

Initial Plan

Do exercise games increase motivation to exercise?



CM3203:
One Semester Individual Project- 40 Credits

Author:
Hollie Shearing

Supervisor:
Dr Daniel Finnegan

Moderator:
V́ctor Gutírrez Basulto

Project Description

The measures being taken to contain COVID-19 in the UK include social distancing, isolation, and nation-wide lockdowns. These quarantine actions have resulted in the drastic change of the entire populations daily routines. In the past, technology has presented itself as an aid for communications as well as encouraging individuals to exercise. However, during the long periods of time UK citizens have been made to distance themselves from face-to-face interactions, technology has been forced to become the only aid for communications.

The health of the entire population has been struck both physically and mentally because of these restrictions, due to fear ruling their daily lives (Khan and Mamun, 2020). It has been found that much of the adult population were not completing the recommended target of 30-minutes per day of moderate intensity exercise before the UK's first lockdown (Roberts, Reeves and Ryrie, 2014). Moreover, it is no surprise that the obesity levels have risen by 23% for adults over the past year, as 73% of adults spent more time sitting down than before lockdown (Boseley, 2018; Robinson et.al, 2021). Consequently, this has caused an even larger strain on the NHS (Statistics on Obesity, Physical Activity and Diet, England, 2020). However, potentially due to a lack of other activities, the amount of time spent exercising since before the UK's initial lockdown has increased by a small margin (Robinson et.al, 2021).

Exercise games have been around for many years and have only improved with time and technology. One of the very first exercise games was Wii Sports developed as the initial game for the Nintendo Wii in 2006. It was an instant hit but despite its success, users were not being as active as the creators had envisioned. Just Dance was the next big hit to reach the market for the same Nintendo console. This game ensured fully engaged users were properly exercising, however, it was, again, only accessible to those with a Nintendo Wii. Since then, the number of exercise games has increased dramatically, over a wide number of platforms. However, there has been little research conducted to understand if exercise games do increase motivation towards exercise (Yim and Graham, 2007).

I plan to conduct a study to expand on the current research surrounding an individual's motivation towards exercise. I shall do this by selecting participants via a voluntary system. Each participant shall be given an initial survey to gain an understanding of their background, current thoughts towards exercise and if they own any exercise games. The participants will then be split randomly into two groups: group 1 and group 2. At this point, initial measurements of their motivation towards exercise will be taken. For the first week, group 1 will exercise using the most popular exercise game according to the initial survey and group 2 will exercise via the most popular exercise video series, similarly, according to the initial survey. After this time, the groups will swap their exercise conditions and continue to exercise for a further week. Each participant will fill in a 'daily log' which will consist of a small series of questions, followed by a longer questionnaire after each condition. A small number of participants will then be selected at random to join a focus group following their two weeks exercising to express their opinions about the conditions they experienced. These findings will be combined to form a set of recommendations for future reference.

Project Aims and Objectives

Aims

The main aim of this project is to establish whether exercise games have an impact on an individual's motivation towards exercise and which features participants found to be the most motivating during a lockdown (according to the participants in the focus group). These findings will then be used to provide an objective list of elements required (or to be avoided) to create a more motivating exercise game encouraging individuals to continue exercising; not only throughout a lockdown, but to persevere with the exercise game when the restrictions have been lifted. By doing this, future game developers will have a greater understanding of how to create the most motivating exercise game and therefore be more successful with their implementation. Furthermore, by encouraging the general public to exercise more frequently via a medium they prefer, there should be a decrease in obesity levels and therefore a decrease on the strain currently placed on the NHS.

Objectives

- Gain an initial understanding of the problem
 - Undergo background reading on exercise motivation
- Gain an understanding of the products and services already available on the market
 - Research the current exercise games to find the most popular and highly rated
 - Research the current free exercise videos to find the most viewed and highly rated
- Obtain ethical approval for a repeated measures two-week study and focus group
 - File a set of forms with the Cardiff University Ethics board
- Obtain participants for a repeated measures two-week study and focus group
 - Recruit participants from various forms of social media including a local leisure centre
 - Send out emails asking for volunteers
- Carry out the repeated measures two-week study and focus group
 - Ensure participants have been briefed fully and understand their rights and expectations
- Accumulate the results and analyse
 - Create a reader friendly version of the results clearly stating what has been found
 - Explain the results and their consequent recommendations

