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COUNSELLING ATTRIBUTES FOR ONLINE GAME DESIGN MODEL

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By

IDIDI ITALUMEH OKPAKHOMHE

**Thesis Submitted to School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

November 2018

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DEDICATION

This thesis is dedicated to Almighty God, the creator and redeemer of all men. To my beloved wife Mrs Christiana Ididi and children Raymond Ididi, Emmanuel Ididi, Jaden Okhai Ididi and Divine Oshorenoya Ididi for their support through this journey. Lastly, my dedication also goes to my parents Mr Italumeh Ididi and Mrs Adiza Ididi for the life and guidance they bestow on me.



Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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By

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November 2018

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Faculty : Computer Science and Information Technology

In recent times, online game play has become a food for thought to concerned individuals, researchers and authorities of various countries due to its excessive and addictive usage. Although, various government have taken certain measures such as shutting down internet cafe at certain hours of the day, censoring the most brutal, offensive and aggressive sections of certain games before they are released. Researchers have advised developers on ways of limiting harm on players by suggesting design changes on time limit. Furthermore, researchers have also suggested that online game distributors ought to make available appropriate referral services. The impart of the above are yet to make any remarkable impact on players. In this research, a Counselling Attributes Model (CAM) is proposed as a control measure in minimizing online game effect on Cognitive Behavioural Therapy (CBT) components as a key to minimizing excessive play and core addictive gaming habits. Campaign messages designed as informative in nature while appraisal messages designed as self-appraisal messaging from the proposed model are integrated in the game to stream at the bottom centre of the gaming screen. While informative messages are streamed at every two minutes, self-appraisal messages are streamed at faster interval at every one minute in red colour, capital letter and with annoying sounds, are determined with optimistic believe to make positive impact on player's thoughts, emotions and behaviour towards gaming. The proposed model is to show or remind players about the negative impact of excessive and addictive gaming habits, as well as suggesting possible reductive solutions through message streaming. A total of 132 participants took part in the experiment which was conducted based on between subject of 66 experimental and 66 control groups by administering the game integrated with CAM on the experimental group and the game without CAM on the control group. Results generally reveal that the experimental group received significant impact from the game with CAM as compared to the control group without CAM. The experimental group also shows significant effect on CBT component as well as excessive play criteria (Salience, Tolerance and Mood modification) and core addiction criteria (Withdrawal, Relapse, Conflicts and Problems).

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

CIRI-CIRI KAUNSELING BAGI MODEL REKA BENTUK PERMAINAN DALAM TALIAN

Oleh

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Sejak kebelakangan ini, permainan dalam talian telah menjadi perhatian individu, penyelidik dan pihak berkuasa di merata negara disebabkan masalah ketagihan dan penggunaan yang berlebihan. Walaubagaimanapun, kerajaan di kebanyakan negara telah mengambil langkah-langkah tertentu seperti mewajibkan penutupan kafe internet pada jam tertentu dan menapis bahagian-bahagian permainan yang mengandungi unsur kekejaman, serangan dan agresif sebelum diedarkan. Penyelidik telah menasihatkan pembangun permainan tentang cara untuk mengurangkan kemudahan ke atas pemain dengan mencadangkan perubahan reka bentuk berdasarkan had masa. Selain itu, penyelidik juga menyarankan agar pengedar permainan dalam talian perlu menyediakan perkhidmatan rujukan yang bersesuaian. Walaubagaimanapun, kesan cadangan di atas tidak memberi impak luar biasa kepada pemain. Dalam kajian ini, kami telah mencadangkan model Sifat Kaunseling sebagai langkah kawalan dalam meminimalkan kesan permainan dalam talian ke atas komponen Terapi Perilaku Kognitif (CBT) sebagai kunci untuk mengurangkan tabiat bermain berlebihan dan ketagihan melampau. Mesej kempen yang direka sebagai pemberi maklumat manakala mesej penilaian pula direka sebagai mesej penilaian diri daripada model yang dicadang telah diintegrasikan di dalam permainan untuk dipaparkan pada bahagian bawah skrin permainan. Sementara mesej pemberi maklumat dipaparkan setiap selang dua minit, mesej penilaian pula dipaparkan lebih cepat iaitu selang satu minit dengan tulisan berwarna merah, huruf besar dan bunyi yang menjengkelkan, dijangka akan memberi kesan positif terhadap pemikiran, emosi dan tingkah laku pemain di dalam permainan. Model yang dicadangkan juga dijangka akan memberi peringatan kepada pemain tentang kesan buruk tabiat bermain permainan secara berlebihan dan ketagihan, serta mencadangkan penyelesaian reduksi yang bersesuaian melalui mesej yang disiarkan. Seramai 132 orang peserta terlibat di dalam eksperimen di mana ia dilaksanakan berdasarkan 66 subjek eksperimen dan 66 kumpulan kawalan dengan membandingkan permainan yang disepadukan dengan Model Sifat Kaunseling pada kumpulan eksperimen dan permainan tanpa Model Sifat

