

Inspiration

My interest in digital interventions arose due to their ability to solve issues of in-person accessibility and the reluctance to seek mental health support (Marcu et al., 2022). Mixed findings of digital intervention effectiveness could be due to the use of participants with differing levels of depressive symptoms who may respond to interventions differently (Cheng & Ebrahimi, 2023) and nullify their effects. Finally, because mental health apps require a level of unsupervised commitment, I was curious to investigate whether those with higher levels of depression - who struggle with self-regulation (Strauman & Higgins, 1987) - could benefit.

Methodology

I chose Ren'Py, a visual novel platform¹, to develop my game due to the ability of the developed game to function as both interactive and instructional. Educational content could be easily translated into a gamified interface. I drew parallels to the SPARX game interface - a mental health game shown to improve adolescent depression (Merry et al., 2012) (Figure 2).

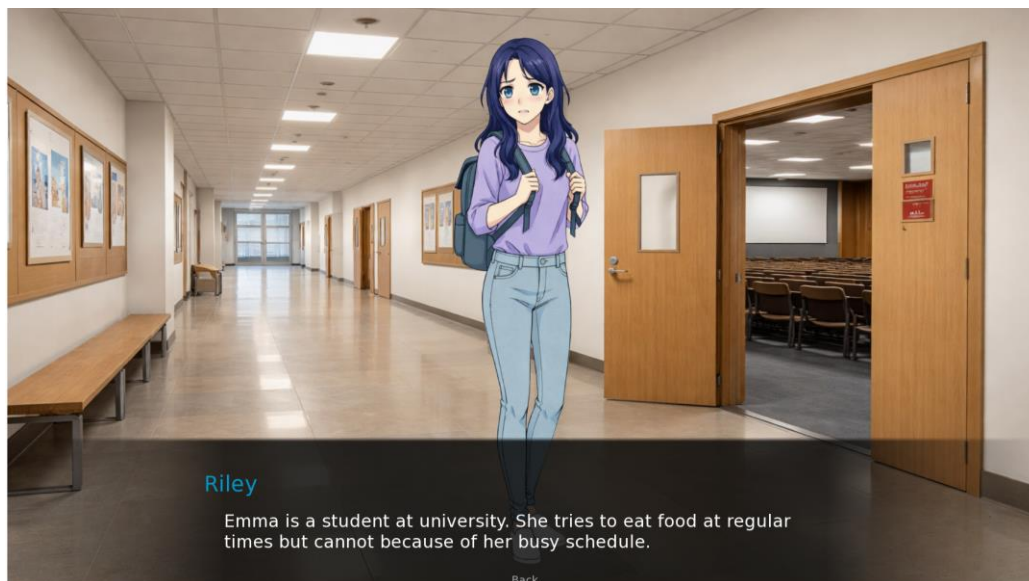


Figure 1: Goal-Setting Game

¹A visual novel is a game consisting of an interactive story with on-screen characters and dialogues, focusing more on the plot, rather than action or gameplay. Itch.io is a website known for visual novel games.



Figure 2: SPARX game

Concepts Explored

Does gamification of mental health interventions create a gap in interpersonal needs?

An effective approach within mental healthcare involves a healing therapeutic relationship and continued supervision (Freeth, 2007)². Dropout is less for mental health apps offering human feedback (Torous et al., 2020) – Is the success of mental health games dependent on a human mediator?

I identified that gamification can contain highly engaging features such as visual elements and non-clinical language (Chandrashekar, 2018), which may mitigate drop-out and reduce the need for human intervention. Additionally, I found it worth analysing successful mental health games like SPARX and its features (Merry et al., 2012), like fantasy elements and virtual guides.

Therefore, within my goal-setting game, I take a well-informed approach by incorporating gamified features that have worked in the past and are attention-grabbing.

² Taken from 'Humanising Psychiatry and Mental Health Care, The Challenge of the Person-Centred Approach' by Rachel Freeth (2007), who advocated for the implementation of a 'person-centred approach' to mental health care in the NHS. Also, refer to Todres' framework for the humanisation of healthcare (Todres et al., 2009), who emphasises a similar human-centred approach in healthcare, for example, patient comfort is created in an absence of computers and other technology – posing a challenge for digital mental health platforms.

Gamified Interventions: Contributing to ‘Digital Overload’?

While reflecting on my project, I was unable to see how my goal-setting game could become distinguishable from other online games. I began to think about whether, in a digitally rich world, it could be that a gamified intervention like mine loses its value and distinctiveness.³

However, I identified the nature of a well-designed mental health game as positively reinforcing⁴. For example, rewards provided (Figure 3) and potential mental health benefits should leave the user feeling refreshed and wanting to play further.



Figure 3 – Rewards: The study can depict whether it is sufficient to evoke feelings of accomplishment

Gamification: ‘Childish’?

When reflecting upon the chosen adult sample of my study, the concept of playing games rather seemed suitable for children, who are known to enjoy games more than most adults. I thought about whether this could influence the overall effectiveness of my

³ A study by Smith et al. (2021) depicted that mental health app users who were high phone users frequently ignored notifications from mental health apps.

