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Drinking Games: Simulating Alcoholic Behavior Patterns in the "Pubcrawler" Video Game

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Abstract. Pubcrawler is an interactive video game that presents concepts of alcoholic behavior within actionable gameplay. By implementing simulations of impairment in gameplay controls and player tasks based on denial, rationalization and concealments behaviors, this game is intended to use traditional gameplay elements to immerse the non-alcoholic user in the alcoholic's experience and promote understanding and empathy, and also elicit reflection in the alcoholic user to aid therapy.

Keywords: Serious Games, Educational Games, Empathy Games, Alcoholic, Immersion, Virtual Environment

1 Introduction

Although they have their origins as entertainment, video games are no longer restricted to that domain. Games have, in recent times, found applications in a wide variety of fields such as healthcare [2], the military [19], education [21], marketing [14], cultural experiences [17] and art [20]. Video games are a novel, rich media platform with a multitude of moving parts in regard to inputs. The inputs interact with a range of virtual and real environments, including mixed reality combinations. The results are either experienced by the user via a rich media display and/or by the real and virtual consequences of play and experience. These are increasingly being used for new means of expression and communication.

The continued use of games depends on the motivation to play, and part of this is the immersion and engagement for the user which is achieved when there is well-designed interaction with virtual environments. Additionally, the ability to interact with elements in a virtual world is a characteristic unique to video games. This opens up novel ways to approach applications that have previously relied on verbal communication, written text and/or film. With the increasing thirst for virtual worlds comes a realization that real-life situations can be reflected back to the user through the adjustable prism of the full range of virtual environment manipulation options. The understanding one gains from reading descriptions of an experience or having this experience verbally explained is a different and more impersonal understanding than that gained from experiencing, to some extent, something itself [13].

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As an educational platform, games offer a unique interactive environment whereby you can present concepts that the user can actively interact with and experience. By directly acting out these behaviors as a result of the playing the game, the player experiences deeper learning and empathy. The rise of 'indie gaming' due to the internet and games distribution systems such as Steam has spurred innovation in the gaming scene with smaller games makers being more able to take risks on games that may not seem commercially viable. The availability of professional and highly adjustable games engines (e.g. Unity3D and Unreal) that are free-to-use up to a certain distribution level have also ignited a diversity of themes and topics represented in games by developers. For example, a new wave of 'empathy games', games which aim to let the player experience situations from the perspective of a certain group of people with the intent of fostering empathy, have started to emerge in the games market.

One such game called "Depression Quest" (Fig.1) is an interactive game dealing with the subject of depression independently released in 2013. The game was available initially as a web browser game, then from the digital publishing platform Steam on a free/pay-what-you-want basis. It is largely seen as educational, and has links to the United States National Suicide Prevention Hotline. As an example, it is probably far away from a traditional game developed for entertainment as has been seen yet, and epitomizes some of the furthest ranges that independent game development has pushed the definitions and subjects of modern video gaming. Reaction to the game can be seen in online forums, and an unofficial sample of the reaction shows that a slim majority view it as a positive experience [1]. Reactions from sufferers make note of the recognition of symptoms and reflections of their own condition, including the feeling of not being alone and also of having therapy options. Reactions of non-sufferers indicate some understanding of the condition being developed after the game.

Some studies have illustrated the potential of video games as a tool for fostering empathy [3],[11]. Games have the potential to allow for greater understanding of different perspectives because the medium allows for experiential learning; unlike other forms of media such as film or television wherein the user is limited to an observer of performing characters, games allow the user to assume the role of the game character themselves [8]. Careful consideration must be given to the design of an empathy game. Studies suggest that players are more likely to default to playing "unempathetically" unless prompted to do otherwise [4]. Belman and Flanagan outline four design principles that can serve as a guide (it is noted that good examples of empathy games very rarely exemplify all of the following) for the development of games for fostering empathy [5].

1. Encourage the player to actively attempt to empathize at the start of the game
2. Allow the player to engage in 'helping behavior' to address issues in the game
3. Appealing to emotional empathy is only effective if it doesn't require a significant paradigm shift from the player
4. Give the player a means of identifying with game characters by emphasizing similar human experiences

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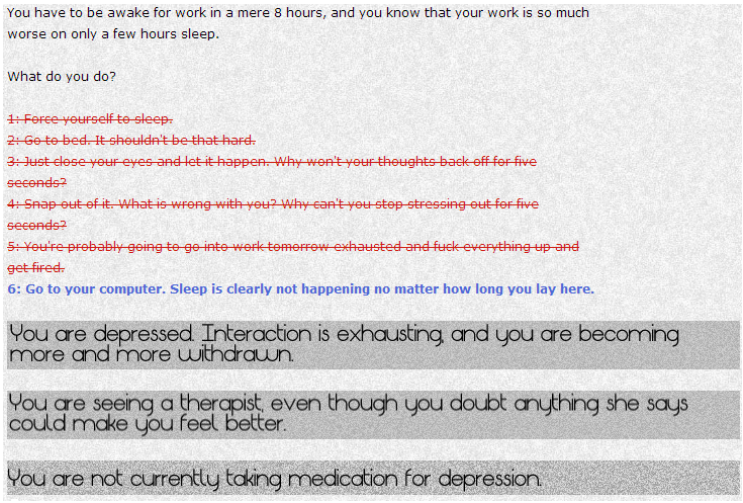

