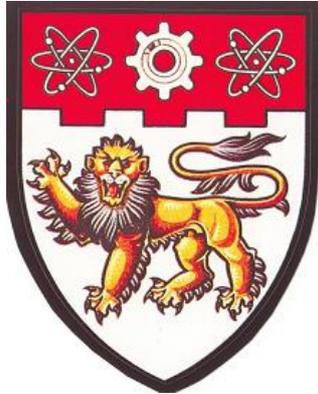


NANYANG TECHNOLOGICAL UNIVERSITY



**Division of Information Studies
Wee Kim Wee School of Communication & Information**

**Digitally Mediated Fitness Games for Corporate
Wellness**

**CI6299 – Critical Inquiry
Proposal**

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1 INTRODUCTION AND BACKGROUND

The workplace is a key environment for promoting the health of adults. Corporate organisations can have a positive influence on employee health by creating healthy environments, ensure that corporate policies are conducive to staff's health, while providing health promotion initiatives and services at the office. Organisations can adopt a holistic and integrated approach to workplace health to achieve benefits such as the extended value of improved well-being of staff (including staff attitudes towards their tasks in the workplace and their mental health), to reduce medical costs and improve individual and organisational productivity and performance. Such health and wellness initiatives include holding health awareness talks and sessions, promoting exercise at the workplace, and enhancing flexibility of working hours for staff wellness initiatives.

As explained by MOH, workplaces in Singapore are an ideal setting for promoting health because:

Working people spend a lot of time at work

There are existing mechanisms at the workplace to communicate and influence behaviour

About 65% of Singaporeans over 15 years of age are in the workforce.

Many organisations are promoting physical and mental wellness in the workplace through the use of games. When games are incorporated with physical activities, they may potentially have a positive effect on participants' health through exercise, and promote qualities such as commitment, teamwork, and healthy competition. The introduction of games at the workplace, or "Gamification" is defined as using game technology at in a workplace environment and setting. This may include the introduction of programs and incentives for games at the workplace and enhancement of the physical aspects of the workplace.

Digital fitness games can be introduced into a corporate environment as the gaming equipment and required playing space do not take up much physical office space. One instance of such a digital device supporting such games is the Xbox Kinect. The Xbox Kinect is a motion sensing input device by Microsoft for the Xbox video game consoles. Based around a webcam-style add-on peripheral, it enables users to control and interact with their console/computer without the need for a game controller, through a natural user interface using gestures and movements.

2 PROBLEM STATEMENT AND JUSTIFICATION

Although there is rapid adoption of devices such as the Xbox for purposes such as physical exercise and rehabilitation in the recent years, the technology is not mature and is in an early stage of development. Digital fitness games may offer many new opportunities but at the same time, the number of computational and human interaction based challenges it is facing is equally daunting. Limitations such as realism in displays, system responsiveness due to CPU power, connectivity and memory may hold back participants from enjoying the full experience of the game and limit the benefits of the physical activity involved.

Other factors posing difficulties to workers are learnability as the workers may spend more time looking for information on how to play the game and use the device than actually playing the game. As such acceptance may not be an easy task and workers may not be inclined to use the digital game facilities during times like their lunch breaks. Hence, the success factors of using digital games in the workplace for exercise largely depend on the workers' willingness to accept and adopt the new technologies that workers have rarely used before.

Factors that affect workers' intentions of adopt and accepting digital games and devices for exercise include perceived usefulness, ease of use, and effort expectancy as elaborated below.

3 LITERATURE REVIEW

In order to understand what are which factors significantly influence a corporate worker's acceptance of digital fitness games, this study will use the Technology Acceptance model (TAM) developed by Davis et al (1989) and Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al (2003).

The Technology Acceptance model (TAM) (Sung Youl, 2009) is a well-known model that predicts and explains user reaction and behaviour toward Information Technology. The TAM provides the variables that will influence user's attitudes, intention to use and two notable cognitive beliefs: perceived ease of use and perceived usefulness. Perceived usefulness is a belief that a user can anticipate with the use of new technology how much it will enhance his job efficiency, and perceived ease of use is a user's belief that he can expect freedom of cognitive effort when using a particular system (Chang, Liang et al., 2013).

The Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al (2003) integrates elements across the eight prominent models in the field of Information System user acceptance research (Liew et al., 2013). The four key factors that determine information system behaviour and usage in the UTAUT are performance expectancy, effort expectancy, social influence, and facilitating conditions (Wang et al., 2009). These four key determinants can be influenced by user's age, gender, experience, and level of voluntary use. The extended UTAUT model consists of performance expectancy, effort expectancy, social influence, perceived playfulness and self-management as proposed by Liew, BaoYng Teresa, et al., (2013).

4 OUR PROPOSE OF STUDY

With the use of TAM developed by Davis et al (1989) and UTAUT developed by Venkatesh et al (2003) for this study, we would like to determine which factors significantly influence a corporate worker's acceptance of digital fitness games

4.1 Aim

Therefore, the objective of this research is to conduct an empirical study on the factors that affect a corporate worker's acceptance of digital fitness games.

4.2 Hypotheses

Below is a list of hypothesis covered by this research.

