Synthesising Behaviour Change Theory with Game Design Practice

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Abstract

This position paper provides the background rationale, and a preliminary theoretical approach for developing a framework for designing interactive narratives for behaviour change. This research in progress posits that games design techniques aiming to address mental health, and health-related behaviour, would benefit by synthesising an accepted and evidence-based psychological framework for behaviour change with current game design practices.

Author Keywords

Behaviour change; Game Design; Framework; Narrative.

ACM Classification Keywords

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

Extended Abstract

As part of a series of four doctoral studies, this position paper will focus on presenting the background rationale and preliminary theoretical approach of the first study – Mapping the Matrix.

The development of interactive media and games, with a primary purpose to address social issues, challenge attitudes, and change behaviour is a young and rapidly

growing field [1]. While the playing of games for educational and cultural transmission purposes dates back to ancient times [2], current day initiatives seek to synthesise emergent technology and gameplay whilst employing some explicit educational or social purpose.

"Videogames are capable of much more. In addition to becoming instrumental tools for institutional goals, videogames can also disrupt and change fundamental attitudes and beliefs about the world, leading to potentially significant long-term social change." [3] (preface ix).

It is often the case that this educational / social / cultural messaging is achieved through narrative [4]. In accordance with Green & Brock's [5] work on Narrative Transportation, Baranowski argues that narratives have the capacity to influence cognition, emotion, and potentially behavior as mediated through the transportive nature of narrative immersion [4]. Furthermore, by engaging with narratives, which present the opportunity to explore possible selves, narratives are in a unique position to help drive our internal motivation [6].

Given these findings, interactive narrative offers a promising opportunity to maximise the delivery of health information and have a great potential to create positive change through the comparatively low cost of designing and disseminating of interactive media interventions.

However, it is important to acknowledge that health interventions can often be high risk and it is crucial to understand the psychological processes of behaviour change, and employ evidence-based practices. Game designers and developers would therefore benefit greatly from utilising frameworks with strong theoretical foundations where behaviour change design is the goal.

The Transtheoretical Model of Behaviour Change (TTM) offers a widely accepted, and theoretically driven model outlining the five key stages and ten processes that are involved in behaviour change [7]. The TTM outlines five stages of behaviour change, and ten specific psychological processes mapped across these stages, which facilitate progression from an initial pre-contemplation to change state, through to full maintenance of behaviour change.

The TTM will be utilised as the theoretical foundation in order to synthesise interactive narrative design and behaviour change processes, in particular the crucial processes of change from the dormant first (pre-contemplation) stage to the active second (contemplation) and third (preparation) stages, as outlined in the following figure.

Figure 1 TTM Stages 1-3 [7]

Stages of Change	Psychological processes facilitating stage progression
1. Pre-Contemplation: *not seriously considering behaviour change in the foreseeable future, and may be unaware of any need to change.*	**Consciousness raising:** *Increasing awareness about the problem and improving the accuracy of information processing about the problem and about the self.* **Dramatic relief:** *Experiencing and releasing feelings about the problem and the solution.* **Environmental re-evaluation:** *Cognitive and affective assessments of how a personal behaviour might have an impact on the social environment.*
2. Contemplation: *aware that there is a problem and are seriously considering behaviour change within the next six months but are not yet committed to act.*	**Self-reevaluation:** *A person's cognitive and affective assessments of their self-image in relation to the problem behaviour.*
3. Preparation: *ready for action and seriously intend to change within the next month.*	**Self-liberation:** *A person's belief in their ability to change a particular behaviour and their commitment to act on that belief.*

While this research is currently in early stages of progress, preliminary results will be available at the time of the workshop for presentation. This study represents a systematic review of existing games, and has three key components:

1. Selection of existing interactive narratives / games, outlining the Inclusion / Exclusion criteria and search strategy.

2. Analysing the games and breaking them down into their discrete design elements in accordance with the MDA Framework.

3. Examining how these discrete game elements could map on to the Transtheoretical Model of Behaviour Change, with a focus on Stages 1-3, and psychological processes 1-5.

The results of this study will be presented as a Matrix of game design elements (within each of the Mechanics, Dynamics, and Aesthetic categories), and behaviour change psychological processes (within each of the TTM stages). The Matrix will serve as a synthesis of game design elements, and psychological behaviour change theory and will provide a preliminary direction for the development of a comprehensive practical framework for interactive narrative design for behaviour change.

Biography

Jane Cocks is a PhD Candidate at the University of the Sunshine Coast, where her research strengthens the bridge between the Psychology of Behaviour Change, and Game Design. Jane has completed Bachelor degrees in Behavioural Science and Health Science, Psychology Honours.

She has spoken extensively about serious games, the psychology of games, and the relationship between games and mental health, at national and international events. Jane has been awarded by MCV Pacific as one of the top 100 Women in Games in 2015, and as one of the Top 30 Women in the Game Changers List in 2016. She was also a finalist for the Campaigner Award, recognising Women in the Games Industry who have worked for a games-related charity, or community, to use games as a force for change, inclusion, education or improvement.

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