Fig. 1. Screenshot of the gameplay of Depression Quest (Source: `http://loser-city.com/features/on-depression-quest`)

Note that the first principle does not necessarily require that the designer explicitly instruct the player; a more subtle approach can be taken. For example, directly addressing the player as if they are the player character can serve as a gentle suggestion that the player is meant to be putting themselves in the perspective of the player character. It is also suggested that resemblance between the player's method of interacting with the game and the resulting action of the controlled game character may have a significant contribution to achieving strong parallel empathy (i.e. players mirroring the emotional state of the game character) [5].

In this paper, we present "Pubcrawler", a simulation of impairment and alcoholic behavior with the intent of increasing awareness of potentially unhealthy thought patterns and behaviors surrounding alcohol. Concerns about the British 'binge-drinking' culture feature fairly frequently in the UK media, and while definitions of what constitutes 'binge-drinking' may vary [16], studies confirm that many young adults of university-age are consuming alcohol in amounts above the recommended limit [22], [10], and, on average, young adults in the UK drink more than their European counterparts [12]. Pubcrawler aims to challenge the normalization of unhealthy drinking habits and to reach out to those experiencing the behavior it emulates to provide recognition as a therapeutic step. While Pubcrawler utilizes traditional gameplay elements, it belongs to a more recent wave of games dealing with more realistic situation and which have the potential to educate, induce empathy and understanding.

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2 Game Design and Rationale for "Pubcrawler"

Pubcrawler is a desktop game designed as part of the requirements for the Games Interaction Technology module at the University of Westminster, using the Unity3D engine (Fig.2). The game uses a 3d top-down view where the player can navigate the streets in order to accomplish tasks, with some interruptions/mini-games/further missions arriving via the player's in-game smartphone. The overall concept is a top-down stealth game following Clive, a closet alcoholic, as he attempts to return home from the pub while hiding his alcoholism from his roommate who is becoming increasingly concerned about Clive's drinking habits. The main aims of Pubcrawler are to show the player the perspective of an alcohol, including feeling a lack of control, frustration, the compulsion to drink, shame, denial and avoidance with the intention of making the player familiar with some signs that might indicate an unhealthy relationship with alcohol. These aims are communicated in multiple methods, including the main gameplay themes, gameplay mini-tasks, motivation, interaction, navigation, collectibles, and control systems. With all elements of video games serving the theme, it is felt that there will be a strong communication of the concepts and issues at a deeper level than traditional outreach.

