Article 2

Application of Modern Technology in Psychological Interventions: What Works for the Rehabilitation of Persons in Custody

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The Correctional Services Department (CSD) is committed to meeting the custodial and rehabilitative needs of persons in custody (PICs) through the application of innovative technology. Over the past decade, technological advancements have essentially taken psychological assessment and treatment to a new era. This article discusses the major types of technology-assisted psychological interventions currently used in the CSD.

Virtual Reality (VR) Role-playing

What is VR?
VR uses computer modelling and simulation to enable a person to interact with an artificial three-dimensional environment (Lowood, 2025). Its immersive and interactive virtual environment allows users to practise skills or be exposed to different stimuli in a realistic yet safe manner. VR also has the advantages of simulating situations that are difficult to access, as well as ensuring the consistent delivery of stimuli.

Scenario-based VR role-play system
As a pioneering attempt, Psychological Services Section 1 (PSS1) developed the first scenario-based VR role-play system in 2017, which is one of the earliest

locally developed VR programmes for psychological interventions in Hong Kong. The current version of the system consists of five different VR scenarios for role-playing based on the themes of anger management (AM) and relapse prevention (RP).

The VR system offers PICs opportunities to practise and consolidate skills learnt in psychological treatment through role-playing, which prepare them for future challenges they may encounter in the community. In the AM scenario, PICs are subject to provocation by a virtual character in a work setting. They are expected to apply previously learnt anger management techniques to respond calmly and assertively. In the RP scenario, PICs are tempted by a virtual character to engage in high-risk or offending behaviour, e.g. abusing drugs, gambling or making money through illicit means. They are then instructed to firmly refuse the virtual character's invitation by applying their skills of challenging maladaptive thinking and resisting negative peer pressure assertively. The diagram below gives an overview of how the VR system works. Clinical psychologists (CPs) will review with PICs their performance in the role-play, so that PICs can receive feedbacks on their skill level and identify room for improvement.
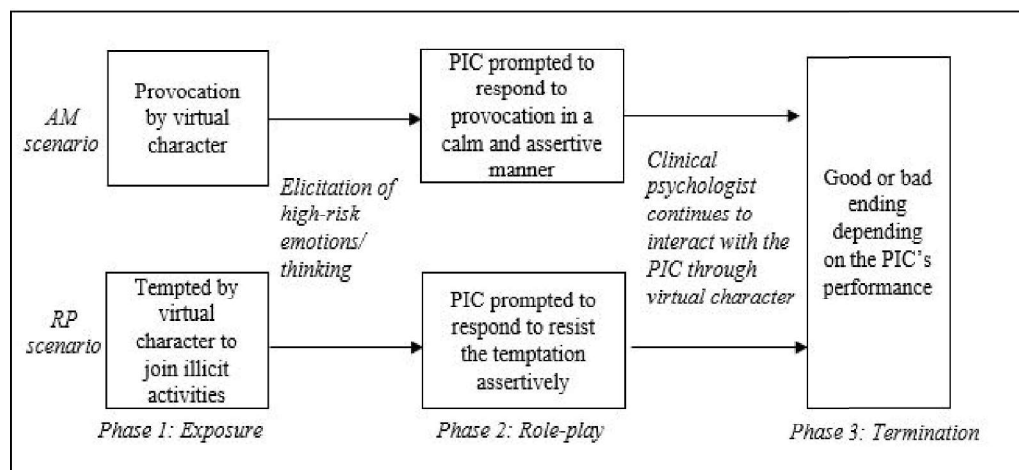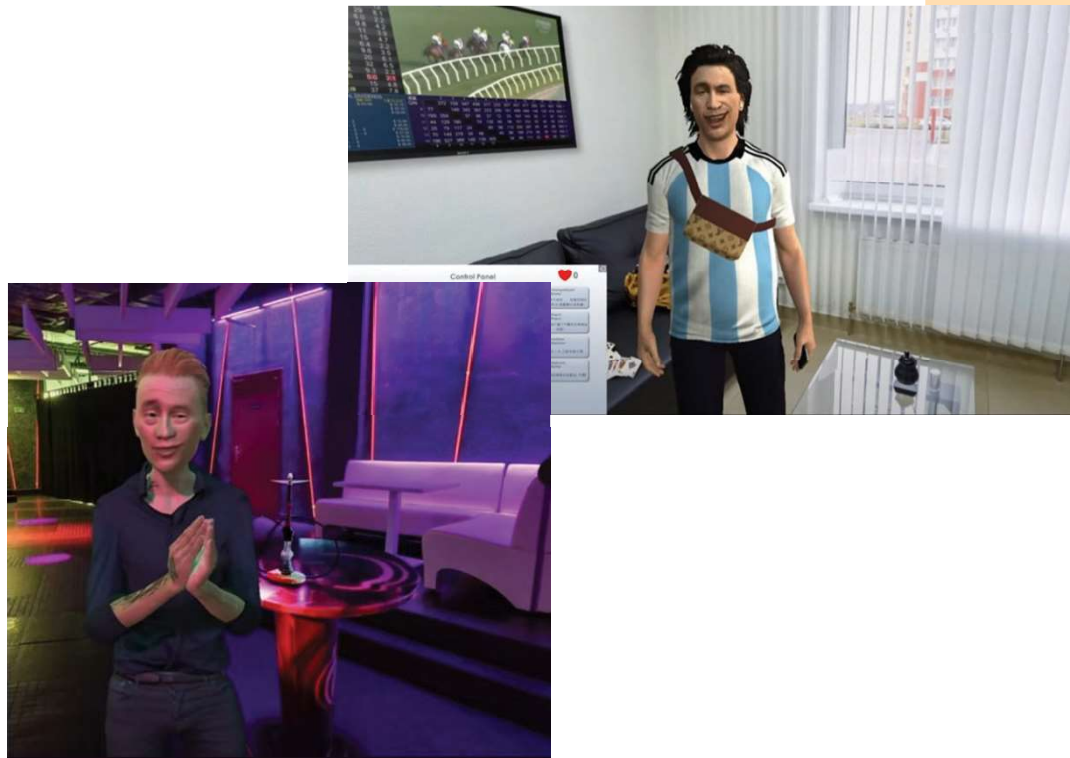

