

Department of Computer Science
University of Hong Kong
Final Year Project

Detailed Project Plan

A journey called growing up

A 2D puzzle game that raise awareness of
youngster's mental health

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1. Project Background

In Hong Kong, youngster's mental health has frequently been on the title of the news. The mental health issue of the young population in Hong Kong has been a serious problem for years. The suicide rate of Hong Kong youngsters aging 15 to 24 has increased significantly from 8.6 in 2020 to 12.2 in 2022 [1]. It increases by more than 40% within just 2 years. According to a survey conducted by the Hong Kong Federation of Youth Groups (HKFYG) [2], a local youth service organization, over half of the participated secondary school students have symptoms of depression. Save The Children [3], another organization that works for children's well-being, also states that there are more children requiring medical services in mental health in 2020. Some youngsters even reveal that they suffer from mental disease like anxiety and depression or other psychological disorder like insomnia and difficulty in maintaining concentration [3, 4]. These data suggests that mental illness is severe among different age groups of the youngsters including children, teenagers and young adults.

There are many factors pushing to the current mental problem among youngsters. The typical reasons include the difficulties and stress from their studies, work, family, peer relationship and romantic relationship [4]. With the competitive education system and public examination (Diploma of Secondary Education exam (HKDSE)) in Hong Kong, some youngsters express that they feel uncertain about their career and worry about their academic performance [3]. This is common in the Asian culture as the family and society usually have a high standard on school performance, but such expectation has put a lot of pressure on the students.

Apart from the difficulties faced by the youth when they grow up, it is suggested that the current mental health issue in Hong Kong is also caused by the COVID-19 pandemic since 2020 [3, 5]. From a survey conducted by Save The Children, about half of the student respondents say that they feel more anxious during the pandemic [6]. School suspension minimized their social interaction. Students are required to adapt to the new form of teaching and studying. They are also forced to stay at home for most of the time. The pandemic has caused negative impacts on their emotions and feelings especially for the public examination candidates who showed an extreme high level of stress [5, 6].

It can be seen that most mental health problem of the young generation is caused by the external environment and people around them. It is important to spot the source of the tension faced by the youngsters and offer suitable help to them in order to alleviate the current situation.

2. Project Objectives

2.1 Help youngsters to express their difficulties

Unlike physical health, there is no obvious symptoms or signs to tell if someone is suffering from mental illness. In fact, patients tend to hide their problems and pretend to be a normal person. According to a study [7], about only 1 in 4 patients will seek medical help on their conditions. Youngsters may consider themselves as being strange which makes them not willing to expose their problems. However, such problem will become more and more serious without being handled properly. That is why it is important to help youngsters to express their difficulties. They may feel uncomfortable to talk about the problem on their own, so it would be beneficial to have an alternative to reveal the issue and reasons causing the current situation as mentioned in the background of the project.

2.2 Raise awareness

In order to improve the youngster's mental health, it is essential to identify what are the youngsters facing and what do they need in order to offer the suitable support. The game targets on making the public understand more about the youngsters and establish a correct attitude towards mental illness after playing the games. It will be grateful if people can pay more attention on the youngsters and offer help especially for parents and teachers who play important roles in reducing youngsters' stress and pressure. Apart from the public, individuals being aware of their problems is also the key to treat mental disorder. After playing the game, youngsters may find themselves experiencing similar difficulties as those described in the game and hopefully, they will be encouraged to seek help in real life. The whole purpose of the game is not treating their mental illness since that should be handled by the professionals, but to increase the number of youngsters getting help for their conditions.

