



August 2022

Report - VR for Pain Management

Follow this and additional works at: <https://repository.vtc.edu.hk/ive-de-signed>



Part of the [Art and Design Commons](#)

Recommended Citation

(2022) "Report - VR for Pain Management," *SIGNED: The Magazine of The Hong Kong Design Institute*, 42-43.

Available at: <https://repository.vtc.edu.hk/ive-de-signed/vol27/iss27/15>

This Article is brought to you for free and open access by the Design at VTC Institutional Repository. It has been accepted for inclusion in SIGNED: The Magazine of The Hong Kong Design Institute by an authorized editor of VTC Institutional Repository. For more information, please contact wchu@vtc.edu.hk.

VR for Pain Management

虛擬實境應用設計——疼痛管理



HKDI has worked with different stakeholders on "VR for Pain Management", a well-being design project which adopts design thinking and innovative approach of digital media to develop a pain management experience for patients. The objective of the project is to provide a pleasant, low risk and easily tolerated option for the patients through VR game solution in order to achieve a medication-free surgery and operation.

香港知專設計學院與不同持份者合作開發「痛症管理虛擬實境技術」，用設計思維和數碼媒體的創新方案，應用於痛症管理上，希望透過這個項目，利用虛擬實境（VR）遊戲，為患者提供一個愉快、低風險且易於接受的選擇，令他們無需透過藥物進行手術。

1. The VR programme revolves around the theme of diving by recreating the context of underwater environment based on its relaxing and meditative nature
VR 遊戲內容圍繞潛水展開，環境被設定為能為人類帶來冥想式能量的海中。

2. Each scenario in the VR programme comes with tasks to complete
整個 VR 體驗會通過故事線和任務來激發用戶的專注與特定情緒



While VR has become extremely popular in the gaming industry, equal amounts of attention have been given to VR in the healthcare sector. For example, there has been ongoing research on VR aiding recovery of symptoms ranging from eating disorders to post-traumatic stress disorder (PTSD).

HKDI sees well-being design as the major trend in the industry internationally and locally. Different stakeholders in the industry have started to explore deeper meaning of well-being design in different perspectives. Composed of a local medical centre Genesis Minimally Invasive Surgery Centre and doctors of general surgery including Dr. Tony Chan Tung Fei, Dr. Ng Wai Tat and Dr. Tsui Tsun Miu, the project team invited academic experts from HKDI Design Thinking Team, the Transmedia programme under the Department of Digital Media, Health and Life Sciences Department, Dr. Anthony Kong, and Ms. Jasman Pang Wing-yan to provide advice for this VR experience enhancement service.

In the project, VR becomes a tool to help patients to go through difficult times mentally and physically in surgeries. The immersive technology here does not directly cure patients, but provides a service to reduce discomfort, which is equally important for patients.

The VR program revolves around the theme of diving by recreating the context of underwater environment. The context choice was made based on the relaxing and meditative nature of underwater environments.

The system targets the triggering of different emotions among different age groups of users. It aims for relaxation and tranquility within the elderly; joy and excitement for children; and mystery and suspicion for adults. Within each age or emotion group, there are six scenarios for users to explore and interact with. Each scenario comes with tasks to complete and lasts for

about six to seven minutes, as advised by medical experts. The entire game continues to run unless someone interrupts the session.

With both visual and sound elements in place, users gain an immersive experience in the VR diving experience. The interactive game setup allows users to stay focused inside the virtual reality instead of the discomfort brought by the surgery, mentally and physically.

20 students from the Health and Life Sciences Department participated in the VR project by conducting experiments, research and prototyping as their final year projects. In the real-life user experience data they collected, participants claimed they were able to calm down and focus on completing VR game tasks during the surgery.

The interdisciplinary project not only contributes to project-based learning for our students, but also the collaboration approach in VTC and network buildings with industries in the forms of industrial attachment and career by combining the development of a set of VR equipment (hardware) with an immersive game programme (software) with industry practitioners.

VR在遊戲行業中一直都非常流行，其實在醫療衛生領域，VR亦同樣受到重視，例如VR對幫助舒緩飲食失調症、創傷後遺症(PTSD)等各種症狀的研究一直都在進行。

香港知專設計學院一直視舒適設計為國際和本地業界主要趨勢。業內不同的持份者已開始從多角度探索舒適設計的更深層意義。是次項目團隊由本地的精研微創外科中心以及陳東飛醫生、吳偉達醫生和徐俊苗醫生幾位外科醫生組成，

並邀請了香港知專設計學院設計思維團隊、數碼媒體學系超媒體和健康及生命科學的學術專家，還有江培強博士和彭詠欣女士，為提升這次VR體驗提供寶貴的意見。

在這項目中，VR幫助患者在手術中度過身心艱難時期。這種沉浸式科技並不是直接治癒患者，而是減輕他們在手術過程中的不適，對患者來說，這是同樣重要的。

VR項目以潛水為主題，模擬置身水中的環境。團隊選擇這個背景的原因是由於水中環境具有放鬆和冥想的性質。

系統希望觸發不同年齡層的使用者不同的情緒：老年人可以感到放鬆和寧靜；小孩子可以感到快樂和興奮；成年人則可以感到神秘和疑惑。在每個年齡層或情感組別中，都有六個場景供使用者探索和互動。根據醫學專家的建議，使用者在每個場景都需要完成任務，時間大概是六至七分鐘。整個遊戲除非被人打斷，否則會一直繼續。

透過視覺和聲音元素，使用者可在VR潛水體驗中身歷其境。這個互動遊戲設置可以讓使用者專注於虛擬實境中，從而忘卻手術在精神和身體上帶來的不適。

20名來自健康及生命科學系的學生，將透過參與此VR項目的實驗、研究和原型設計作為他們的畢業專題報告。從他們在真實使用者收集到的體驗數據中，反映了使用者能在手術過程中冷靜下來，並且專注於完成VR的遊戲任務。

這個跨學科項目透過與業界人士共同研發VR設備硬件和沉浸式遊戲軟件，提升了學生在專題研習方面的技巧，加強了職業訓練局內的協作，亦藉著工作實習和就業，與業界建立聯繫和網絡。