Figure 1. Structure of the VR scenarios

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Figure 2. RP – Substance Abuse VR scenario (left) and RP – Gambling VR scenario (right)

In late 2024, a new feature known as the "Scenario Generator" was added to our VR system. Its user-friendly interface enables PSS staff to easily create VR scenarios and customise the background, virtual character and verbal responses of any existing VR scenario according to individual PIC's needs. This feature brings great flexibility and unlimited possibilities to future VR role-playing.

A group of 38 PICs in Stanley Prison and Shek Pik Prison have shared their feedbacks regarding the VR role-playing experience. On the User Experience Questionnaire, which asked PICs to rate the VR system on different descriptors using a scale of 0-7, it was found that "practical" (M = 5.81, SD = 1.37) and "leading-edge" (M = 5.76, SD = 1.55) were the descriptors with the highest ratings. Besides, when PICs were asked whether they agreed that "VR role-playing is more effective than conventional role-playing" on a scale of 0-10 (0 = totally disagree, 10 = totally agree), PICs (n = 66) generally agreed with the statement (M = 7.21, SD = 2.76), which strongly supports the use of VR role-playing in correctional settings.

Digitalised Psychological Programmes

What are digitalised psychological programmes?
Literally psychological programmes delivered via digital technology, which can be self-help or guided. The emerging consensus is that guided interventions tend to be more effective than self-help programmes (Taylor et al., 2020).
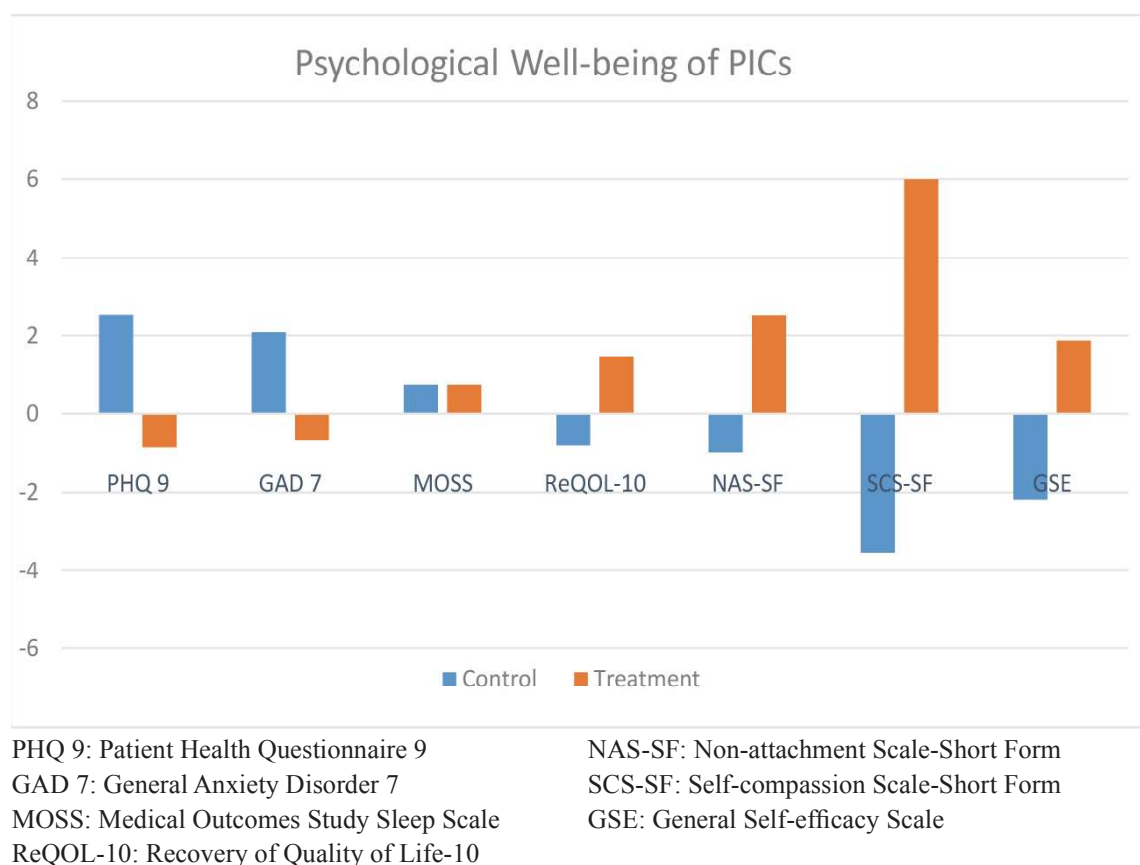
"Psyber Space" and "Living With Heart"
PSS1 developed its first digitalised psychological programme "Psyber Space" for PICs in 2020. Delivered via an electronic tablet, Psyber Space features therapeutic modules as well as multimedia psychological resources. PICs can learn from the programme at their own pace under the guidance of CPs. The interactive elements of the programme aim to enhance PICs' learning experience. Furthermore, rewards such as music tracks and games can be unlocked by PICs after completing assigned materials, which enhance their motivation to participate in the programme.