- Create a report for the project
 - Detail each stage of the project and study, show the results and recommendation
 - Include a section regarding areas for improvement and a personal reflection on the success of the project as well as my own performance

Ethics

This project will involve human participants in an experiment involving daily exercise and writing in a daily log. They may also be party to a focus group session taking place via Zoom in which they will be answering some qualitative questions. Due to these interactive elements, I will need to apply for approval from the Cardiff University Ethics board in order to carry out this study. I will prepare both brief and debrief forms for each participant within my study and supply them with a consent form before allowing them to participate. I shall also ensure that I adhere to the guidelines surrounding participant protection such as confidentiality and the option to withdraw.

Work Plan

The work plan for this project is detailed below, showing my initial thoughts on when to start my research, study, and report and how long each task should take. I have arranged weekly meetings with my supervisor to keep track of the progress I have made and for the opportunity to gain valuable insights on possible improvements or alterations I should be making. My rough plan is that I will complete most of my research and send off my forms and questionnaires to the Cardiff University Ethics board to gain approval by the end of February (weeks 1 through 4). Following this, I shall conduct my study throughout March (weeks 5 through 9) and finally finish the write up of my report within April (weeks 10 through 13). I am planning to write my report alongside my research and conducting my study as this will allow me to progress in a steady manner. By completing small sections of the report alongside the relevant data, I will be able to finalise my report in week 13 which should leave me with enough time to submit a draft to my supervisor for any final improvements before submitting my completed report at the end of week 15. By leaving the final 2 weeks merely for adjusting my report, I am allowing time for any unforeseeable issues that may arise within my study thus pushing back my entire work plan. This therefore means that I will be prepared for setbacks, however, still be able to produce a quality report on time.

The Gantt chart shown below the work plan highlights the milestones and deliverables as well as the tasks being completed.

Week 1- 1/2/21

Background research into the problem

Write initial report

Research how to measure motivation/ which scale should be used

Week 2- 8/2/21

Hand in initial report

Start writing up ethics forms and creating questionnaires

Week 3- 15/2/21

Research other similar studies

Research into exercise games and videos

Finish ethics forms and questionnaires and send to the board

Week 4- 22/2/21

Continue to research similar studies

Begin writing background section of final report

Week 5- 1/3/21

Start recruiting participants

Continue research into exercise games and videos

Begin writing methods section of final report

Week 6- 8/3/21

Continue recruiting participants

Continue writing methods section of final report

Week 7- 15/3/21

Start the two-week study with participants

Begin writing up results from 'daily logs'

Write up initial questionnaire responses

Begin writing results section of final report

Week 8- 22/3/21

Continue two-week study with participants

Continue writing up results from 'daily logs'

Write up results from first longer questionnaire

Schedule focus group for following week

Continue writing results section of final report

Week 9- 29/3/21

Conclude two-week study with participants

Begin focus group with participants

Write up results from second longer questionnaire

Continue writing results section of final report

Week 10- 5/4/21

Write up results from focus group

Highlight other exercise games and videos found during research, with the features mentioned in focus group

