for ensuring that game sessions last for a long time. Exploiting recent research on designing game play rhythms that can facilitate “multi-gaming,” [3] or the simultaneous playing of multiple games, has the potential to address this challenge.

Carter, Nansen and Gibbs [3] describe the context that facilitates this multi-gaming experience. “Rather than a single screen sitting on a table capturing the full attention of the user, the modern computing experience is commonly much more complex and distributed across multiple devices.” Using computing technology in this way “has enhanced ability of players to rapidly and seamlessly switch engagement between simultaneously active games without hiding them or reducing their size.” Carter et al. suggest that players engaging in this switching behaviour “to fill in momentary lapses in activity during gameplay on the primary screen.” Carter et al. use their findings to define a list of different rhythms or “modalities” that games can be designed upon. They suggest that some of those rhythms are compatible. For example, games with Cyclical Intermittent rhythms, such as FPS or MOBA games, contain periods where the player is waiting to join or rejoin the frenetic action. Those gaps present ideal opportunities to engage with Timed games such as Candy Crush Saga, or Passive games such as Civilization, therefore maximising time spent engaging with games and reducing the risk of distraction by non-game activities.

INTERRUPTIONS

Attempts have been made by designers to interrupt game playing experiences for health-related reasons. The game 'Anno 1404' has various in-game warnings when you play uninterrupted for 2 hrs, 4 hrs, 6 hrs etc. World of Warcraft gives XP boosts for the first hour of play only, ostensibly to stop (unhealthy) continued behaviour. GAH proposes that instead of games being interrupted for health reasons, health should be interrupted for games reasons.

The implications of the Carter et al. paper for the games against health movement are clear. Games can be designed to fit seamlessly into the gaps in the play of other games. Games designed according to this design pattern discourage distraction from long game play sessions. Since our goal is to keep people sitting down playing games for long periods of time, this is a really useful pattern. Perhaps the most important contribution of Carter's work is the observation that regardless of how insidiously designed our games, we cannot assume people will sit down and play them in isolation. They will use multiple screens to play multiple games. We must address their entire "screen ecology" in order to best advance the goals of the games against health movement.

Behaviour disturbance patterns

The second class of dark game design patterns relates to behaviour disturbance – patterns that intentionally interrupt players undertaking healthy or safety-conscious behaviours in a manner that they did not anticipate or expect. We have identified two types of behaviour disturbance patterns; those based on natural rhythms, and those based on measuring and analyzing player movement.

NATURAL RHYTHM-BASED PATTERNS

Due to the recent proliferation of sensing technologies, it is possible to identify players' natural rhythms, such as their sleep cycles, eating patterns or menstrual cycles, and to implement game design patterns that intentionally either interrupt those patterns, or are uncomfortable to complete at specific points in those patterns.

A good example of this type of dark design pattern is provided by Zagal et al., [17] in their discussion of Playing by Appointment design patterns. Specifically, games that incentivise players for undertaking in-game tasks during specific short windows of time have great potential to interrupt players sleep patterns. Sleep is essential to human mental, physical and emotional wellbeing [1], so successful games against health might tap it as a design resource. Playing by Appointment patterns that incentivise players to engage with a game specifically when sleep onset has been detected by a mobile device have the potential to cause great distress.

The first steps in using sleep deprivation as a design resource can be found in games like *Farmville*, which successfully exploit the psychological sunk cost fallacy [2] to ensure the regular return of players to their games, even during sleeping hours. Failure to comply is harshly sanctioned by loss of progress and collected in-game resources. *Farmville* elegantly complements this dark design strategy of deprivation choice (the players choose whether to be deprived of sleep or game progress) with an antisocial behavioural component. It offers a mechanism in which players can compensate for their deprivation by means of begging other players to share resources, or other non-players to become *Farmville* players. *Farmville*'s integration of natural rhythm and antisocial behaviour in one game demonstrates that crossover strategies of dark game design patterns are recommended. We can enhance the *Farmville* effect by using sleep monitoring technology, which is commonplace in most mobile devices and hundreds of mobile apps available. They use sound and accelerometer devices to recognize when people are sleeping. These patterns can be combined with

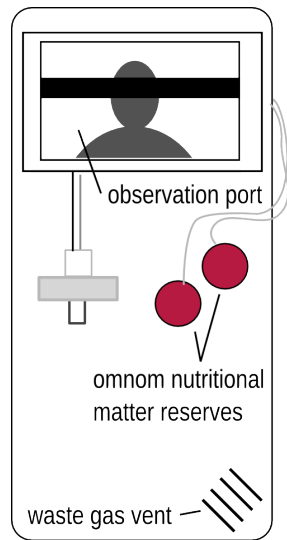


Figure 1. Diagram of *Tankboy* Immersive Gameplay System ©Ben J Kirman

antisocial game mechanics asking the players to deprive fellow players of sleep as well.

