

Proposal and Development of a System to Help Students Improve Self-Compassion

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Abstract

The number of students with mental disorders is increasing in universities. The Mindful Self Compassion (MSC) training program has been introduced and shown some efficacy. However, there are not a few people especially in Japanese who have difficulty with visual imagery recall or who feel resistance or discomfort in treating themselves with compassion. The purpose of this study is to propose and develop a system that helps such people to improve self-compassion using a virtual space and avatars. The user talks about his/her problems to the avatar who want to consult about their problems, then enter the consultant avatar and listens to the problems and responds with compassion, then returns to his/her own avatar and listens to the consultant talk with compassion. After basic studies, we developed a prototype and made a preliminary experiment.

CCS Concepts

• **Method and application** → Education;

1. Background

WHO World Mental Health International College Student survey [Org17] showed that 35.3% of students have at least one of the symptoms including the anxiety, mood or substance disorders of the DSM-IV. The 38% of students in Asian had depressive symptoms, revealing a higher prevalence than in Western countries [SATT07]. In addition, according to a survey for 53 countries [SA05], Japan had the lowest value in Rosenberg's Self-Esteem Emotion Scale (Rosenberg, 1965). The question is whether increasing self-esteem solves mental health problems or not.

2. Self-Compassion

The psychological concept of self-compassion has been attracting attention in recent years as an alternative means of self-esteem. It is defined as "an emotionally positive attitude toward oneself in face of suffering and failure, in which one has compassion for oneself, recognizes negative experiences as common humanity, and keeps painful thoughts and feelings in balance." It consists of three core elements: kindness to self, common humanity, and mindfulness [Nef03]. People with high self-compassion were shown to have physical health, less anxiety and depression, and greater resilience to stress [MG12]. The Mindful Self Compassion (MSC) training program has been implemented and showed to reduce anxiety, depression, and perceived stress, and to improve overall well-being [NG21]. MSC programs offer various types of work including meditation, diaries, and visual imagery. However there are some

people who have difficulty to achieve MSC. Our survey conducted on 23 college students, 43% of the students answered that they feel resistance or discomfort in treating themselves with compassion. (Ethics Approval No. 2022-31).

3. Our Proposal

We propose a system that allows people who have few opportunities to treat themselves with compassion or who feel uncomfortable doing so to easily practice MSC, providing the work based on the MSC's scenario using visual images [NG21] by visually presenting avatars in a virtual space, rather than relying on images in the mind. The procedure for use is as follows; 1) The participant talks to the consultant avatar about the problem he/she is facing (that is not too serious that you can talk to anyone about them), 2) The participant switches the viewpoint, enters the consultant avatar, and listens to what he/she told and talk (answer) to the avatar of his/her own with compassion, 3) The participant switches viewpoints and returns in the avatar of his/her own and listen. The procedure of talking with compassion in the role of a lived person, and then returning to oneself and listening to the talk, would allow indirect expression of compassion, which would be less resistant than directly being compassionate to oneself.

4. Preliminary study

First, a survey was conducted (Ethics Approval No. 2022-31) to determine the system configuration on 23 college students in their

20-30s regarding the devices they use in their daily lives and their avatar selection preferences. The results showed that notebook PCs were used followed by smartphones, and no one used a Head Mounted Display (HMD) in their daily lives. Existing studies of VR-based self-talk systems have utilized HMDs [SNJ*19], however, we chose a notebook PC according to this result. As to the avatar selection process, users were asked to select an avatar they would like to use as themselves from five types of avatars (Figure 1), including a 3D avatar made from photograph (A), animated avatars (B, C, D), and an animal avatar (E). Existing studies have used real avatars, which are reproduced from the user's own photos [SNJ*19], however some participants told that they were not comfortable with real avatars that looked too much like themselves. Therefore, we decided to use the most frequently selected animated avatar (B) in our system.

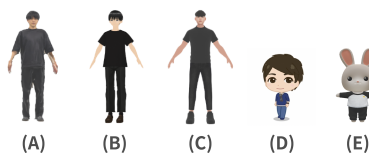


Figure 1: Candidate avatars.

5. Prototype Development

Based on the above surveys, we determined the components and built a prototype (Figure 2). The self-talk system was developed using Unity with the UI for creating the VR space, reflecting the avatar, and executing the work scenario. Buttons to record the screen while speaking and to play back the recorded data were also implemented (Figure 3). The avatars were created using VRoid-Studio, and the motioncaptured upper body movements of the user were reflected to move the avatars. As to the motioncapture tool, VSeeFace was selected as it meets the following requirements; 1) motion data can be sent to Unity so that OSC (Open Sound Control) communication is possible, 2) two avatars (the participant's avatar and the consultant avatar) can be moved, 3) the system can be configured simply enough to be operated using only a laptop computer. Recording can be started, stopped, and played back by clicking buttons on the game screen and the recorded data was saved in MP4 format in a local folder.

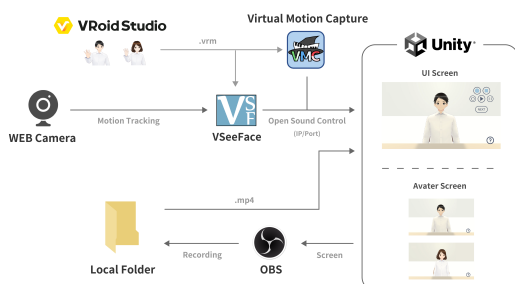


Figure 2: System Configuration.

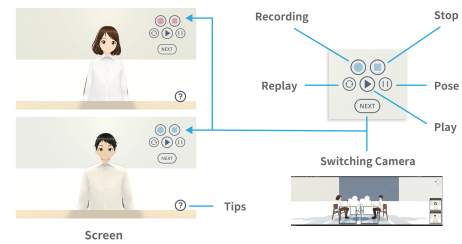


Figure 3: Operation buttons on the game screen.

6. Preliminary experiment to assess the acceptability of the prototype

Ten college students in their 20s and 30s were preliminarily surveyed on their preference for avatars and the acceptability of the prototype. The results showed that they did not prefer real avatars as their own and the preferences on consultant avatars were divided, indicating the need for customization of avatar types. Regarding to the acceptability, 9 out of 10 participants expressed the intention to continue using the system, and 8 out of 10 expressed expectation for the usefulness of the system. The reason for the participant who did not wish to continue was that he did not feel the benefits of the system. Details will be shown on the poster. In the current prototype the user listens to its own speech as it is, so it does not sound as if the consultant is speaking, which raises the barrier of accepting the compassion of the consultant. In the future, we would like to introduce a generative AI API (ChatGPT, etc.) in order to well-organize the sentences of the user's speech without changing the content, and have the consultant avatar speak in the same tone and voice as that person.

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