Learning through multimedia modality enhances treatment motivation

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A mindfulness-based digitalised programme named "Living with Heart" (LWH) was further introduced in 2024. In collaboration with The Chinese University of Hong Kong, this self-help programme was designed to enhance PICs' stress coping ability and psychological well-being by cultivating awareness of the present moment and a non-judgemental attitude. Preliminary data of a small sample of adult male PICs in control group (n = 11) and treatment group (n = 15) were collected. The effectiveness of the programme on PICs' psychological well-being was measured by the self-report measures on their own quality of health, anxiety level, quality of sleep, quality of life, self-compassion, non-attachment and self-efficacy. The results were promising at this initial stage. While all measures showed an improvement trend, there was significant enhance-ment in self-compassion (t(24) = 2.85, p < .05) and self-efficacy (t(24) = 1.87, p < .05). The improvement trends of the scales are shown in Figure 3.

PHQ 9: Patient Health Questionnaire 9
GAD 7: General Anxiety Disorder 7
MOSS: Medical Outcomes Study Sleep Scale
ReQOL-10: Recovery of Quality of Life-10

NAS-SF: Non-attachment Scale-Short Form
SCS-SF: Self-compassion Scale-Short Form
GSE: General Self-efficacy Scale

Figure 3. Psychological well-being of PICs in treatment group
(i.e. having completed LWH programme) and control group

PICs learning from the LWH programme under CP's guidance

What is telepsychology?

Telepsychology is the provision of psychological services using telecommunication technologies such as telephone, mobile devices, videoconferencing (VC), etc. (Joint Task Force for the Development of Telepsychology Guidelines for Psychologists, 2013). Telepsychology via VC has been shown to have the same outcome and satisfaction as in-person psychotherapy, with additional advantages such as convenience and stigma reduction (Thomas et al., 2021).

Project "Breakthrough"

Launched by the Evaluation and Treatment Unit (ETU) – Psychological Programmes for Persons with Sexual Offending Behaviours at Siu Lam Psychiatric Centre in 2023, Project "Breakthrough" aims at bringing the vision of a good life closer to PICs through the application of technology. Under this project, a total of five rehabilitated persons who have completed ETU treatment and returned to the community have shared their experiences of community reintegration with 120 PICs serving at ETU via VC so far.

PICs have benefited from the tried-and-true tips on topics such as rebuilding self-confidence at work, managing sexual preoccupation and deviant sex urge, etc. presented by rehabilitated persons. The latter's genuine sharing of their struggles and subsequent success in rehabilitation is powerful in instilling hope and optimism in PICs. At the same time, rehabilitated persons' new identity as guest speakers who can contribute to society strongly reinforces their prosocial orientation. They also receive appreciation and

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recognition for their rehabilitative efforts and positive changes. This is important as desistance research has posited that discharged offenders tend to stay away from crime when they are geared towards their prosocial selves (Maruna & Toch, 2015).

Last but not least, since allowing rehabilitated persons to visit correctional institutions and make direct contact with PICs incurs security risks, using VC for sharing by rehabilitated persons can greatly minimise such risks while yielding positive impacts.

Sharing by rehabilitated persons with PICs, facilitated by CPs

Conclusion

Incorporating technology into psychological interventions has become a norm in the Information Age. Our experience shows that the application of innovative technology has clearly enriched the psychological services for PICs. To further study and develop technology-assisted psychological interventions, the PSS has set up the Modern Technology Working Group in 2024. We believe continuous exploration in this area will open up exciting possibilities in the psychological assessment and treatment of PICs, thereby benefiting more PICs in need in the future.

Insights

1. Practical and Innovative

PICs found the VR role-play system developed by PSS1 "practical" and a "leading edge". Most of them also considered VR role-playing more effective than conventional role-play in preparing them for dealing with future high-risk situations.

2. Enhanced Self-Compassion and Self-Efficacy

PICs who have completed the digitalised psychological programme "Living with Heart" show significant enhancement in self-compassion and self-efficacy.

3. Supporting Desistance and Hope Instillation

Through enabling rehabilitated persons to share their experience in community reintegration with PICs via VC, Project "Breakthrough" supports the former's desistance and instils hope in the latter.

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