Begin writing recommendations section of final report

Week 11- 12/4/21

Start to formulate a full coherent draft of final report

Week 12- 19/4/21

Continue with the draft of final report

Create graphs for results

Week 13- 26/4/21

Finalise the draft report and submit to supervisor for review

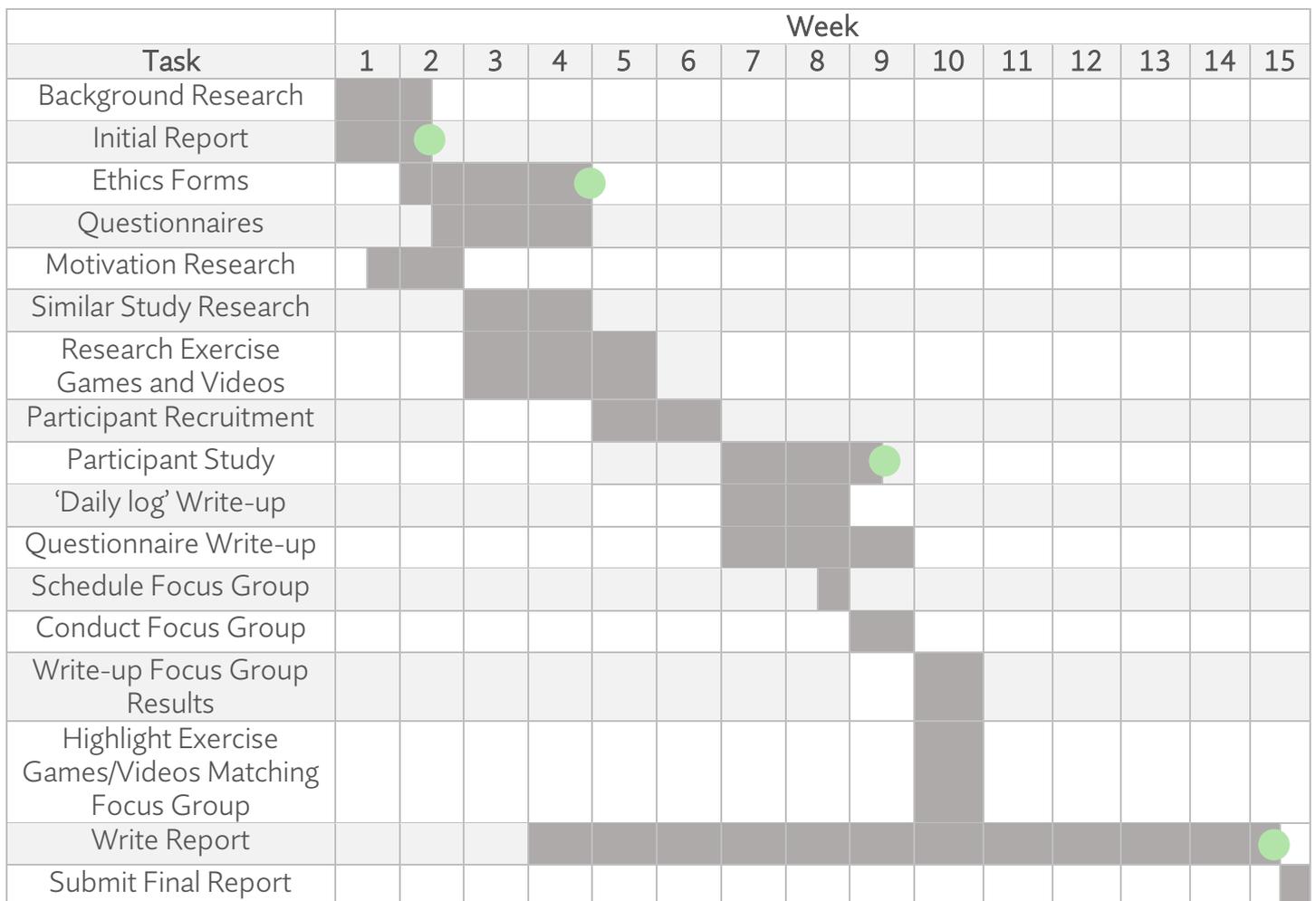
Week 14- 3/5/21

Add elements and changes suggested by supervisor

Week 15- 10/5/21

Submit final report

Gantt Chart



● = Milestone

Analysis Plan

In order to analyse the results gathered from each participant's set of questionnaires within the study, I will need to create a table of results. I plan to carry out a paired t-test on each of the participants longer questionnaire results as they will all take part in both conditions. After performing a significance test on these, I will be able to decipher if the conditions had an effect on participants motivation towards exercise. Calculating a Cohen's d value for these will then indicate how large an effect this is. These values will aid my conclusions in deciding if exercise games increase motivation towards exercise.

The limited focus group will allow a small number of random participants to explain and describe which features of the exercise game and video had the largest impact on themselves personally. This may be a positive impact, for example, the game has levels the participant wanted to complete, encouraging them to exercise more. However, this could also be a negative impact such as the game was too difficult to understand as there were too many navigation menus. This will also allow for them to voice any potential improvements or features they would have liked to have seen however, were absent. These findings will be analysed for common themes and features to present as a set of recommendations for future developers to use as a guide or reference.

References

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6. *'Statistics on Obesity, Physical Activity and Diet, England'*, 2020, available at: <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-obesity-physical-activity-and-diet/7ngland-2020/part-3-adult-obesity-copy> [Accessed: 01/02/21]