Kaunseling pada kumpulan kawalan. Secara umumnya, keputusan menunjukkan bahawa kumpulan eksperimen menerima kesan yang signifikan dari permainan dengan model Sifat Kaunseling berbanding dengan kumpulan kawalan tanpa Sifat Kaunseling. Kumpulan eksperimen juga menunjukkan kesan yang ketara ke atas komponen CBT serta pada kriteria permainan yang berlebihan (Kejutan, Toleransi dan Perubahan Perasaan) dan kriteria ketagihan (Pengunduran, Kemosototan, Konflik dan Masalah).



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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

ACCA	American College Counselling Association
AGE	Actions, Gameplay and Experience
AO	Adults Only
C	Conflicts
CA	Counselling Attributes
CAM	Counselling Attributes Model
CBT	Cognitive Behavioural Therapy
CPU	Central Processing Unit
CSR	Corporate Social Responsibility
CVI	Content Validity Index
DVI	Digital Visual Interface
ESA	Entertainment Software Association
ESRB	Entertainment Software Rating Board
FPS	First Person Shooter
HD	High Definition
HDMI	High-Definition Multimedia Interface
ICD	International Statistical Classification of Diseases
I-CVI	Independent Content Validity Index
M	Matured
MAR	Missing At Random
MCAR	Missing Completely At Random
MDA	Mechanics Dynamics and Aesthetics
MM	Mood Modification

MMOG	Massively Multiplayer Online Games
MMORPG	Massive Multiplayer Online Role Playing Game
NPC	Non Player Character
OBS	Observe
P	Problems
PGB	Problematic Gaming Behaviour
POGQ	Problematic Online Gaming Questionnaire
R	Relapse
RSQ	Respondents Selection Questionnaire
RTS	Real Time Strategy
RPG	Role Playing Game
S	Salience
S-CVI	Scale Content Validity Index
S-CVI/Ave	Scale Content Validity Index Average
S-CVI/UA	Scale Content Validity Universal Agreement
SPSS	Statistical Package for the Social Sciences
TOL	Tolerance
Tx	Treatment
UNICEF	United Nations International Children's Emergency Fund
W	Withdrawal
WHO	World Health Organisation
WoW	World of Warcraft

CHAPTER 1

INTRODUCTION

1.1 Background

Online game could be defined as a video game that is rather partly or principally played on the Internet or other computer network (Rollings and Adams, 2006). Online game problems could be described as excessive or addictive activity. Griffiths (2005c) described excessive and addictive activities as two unrelated phenomena. Wellbeing excessive passion contributed positively to life, while addiction reduces from life (Griffiths, 2005c). Games are designed for leisure and relaxation but when they are over used, they could become harmful to the user. Moreover, games have been designed as media of amusement and to relief pressure during and after school or vacations activity. However, there is evidence that when done in excess, online games activity could in certain situations become addictive, particularly online video game with tendency of never coming to an end and with the necessary potential to be a continuous 24/7 activity among players (Griffiths, 2008). The capability of the Internet as a means of socialization is a major motive for the excessive amount of time players expend to have real-time discussions by means of e-mail, discussion forums, chat rooms and online games (Byun, et al. 2009).

Massively Multiplayer Online Role-Playing Games (MMORPG) became achievable due to increase enhancement of broadband Internet access all around the world, Internet accessibility allow hundreds of thousands of gamers to play the same game together at the same time (Yie et al., 2010). MMORPG being the front line of invention of computer games through taking advantage of the ease of access of Internet technology including ease of graphic-processing competencies by computer systems (Yee, 2006). There has been increasing cases of games being abused especially in the areas of online games which deals with internet connectivity with the ability of bringing several people together from different parts of the world. Deng and Xuan (2009) described the situation in China as online games becoming progressively the largely frequent form of entertainment in the midst of adolescent. As compares to some other non-online games, e.g., chess and card game, all online games are accessible at all times; are playable as long as ones has the will to play; they are exceedingly self-gratifying; and are also very motivating (Deng & Xuan, 2009). College students, particularly new students who are first time enjoying unimaginable autonomy of breaking away from parental control and with lots of spare time, hardly can refuse to give in to the enjoyment of online games playing (Deng & Xuan, 2009).