- There is a positive significant difference on a corporate worker's behavioural intention in acceptance of digital fitness games.
- There is a positive significant difference on a corporate worker's perceived usefulness in acceptance of digital fitness games
- There is a positive significant difference on a corporate worker's perceived ease of use in acceptance of digital fitness games
- There is a positive significant difference on a corporate worker's effort expectancy in acceptance of digital fitness games

4.3 Methodology

4.3.1 Participants

A total of 20 participants will be recruited from Wee Kim Wee School of Communications and Information at Nanyang Technological University. Participants age will range from 21 - 55 years of age, with various education backgrounds as well as limited experience with digital gaming. We hope to recruit an equal amount of males and females for this study.

4.3.2 Measures

We will be measuring a number of items:

- Demographics: Information on participants gender, age, educational background etc will be captured in this section.
- Enjoyment Level Scale: The scale measures the level of enjoyment a participant has when playing a game (Richard et al., 2006). Eight Likert-type items are measured on a five-point scale. Higher scores indicate a greater game enjoyment.
- Perceived Usefulness Scale: The scale measures the users' perceived usefulness of a technology (Davis 1989; Davis et al. 1989).

- Perceived Ease of Use Scale: The scale measures the users' perceived ease of use towards a technology. (Davis 1989; Davis et al. 1989)
- Behaviour Intention Scale: The scales measures the intent of a user or acceptance to use a technology. (Venkatesh et al. 2003)

4.3.3 Procedure

The study will be conducted within the premises of Wee Kim Wee School of Communications and Information. A XBox 360 + Kinect and a Television will be set up in a room and participants will be asked to played a series of fitness games from 2 titles, "Kinect Sports" and "Kinect Adventures". Each participant will play for 15minutes before being asked to fill in a questionnaire. There will be 2 sessions a week, over a total of 2 weeks.

4.4 Scope of the Research

The study will be conducted within one semester (4 months). Targeted participants would be the employees working at Wee Kim Wee School of Communications and Information. The participants will consist of various age groups, working and education experience, which will allow for a good variation of subjects to be studied.

5 CONTRIBUTIONS TO RESEARCH AND PRACTICE

The contributions for the completion of this research are as follows:

- A better understanding of the factors that affect a user's adoption of a technology like XBOX Kinect for physical exercise.
- An increase in workplace fitness and wellness with the better understanding of adoption factors.
- A better understanding on how the use of Kinect can positively affect workplace fitness and wellness.

6. PROJECT TIMELINE

Key Tasks	Month	Jan-14		Feb-14		Mar-14		Apr-14		May-14
		W1/2	W3/4	W1/2	W3/4	W1/2	W3/4	W1/2	W3/4	W1
Preliminary Exploration										
1. Team formation/Topic Selection										
2. Team and Topic Submission										
Proposal Preparation										
1. Background Investigation										
2. Draft Proposal										
3. Meetup with Supervisor										
4. Revise Proposal										
5. Submit Proposal										
Literature Review/Study Execution										
1. Meetup with supervisor										
2. Collection of Literature										
3. Prepare questionnaires										
4. Study execution										
5. Data Analysis										
Report Preparation										
1. Meetup with supervisor										
2. Draft initial report										
3. Report revision										
4. First report submission										
Presentation Preparation										
1. Prepare Presentation										
2. Present Findings										
Report Revision										
1. Revise Report										
2. Final Report Submission										

Table1: Proposed Schedule of Work

The following table outlines the key milestones for this project.

No	Deliverable Name	Phase	Due Date	Remarks
1	Form team, topic selection, meet supervisor	Preliminary Exploration	24 th Jan 2014	Completed
2	Background investigation, draft proposal and submit proposal	Proposal Preparation	30 th Jan 2014	Arrange 1 meeting sessions with supervisor
3	Conduct Literature Review and analysis / Study Execution	Literature Review/ Study Execution	27 th Mar 2014	Arrange weekly meeting sessions with supervisor
4	Draft initial report and submit 1 st report	Report Preparation	10 th Apr 2014	Arrange 2 meeting sessions with supervisor
5	Prepare preparation and present report	Presentation Preparation	21 st Apr 2014	
6	Revise and submit final report	Report Revision	5 th May 2014	

APPENDIX

Survey Questions

Game Enjoyment

- I enjoyed playing the game very much.
- I found playing the game an entertaining experience.
- This game was fun to play.
- I thought this game was quite enjoyable.
- I would describe this game as somewhat interesting.
- While I was playing this game, I was thinking about how much I enjoyed it.
- I thought the game was boring.
- This game did not hold my attention at all.

Perceived Usefulness

- I could improve my physical performance by using XBOX Kinect.
- I could increase my fitness by using XBOX Kinect. .
- Exercising would be difficult without the XBOX Kinect.
- Overall, I find the XBOX Kinect useful in the area of my health.

Perceived Ease of Use

- It is easy for me exercise by using XBOX Kinect.
- I find it cumbersome to use the XBOX Kinect/
- My interactions with XBOX Kinect are clear and understandable.
- Overall, I find the XBOX Kinect easy to use.

Behaviour Intention

- Whenever possible, I intend to use XBOX Kinect for exercise.
- I will use Xbox Kinect for my future exercises.
- I will encourage my colleagues to use XBOX Kinect for exercise.

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