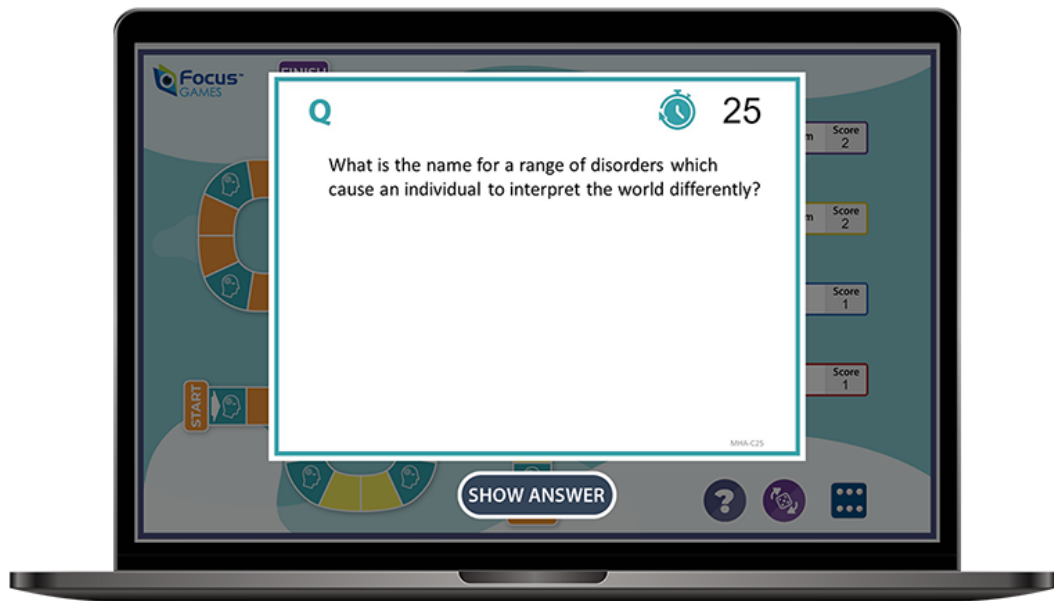
3. Analysis on existing games about mental health

Video game is a great medium to deliver meaningful messages. In fact, a study [8] has revealed that casual video game is considered as a new approach to promote mental health well-being. It is found that there are two types of video games about mental health.

The first type is directly providing information and knowledge about mental health in an interactive way. An example is Mental Health Awareness Game developed by Focus Games [9]. It is an online board game with questions assisting players to understand more about mental health issue. It is informative and educational, but since the gameplay is only about answering questions, it may not be appealing enough. Therefore, it is important to strike a balance between being educational and fun in the project. Puzzle game will be a suitable genre for providing an interesting gameplay and a sense of accomplishment to players without being too complicated and stressful.

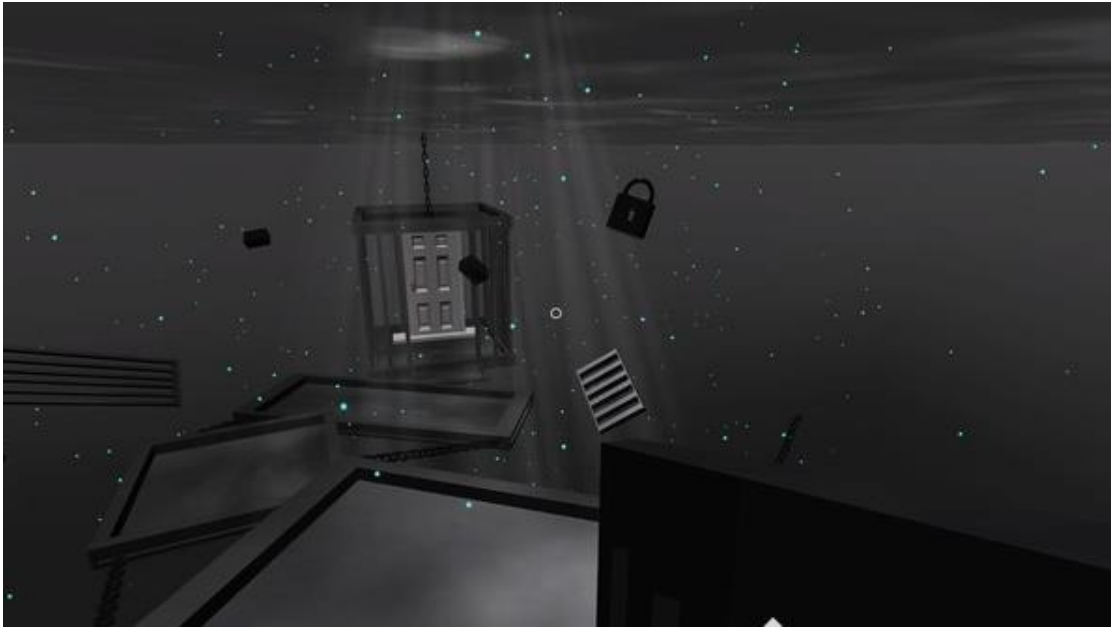


(Figure 1: Gameplay of Mental Health Awareness Game. Adapted from [9])