⁴ Positive reinforcement occurs when a behaviour is rewarded and therefore encouraged, and is a technique used in psychotherapy (Scott et al., 2023). Here, providing rewards and momentary mental health benefits should encourage users to return to the game.

intervention due to my adult sample, and considered a potential generational gap in its effectiveness – is gamification as scalable as I assumed?

Upon further exploration of educational theories⁵, my perspective shifted – if gamification allowed for self-guided learning (Daland & Hidle, 2016) (Figure 4; Figure 5), adults can possibly benefit.

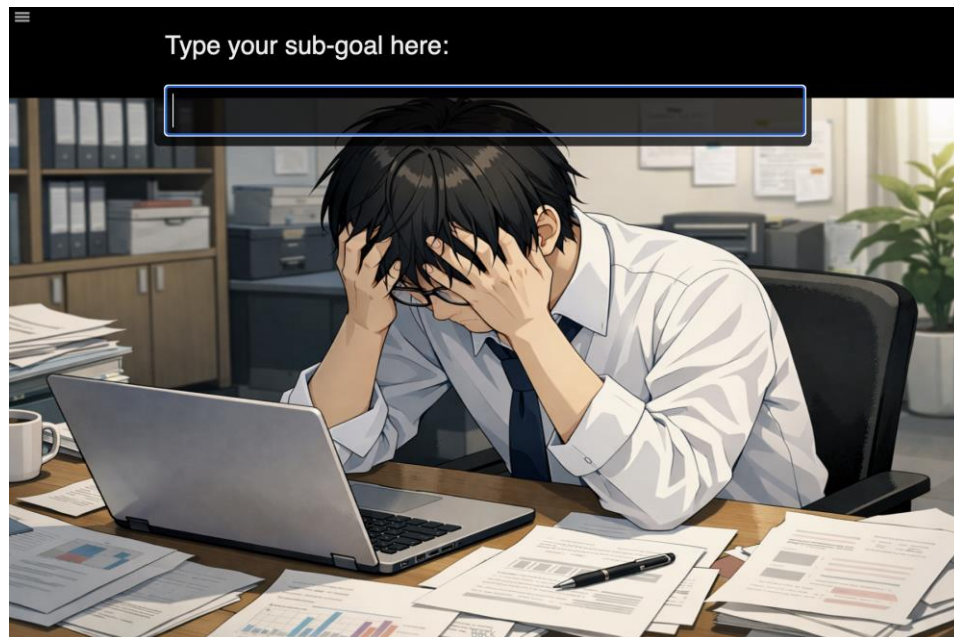


Figure 4: Prompting Learner's Thinking

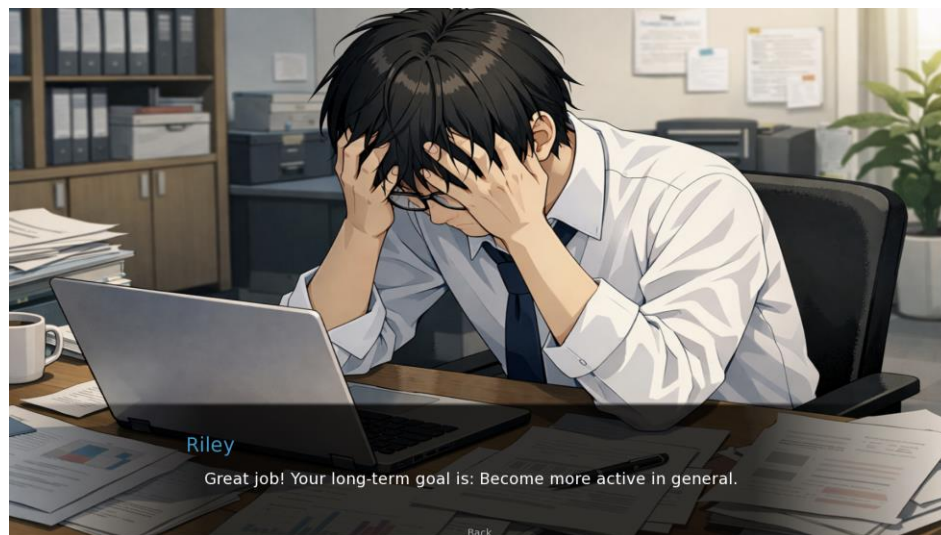


Figure 5: Learner-Centred, Personalised Approach

⁵ Knowles' theory of Andragogy (1970), also known as 'The science of adult instruction (Newton, 1977), which emphasises autonomy and education centred towards the learner, unlike pedagogy.

Key Considerations

Validity

To truly measure what I am claiming to measure, I had to ensure that both gamified and non-gamified interventions are based on accepted goal-setting principles (Yanamadala & Weiss, 2022). Additionally, the gamified intervention had to be representative of a mental health game by using commonly cited 'gamified elements' (Cheng & Ebrahimi, 2023)⁶

Intervention Brevity

Mental health digital interventions are usually implemented over weeks (Peake et al., 2024). Nevertheless, I realised that I am measuring participants' opinions on the usefulness of a single goal-setting technique, rather than their overall confidence in goal-setting – which is probably unlikely to change after a 15-minute intervention.