Sensing technology such as the Microsoft Kinect could also be employed to learn from visual and audio cues when people take breaks in game play to eat or go to the bathroom. Design patterns that offer significant in-game bonuses for not succumbing to social or physical pressure at that moment have the potential to cause problems in players' social relationships with parents, spouses and roommates, as well as gastric and urinary problems.

As well as sleep and social patterns, dark games can tap patterns of eating as well. It is a widely accepted stereotype that players enjoy snacking while engaging in play, and from a Games Against Health perspective, this cliché can be turned into a design opportunity. The above mentioned Microsoft Kinect technology can be used to register the consumption of a variety of snacks, and to reward players for choosing edibles that are high in fat and sugar. Indeed, there is potential for technologies like the Kinect to be used to ensure this food is appropriately branded. We envision in-game progress unlocked by the eating of Doritos™ or Mountain Dew™. Players conditioned to use one brand of chips over and over again are more likely to continue eating out of habit, to the benefit of designers and corporate partners. Of course, of great inspiration to HCI researchers, we acknowledge the current leader in the GAH movement; McDonalds. The popular and worldwide McDonalds 'Monopoly' game instrumentalises the classic and family friendly Monopoly game to encourage excess consumption of unhealthy fast food, demonstrating the great monetary potential of GAH.

MEASUREMENT OF MOVEMENT PATTERNS

Mobile sensing technology can also be used to facilitate design patterns that interrupt players while undertaking behaviours necessary for their personal safety. For example, GPS technology can be used in the novel but promising Play 'n Drive genre of games that offer in-game rewards for playing the game simultaneously with driving. Rewards would be deactivated if payers were detected as stopping before engaging with the game. This pattern would work particularly well in games that require careful scanning of the game screen. Similar Playing by Appointment patterns could be used to interrupt other safety critical behaviours, such as operating power tools and crossing roads.

This section has described design patterns that are either already in use in research or industry, or require only simple re-purposing in order to nudge players towards and improvement of poor health and wellbeing. In the next section we make a leap and envision a bold future that may lie before us as creators of ludic dark game adventures.

Future Visions

This section provides some brief conceptual ideas. We provide these as examples of the huge untapped potential in GAH, and as inspiration for future co-conspirators.

TankBoy

There is a great deal of potential in the research and development of novel interfaces that support anti-health behavior. Inspired by many of the same arguments that drive public demand for immersive 3D virtual-reality headsets, the TankBoy (see Figure 1) might be the next generation's gaming console of

choice. It is a floating tank with a number of integrated high-end features offering a space for long undisturbed screen-heavy activities and augmented snacking in complete stillness. While players lie down on the floating bed, their entire bodies are kept still, and their body temperatures are regulated. There are a number of wireless retina-controlled entertainment technologies available, each of which are broadcasted directly to the synapses of players optic nerves, providing the illusion of full immersion. Calorie-conscious food and drink supplies are available on demand through the TankBoy's omnim services. TankBoy's vision is to ensure enhanced immersion by reducing the body factor as much as possible.

Ultra Long-Term Interfaces

We are already working on a series of prototype interfaces to facilitate ultra long-term immersive game playing. These are environments that players ideally never need to leave. Figure 2 provides an example of an early iteration of a prototype that explores design considerations regarding 'GAME OVER,' or end-of-life game-playing scenarios. Ultra long-term interfaces, are designed to facilitate players in gaming, sleeping, eating, convalescing and being buried within the device.

Poison Vial

Although grocery shopping can now be done online and delivered directly to the home, many players are still obliged to leave their homes to go to workplaces and schools. Online solutions such as MOOCs and crowdsourcing help ameliorate this issue however many players nonetheless miss out on valuable gameplay time. We propose that physical game media can be supplied along with contagious samples of diseases that

can be used by the player to avoid other obligations. Of course there is a fine balance needed to maximise time in front of games rather than in the toilet.

Gateway Games

One of the most important avenues for GAH research, is one explored commonly by games FOR health researchers. Specifically, there is great potential in working closely with communities that are currently impervious to the lure of video games, either through lack of access, accessibility, or apparent lack of interest, in order to design and develop marijuana-inspired "gateway" games. These are bespoke games designed to bring previously uninterested or hard to access groups of users into the bosom of the game playing community.

AE (Augmented eating)

Since on-screen actions should always be accompanied by real time eating, we need better invitations for augmented eating. The maintenance of health bars via eating (see Figure 3), and the complementation of on-screen eating via off-screen eating are only two suggestions. For example, in the genre of racing games, snacking can be implemented as a mechanic to regulate speed - frequent snacking leading to acceleration.

Conclusion

In this paper we argue for the necessity of a games against health movement as a critique of, and reaction to, the patronizing cultural imperialism seen in the recent use of games for promoting health-related behavior change. We use the concept of "dark" game design patterns to demonstrate the ease with which research findings and commercial hardware can be

repurposed to serve health-obliterating ends. We argue that following the GAH agenda presents an exciting, fruitful and lucrative avenue of research for morally bereft HCI researchers.

Acknowledgements

Mark Blythe has probably done this paper already.

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