(Figure 2: Gameplay of Mental Health Awareness Game. Adapted from [9])

The second type is delivering meaningful messages about mental health by storytelling and gameplay in a subtle way. An example is *Fractured Minds* by Emily Mitchell [10]. It is a puzzle game that try to expose the world of people having anxiety and depression by visualizing the feelings and emotions through the game scene. Another example is *Sea Of Solitude* by Jo-Mei Games [11]. It is an adventure game that guide players to go through the feelings of loneliness by the story and game world. Both games use the approach of conveying messages by the elements of the game instead of directly providing information to players. This gives more flexibility to the game which can have a more attractive and interesting game experience, but this requires more effort on game design in order to let players get the correct messages.



(Figure 3: Gameplay of Fractured Minds. Adapted from [12])



(Figure 4: Gameplay of Sea Of Solitude. Adapted from [13])

With the analysis above, this project will take the second approach with some information related to mental health being inserted into the game subtly (e.g. between switching game scene). The game will focus on revealing the mental health challenges faced by youngsters and the reasons behind to get player's attention to the problem.

4. Project Methodology

4.1 Brief introduction of the game

The game will be mainly developed in Unity. Personal computers (PC) will be the proposed platform for the game to facilitate testing. However, since Unity supports game development for multiple platforms, the game may be extended to other platforms like mobile depending on the schedule. The programming language for development will be C# which is the language used by Unity. For the graphics, in order to focus more on game design and development which is the focus of this computer science project, it is proposed to use generative artificial intelligence like Bing Image Creator and other online resources.

The genre of the game will be 2D point and click puzzle game. Since the target player is the general public, the gameplay is designed to be simply point and click without complicated game mechanics. A similar game will be Rusty Lake Hotel. Each game scene consists of puzzles and objects. Player will be required to solve all puzzles in a game scene with the provided objects in order to proceed.



(Figure 5: Gameplay of Rusty Lake Hotel. Adapted from [14])

4.2 Development process

The puzzles will be designed to being able to reflect the challenges faced by the youngsters in different stages including children, teenagers and young adults. There will also be a story to help delivering the core message of the game which is “youngsters need external help for their mental health issue”.

This project will make use of an agile approach for development. After the preparation work including analysis of existing games and draft design, the developing process will be mainly a loop of game design, implementation and playtest. Interim products which are individual puzzles will be created. Playtest will be conducted on each puzzle. Changes may be made to the puzzles from time to time according to the feasibility and playtest. Individual puzzles will then be combined into different game scenes (each level of the game). Playtest will be conducted again on each game scene. This stage focuses on the feasibility of creating the puzzles in Unity, so only simple and draft graphics will be used.

After the core gameplay is finished implementing, the game will be polished with detailed graphics and other game elements (e.g. sound effect, menu, setting page, end scene, background music, etc.). A final playtest will be conducted on the whole game.

The final deliverable is mainly the final game. There may be a survey for player's feedback about the game to review in what degree the game has achieved the objective if there is time left.

5. Project Schedule and Milestones

Date	Task	Status
September 2023	<ul style="list-style-type: none"> - Confirm project topic and scope - Detailed project plan - Project web page 	Finished
October 2023	<ul style="list-style-type: none"> - Research on similar games and game design - Game design (story, puzzle design) - Test feasibility of the designed puzzles in Unity 	In progress
November 2023	<ul style="list-style-type: none"> - Game design (puzzle design) - Test feasibility of the designed puzzles in Unity 	Pending
December 2023	<ul style="list-style-type: none"> - Preparation for first presentation - Combine puzzles into game scenes - Playtest on game scenes - Detailed interim report 	Pending
January 2024	<ul style="list-style-type: none"> - Graphic design - Game design for functionality (e.g. menu, end scene, setting page) 	Pending
February 2023	<ul style="list-style-type: none"> - Sound effect, background music - Prototype of the game - Test and debug 	Pending
March 2023	<ul style="list-style-type: none"> - Final playtest on the whole game - Finalize the final game product - Final report - Survey on the game (optional) 	Pending
April 2023	<ul style="list-style-type: none"> - Prepare for final presentation - Prepare for project exhibition 	Pending

6. Reference

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