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Developing virtual reality case scenarios to promote clinical skills development and learning in speech-language pathology students

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BACKGROUND

This poster presents Phase One of the TDG project “Application of virtual reality in clinical education of speech-language pathology students”. The overall aim of the TDG project is to evaluate whether the use of virtual reality (VR)-based immersive learning experience promotes development of self-reflection skills and patient-centered clinical reasoning skills in speech-language pathology students.

METHODS

- In this phase, eight SHS/SLP students from clinical years (that is, year 3 to 5) were interviewed.
- Students were asked to reflect on their experience from clinical encounters and to name one aspect they wish they would have learned prior to clinical placement that would have allowed them better prepare for clinical placements, hence perform better in clinics.
- Their inputs were analysed and adopted to construct impactful VR case scenarios for the next phase of the project.

RESULTS

- Students expressed the need for more resources that can promote clinical skills reflection prior to clinical placements.
- A summary of main difficulties faced by students during clinical placements:

Students believe that their training in **soft skills is less adequate compared to practical skills**. Relevant interpersonal and communication skills can only be developed through simulation and placement experiences, leading students to **express a desire for more training in this area**.

Designing treatment plans for pediatric patients requires more creativity, necessitating greater preparation. **Students also feel that working with parents presents a greater pressure than dealing with pediatric patients themselves.**

In contrast, students generally perceive adult cases as more controllable and easier to treat than pediatric cases, due to lower uncertainty in adult cases (both in the diagnostic process and in controlling the treatment environment).

Students perceive **swallowing therapy** as comparatively **more challenging** than speech therapy, as **the reasoning processes involved are more complex**, and there is less experience with relevant diagnostic equipment. Additionally, any errors during the treatment process could pose risks to patients' lives, contributing to greater stress.

Clinical scenarios

Five hypothetical clinical scenarios were constructed together with further inputs from four experienced clinical supervisors.

These cases, to be developed using VR technology, will enable students to witness the world through the lens of the patient or caregiver, and to sense what brings an effective clinical session and what makes the session an enjoyable experience for the patient.

Interactive Video 1: Suggesting Intelligence Testing for Children to Parents

Plot Summary:

Three-year-old Jeffrey is the only child of Mrs. Siu. She has noticed that her son is significantly delayed in language development compared to his peers. Jeffrey often uses baby talk to express himself, rarely forming complete sentences, and commonly communicates with single words or simple vocabulary. Additionally, he exhibits noticeable issues with pronunciation, including tone errors, rapid speech, and inappropriate volume. Consequently, Mrs. Siu takes her son for a language ability assessment. After the evaluation, the speech therapist student, Miss Ma, suspects that Jeffrey may have an intellectual disability affecting his language skills. Upon reporting the results to Mrs. Siu, **Miss Ma bluntly states that Jeffrey has serious issues and recommends an intelligence test without providing adequate explanations, which greatly irritates Mrs. Siu**. Unable to accept the possibility of her son having an intellectual disability, she continuously presents counterarguments and even questions Miss Ma's diagnosis using her medical knowledge. This leaves Miss Ma at a loss, leading to a communication process filled with various conflicts.



VR Simulation Video 2: Contrasting Insufficient versus Sufficient Test Instructions and Explanation of Test Purpose

Plot Summary:

Miss Xu accompanies her mother, Mrs. Chan, who is suspected of having aphasia, for speech therapy. During the session, speech therapist student Ms. Huang conducts a speech ability test on Mrs. Chan.

- In the **first half of the video**, Ms. Huang **fails to clearly explain the purpose and content of the test**, leading to Mrs. Chan feeling frustrated due to her inability to understand the intent behind the questions, making her unwilling to cooperate. This also causes Miss Xu to question Ms. Huang's professional competence.
- In the **second half of the video**, Ms. Huang **provides a thorough explanation of the test's purpose and instructions**, ensuring that both Mrs. Chan and Miss Xu understand before proceeding. As a result, Mrs. Chan is quite cooperative during the test, and Miss Xu trusts Ms. Huang's professional assessment.



Further TDG Development

Moving on, the VR videos developed will be used in Phase Two (implementation) of the TDG. It is anticipated that the systematically designed, immersive simulated experience promotes students' clinical skills development and patient-centered clinical decision-making skills.

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