Furthermore, I recognised that my research seeks to invite extensions of my study for a longer period.

Interdisciplinary Rationale

I examined goal-setting principles, mental health interventions, and their relationship to depression using psychological research. The game was developed using methods in Computer Science like Python programming. My challenge was to identify gamification elements that could best portray goal-setting and function as both educational and entertaining.

Reflections on Disciplinary Approaches

Psychology

Psychological research may be specific to the sample that was used during the research⁷. A lot of gamification research is ethnocentric, and there is not a lot of application of gamified interventions within other cultures⁸. Thus, it is hard to understand

⁶ It may be helpful to refer to the 'Materials' section in the SDA report, wherein I cite the goal-setting principles and gamified features I used to develop the intervention.

⁷ Why Should We All Be Cultural Psychologists? Lessons From the Study of Social Cognition (Wang, 2016): Highlights why culture must be integrated into psychological research, suggesting that any behaviour is open to cultural influences. A multicultural sample - as in my study - could influence responses to the gamified intervention.

⁸ A scoping review of gamification for mental health in children (Xie, 2022): A review with a focus on the West - western populations may be different from the east in their response to gamification.

how cultural variations may influence the effect of my gamified intervention – since my sample is diverse, but my study is anonymous. This must be accounted for as results are interpreted, but is, however, a different area of research that my study can encourage.

Computer Science

Through the exploratory approach I was encouraged to take with Computer Science, I discovered useful ways to visualise thinking patterns – e.g. concept maps outlining a goal-setting approach (Kumar et al., 1994) (Figure 6). I realised how computer science can provide a sophisticated way to map out human cognition⁹.

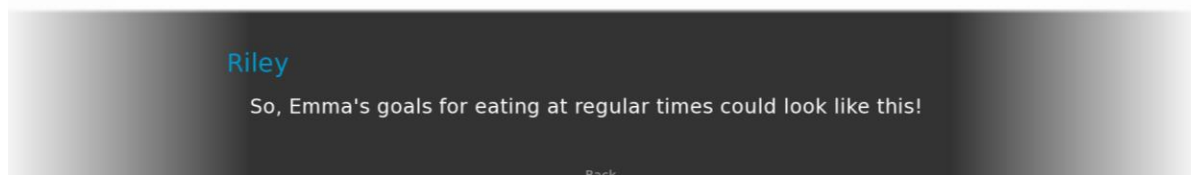
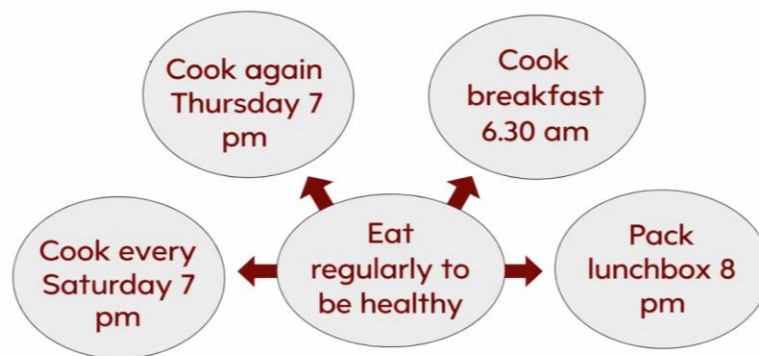


Figure 6

Chosen Medium

Fitting Project Aims

An aim of my project is to address a gap in literature, particularly a lack of research on how levels of depressive symptoms can influence individuals' responsiveness to gamified interventions. Via a research paper, I would like to inform mental health researchers interested in digital interventions and depressive mechanisms, since my

⁹ Psychology and Computer Science Students Create Online Cognitive Tasks (Flannery & Malita, 2014): A paper I explored depicting that Computer Science can be harnessed for various cognitive tasks. Cognitive tasks in my goal-setting game were simplistic: e.g. in-game menus.

findings have potential to influence further research in the field. For example, understanding how depression interacts with intervention type can inform the type of sample that researchers select for future research.

A systematic way to document a systematic process

I recognised that a scientific paper would help document the entire thought process and rationale behind my research, going from the general (a broad introduction) to the specific (exact methodology), in a kind of 'funnel format'.

Intended Impact

Some standout questions include: Who may benefit most from gamified interventions, and therefore who must these interventions target? If a group with a certain level of depressive symptoms fails to benefit, how can the intervention be altered to benefit them?

I hope to contribute to an ongoing dialogue on how to scale mental health interventions, by prompting further research on alternate factors mediating the effectiveness of mental health interventions. It may not only be sample-specific factors such as culture, or experience with gamification, but even intervention-specific factors such as lack of strong gamification¹⁰.

¹⁰ It may be helpful to refer to the 'Discussion' section of my SDA report wherein I analyse aspects of my study that may have contributed to the current findings.

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