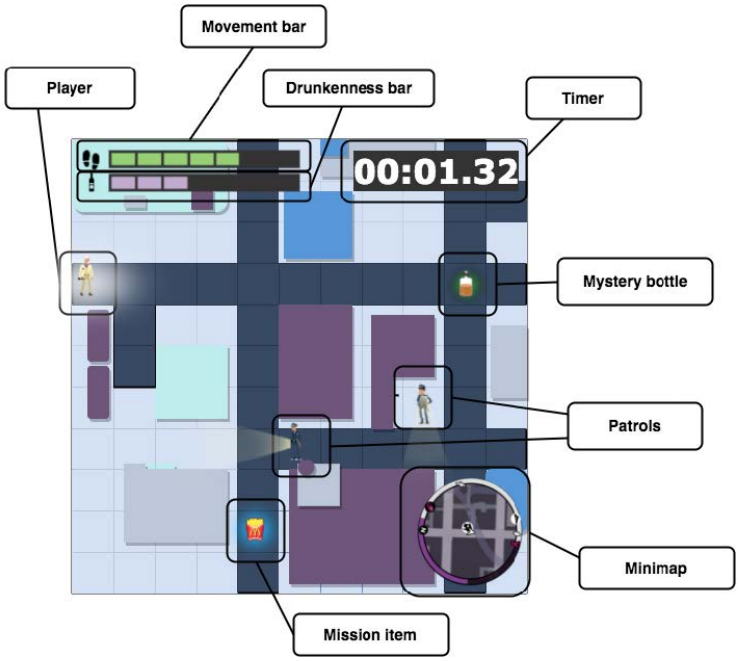

Fig. 2. Planning mock-up of Pubcrawler's UI

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As the game aims to simulate navigating a city while under alcohol-induced impairment, the movement and controls of the main character have been given a degree of unreliability and unpredictability. The player's movement is limited to four directions: up, down, left and right. For every movement the player attempts to make in quick succession, the chance of the player making a random movement instead increases. Short sessions of movement reduce the variability, but when the game requires sustained movement, the player will feel the effects of the impairment on his controls more acutely. This makes the player's journey home less straightforward and puts the player in a position where they do not feel completely in control, especially when obstacles or non-player characters (NPCs) must be avoided. The player may encounter 'mystery bottles' which are items scattered around the map that the player can choose to immediately use. These appear to be normal 'game collectibles' (to motivate the player to use them) and the player is not explicitly told what effect these may have. The very first mystery bottle the player comes across provides a positive effect, i.e. it reduces the chance of a random movement. However, the player eventually discovers that every mystery bottle thereafter has a random chance of either positively or negatively affecting the player. The appearance of the mystery bottle and the random effect combined serve as a representation of the alcoholic's compulsion to drink and the 'just one more drink' mentality. Because of the player's initial positive experience with the mystery bottle and their awareness of the chance of a positive effect from the mystery bottles, the player picks up more mystery bottles to push their luck.

Pubcrawler does not aim to be an explicitly educational game, but instead a casual game with hidden depth. The player may feel a growing unease as the game progresses and it becomes apparent that the main character is an alcoholic. This is intended to reflect how alcoholism often creeps up on both the alcoholic themselves and their loved ones. The game's narrative is presented mainly through texts sent between Clive and his roommate during drunk texting mini-games. The mini-game prompts are concerned texts sent by the roommate. As Clive, the player has the option to reply to their roommate's text in an attempt to assuage their worries and gain time (represented in-game as the player receiving a time bonus if they're successful). If the player accepts, they are shown a template message (Fig.3) reflecting common excuses that alcoholics may use when questioned about their drinking habits and/or statements that may reflect a problematic relationship with alcohol (Table 1). Currently, the message-response system works with the roommate's received text having a direct matching answer.

Clive's template responses are based on excuses outlined by the UK alcohol education charity Drinkaware, New Zealand's Health Promotion Agency, and results from a study on denial and rationalization in male alcoholics [9],[15],[7]. Because of the similar mentality, some common excuses for quitting smoking listed by the NHS have also been adapted for this [18]. Note that the lack of punctuation and capitalization in the responses is deliberate. From a gameplay perspective, this simplifies the mini-game mechanics, but thematically, this also

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Fig. 3. Pubcrawler's drunk texting mini-game

Table 1. Message-response between Clive and his roommate reflecting common excuses and rationalizations that may be used by an alcoholic

Text Received from Roommate	Clive's Response
You're going out drinking again?	only for a few drinks
Maybe don't go too hard tonight, yeah?	its fine i can stop when i want
I'm worried about how much you're drinking lately	i dont drink any more than my friends
You've been drinking quite a lot	i mean i drink lots sometimes but im not an alcoholic
Maybe it's time to stop, mate	its just not the right time
I'll be frank: I think you might have an alcohol problem	my life isnt ruined so i cant be an alcoholic

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makes the responses more similar in style to texts that a drunk person may send. In this way, the player is basically forced to respond in the way an alcoholic would, 'typing out' the template message letter-by-letter on an onscreen phone keyboard while under time pressure. The more 'coherent' the response (i.e. the more characters in the message that the player correctly types out before the mini-game timer runs out), the more extra time the player is given to complete the level. At the same time, the user must avoid encounters with the police where he will be deemed inebriated enough to be detained. As a game mechanic, this thematically augments the navigation impairment to add to the claustrophobia of play and completion.

3 Conclusions and Future Work

This paper has outlined the design of a simulation game for improving understanding and awareness of alcoholic behavior. At this stage, an early prototype of Pubcrawler has been developed with the core game mechanics in place and including a small sample level. The next step in development will involve the creation of multiple, larger levels as well as fleshing out the game narrative. Moving forward, this study will investigate the following research question: does the game more effectively promote awareness and empathy around alcoholic behavior in comparison with a more traditional training session? This would be measured by a series of questions that are given to two separate groups: one that has had the traditional presentation, and one that has had the presentation in combination with some time playing the game. Alternatively, two versions of the game could be tested against each other for motivation and empathy. Questionnaires will be administered to participants before and after the experiment. The pre-questionnaire will be used to gather demographic data and to determine baseline knowledge and empathic response. The post-questionnaire will be aimed at testing knowledge acquisition (e.g. recognition of signs of a potentially unhealthy relationship with alcohol) and whether particular emotional responses are induced in the player (e.g. frustration, loss of control, fear of being caught, etc). The resulting data could then be analyzed using an independent samples t-test to determine whether a significant difference in the reception between the traditional presentation and the game exists. UX testing will also be conducted for UI sentiment using an expanded version of the System Usability Scale (SUS) [6]. From there, we would expect to liaise with charities in order to test the application's effectiveness for treatment or reflection of behavior choices in alcoholics. At the least, it is expected to open up a discussion and raise awareness.

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