Nick Yee (2006) expressed the factors which motivate game players and probable reasons why gamers would play online games excessively. Some MMORPG players reveals likely wide variation of motives, such include achievement component, social component and immersion component (Yee, 2006). These motivating factors inspire players to either become excessive or addictive gamers. Such factors could result to

some addicted gamers showing evidence of aggressive character (Anderson & Bushman, 2001), self-deprivation from food and sleep in order to game (Ng & Wiemer-Heating, 2005), stop going to work (Chappell et al., 2006), gaming online even at work place (Yee, 2006), including self-isolation from the real world (Williams, 2006). Using game as a source of escape from reality (Olson et al., 2007; Jacobs, 1986), telling lies to friends and families about their gaming habits (Young, 2009).

Similar to the gambling companies, that has long be forced by governmental directives and which Corporate Social Responsibility (CSR) has turn out to be a critical concern (Griffiths et al. 2007; Griffiths & Wood, 2008), online videogame companies have up till date, eluded governmental control. Although, there exist certain secluded instances of governmental interference. To restrain problematic online video gaming, Thailand's government authorities prohibited "Grand Theft Auto 4" after one student killed a taxi driver in an attempt of recreating a scene as played in the game 'attempting to demonstrate the easiness of the scene in a real life situation' (Mail Online, 2008). Chinese government resulted in shutting down frequently Internet cafes and also introduced regulations to set limit on the duration of play (Griffiths & Meredith, 2009). Similarly, the Australian classification board rejected the originally released edition of "Fallout 3" as a result of the high level of pragmatic drug use consequently compelling its developer Bethesda Softworks to come up with a censored edition (r18games.com).

Control in the United States of America revolves around the trade of 'Mature' (M) or 'Adults Only' (AO) classified games to minor as a matter of serious worry to civic authorities. Moreover the Video Games Ratings Enforcement Act introduced to the US House of Representatives necessitates an identification verification for M and AO classified game procurement (US Congress, 2006). Manhunt 2 by Take-Two Interactive was originally declined classification in the United Kingdom, Ireland and Italy, but was accepted for an AO rating by the United States of America (Gamespot.com, 2007). Conversely, following introducing certain amendments to the game by blurring the display screen at the executions of the game and taking away the rewarding system, showing players heavily rewarded for predominantly violent murdering, the censored edition was later accepted as M rating in the United States by the Entertainment Software Rating Board (ESRB) (Wired.com, 2007). Major game developers and publishers have resulted to getting divisive online games ranking by intentionally rating systems (Yousafzai et al. 2014). Flow and parental regulation of games has also been suggested as the main focus for clinical intervention in reducing the length of gaming time by adolescents, therefore encouraging earlier sleeping time (Smith et al., 2017).

In addressing these issues, research have suggested that pop-up messages are more effective to a greater extent rather than stationary messages in captivating player's concentration (Monaghan, Blaszczyński & Nower, 2009; Monaghan & Blaszczyński, 2010). Also, it leads to improving message understanding with players observing the warnings, processing the information and safe stored to be later recalled (Monaghan & Baszczyński, 2009). Banner ads have also found to be easily noticed, remembered

and effective in online videogame advertisement (Yeu, et al. 2013). Further research have shown positive results about dynamic warning messages as infective intervention to minimise harm related to gambling (Gainsbury, 2015). While, Abarbanel and colleagues (2017) have suggested game developers to abide corporate social responsibility standards through adding warning messages on advertisement gambling-themed games and ensure such messages does not support excessive gambling. Therefore, this study is focussed on exploiting such effective counselling or warning messages developed as pop up dialog and banner ads, streamed in the game to facilitate cognitive event restructuring and interpersonal skill training of Cognitive Behavioural Therapy (CBT). Being that CBT is recognized as one of the major treatment of maladaptive thoughts, emotional disorder and irrational behaviour in counselling.

This research focuses on proposing a solution to the foremost online game problems which includes excessive play and core addiction. The proposed solution is aimed to minimise problems of excessive play and core addiction in online game players. In this research, excessive play and core addiction are addressed in terms of minimising the effects of games on players' thoughts, emotions and behaviour as addressed by CBT.

1.2 Problem Statement

Alongside this background, as compared to the health advisory messages on tobacco and alcohol wrapping or packaging, recently risk of game excessive use warning messages have started showing up on the loading screens of familiar MMORPGs. For instance: *World of Warcraft*– ‘Take everything in moderation (even World of Warcraft)’ and ‘Bring your friends to Azeroth, but don’t forget to go outside of Azeroth with them as well’; (Blizzard Entertainment, 2008). *Final Fantasy XI*– ‘Exploring Vana’diel is a thrilling experience. During your time here, you will be able to talk, join, and adventure with many other individuals in an experience that is unique to online games. That being said, we have no desire to see your real life suffer as a consequence. Don’t forget your family, your friends, your school, or your work’. (Pet Food Alpha, 2008). Despite adding warning messages at the loading screen by some game publishers, issues of game excessive or core additive use is still very uncontrollable all around the world (Chia, 2013). This current approach by game publishers or developers appears not yet making any required impact as expected in respect of the social responsibility of controversial industries. The impact of excessive play and core addition by online games are massive. Even though, government authorities of diverse nations have attempted to implement various measures against online game excessive use, whereas game publishers or developers have attempted warning messages regarding risk involved in game overuse which appears not necessarily making the required impact. Researchers on the other hand have recommended for designers or developers to establish design alterations (Yousafzai et al., 2014). Regardless of diverse move towards addressing this challenging problem, issues of game excessive use still linger exceedingly uncontrollable around the world. Hence, counselling approach is proposed in this study as viewed from the understanding of counselling being a major tool of dealing with diverse human

disorder. This approach consist of integrating informative and self-appraisal messages to stream at the bottom centre of the gaming screen, in order to stimulate the CBT component of the player that might impact excessive and addictive gaming problems. CBT therapy was examined in this study as it deals with internal thoughts and emotions in addressing external behaviour.

1.3 Research Question

In relationship with the background and problem statement of this study, it becomes apparent to understand the relationship between CBT and addiction (excessive play and core addiction). Based on this, here are the main research questions of this study as stated below;

RQ1: What is the influencing impact of CBT on gamers?

RQ2: What is the impact of Counselling Attributes Model on gamers CBT

RQ3: How does the impact of CBT influences excessive play and core addiction of gamers

1.4 Research Objective

The main aim of this research is the development of a model to solve the problems of excessive play and core addiction associated with online games play. To achieve this aim, the following objectives are considered:

- i) To identify and deploy appropriate counselling therapy that can positively impact players' thoughts, emotions and behaviour of the CBT components.
- ii) To propose counseling attributes game design model that adopts the identified counseling therapy for online game design.
- iii) To evaluate the model based on the changes of the CBT components of the online game players.

1.5 Scope of Research

The adoption of counselling in game design, by taking the advantage of counselling as a correcting tool to human disorders is the purpose of this research. Thus, the research scopes are;

- Focussing on adolescents gamers as participants who either play games excessively or addictively. Participants are limited to students in secondary schools, diploma and early degree students.

- The research is based on the social psychology content and process principles of counselling and warning messages design in developing the counselling and warning messages to influence the CBT components.
- This study is limited to examining CBT in terms of thoughts, emotion and behaviour. Excessive play is examined in terms of salience, tolerance and mood modification while core addiction examination is limited to withdrawal, relapse, conflicts and problems. However, it is not the claim of this research that CBT, excessive play and core addiction criteria are limited to ten criteria as utilized in this research.

1.6 Thesis Organization

This thesis comprises of seven chapters, including this introductory chapter covering the background of the study, research objectives, problem statement, scope of the research, and thesis organization.

Chapter 2 reviews the literature on the issues surrounding online game excessive and core addictive play, research related to adolescents' driving interest towards online games. Literature addressing various control measures by different agencies were also reviewed. This chapter provides important information to be taken into consideration in an effort to meet the research goal, which is to develop a game counselling attributes model.

Chapter 3 explains the research methodology carried out in this research in terms of the research process, design, evaluation, data collection and data analysis.

Chapter 4 discusses the development of the Counselling Attributes model which includes the integration of CBT and American College Counselling Association (ACCA) academic counsellors' activities into existing game design frameworks.

Chapter 5 presents the evaluation carried out on the proposed model. It describes the various steps from strategy, materials used, conduct of the experiment and the discussion of the model used in the analysis of CBT, excessive play and core addiction criteria. Test of hypothesis results are also obtainable in this chapter.

Chapter 6 presents the analysis of the results in terms of CBT, excessive play and core addiction. Test of hypothesis was also conducted in answering the research objective.

Chapter 7 elaborates the conclusion in terms of the contributions and future works of this research.

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LIST OF PUBLICATIONS

- Ididi, I. O., Hassan, S. A., Abd Ghani, A. A., & Ali, N. M. (2014). Online Game Dilemma: Proposed Solution. Proceedings of the Serious Games Conference 2014
- Ididi, I. O., Hassan, S. A., Abd Ghani, A. A., & Ali, N. M. (2015). A Proposed Counselling Attribute Framework Against Game Overuse. *Jurnal Teknologi*, 77(13), 29-35.
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