



Baylor University

ROBBINS COLLEGE OF HEALTH AND HUMAN SCIENCES
Occupational Therapy

The Influence of Interprofessional Education on the Perspective or Uptake of Augmented or Virtual Reality Technology

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Background and Problem

The use of Virtual Reality (VR) or Augmented Reality (AR) is not administered regularly in clinical settings and its uptake remains in its infancy.¹ Despite the myriad advantages of VR and AR, there has been insufficient evidence to suggest why these are not routinely used.

- VR and AR can offer higher dosage practice of functional tasks in a simulated home environment.²
- Benefits of AR or VR include feedback with varying task difficulty and a safe simulation of real-world activities.
- These devices can help promote neuroplastic changes with task-specific, repetitive, and intensive training to promote neuroplastic changes even with chronic neurologic injury.³
- Frame of Reference: Knowledge Translation Framework is a systematic method of incorporating evidenced-based research into clinical practice.⁴

Purpose

The purpose of this project was to examine whether interprofessional education influences the perception or uptake of augmented or virtual reality technology for intervention, and to generate discussion on necessary education and training.

Methods

Setting: The focus group study was conducted online via Zoom video conferencing with rehabilitation therapists practicing in Texas.

Participants: 5 occupational and physical therapists with experiences working with orthopedic and neurologic clients in various hospital and community settings.

Instrument Used: Moderating questions developed from the results of a previous needs assessment conducted at Rehab Without Walls facility in Irving, TX. The questions were developed based on the common barriers and facilitators identified in the needs assessment. Six questions aimed at identifying clinicians' perspective and knowledge regarding AR/VR use and implementation strategies were delivered during the focus group.

Procedures: Participants were provided with a written participation procedure and informed consent was obtained via email. Subjects were provided with a survey delivered via the online platform Qualtrics before and after the delivery of the focus group to assess for changes in perspectives.

Data Analysis: Qualitative analysis was performed based on the Zoom focus group recordings and was then transcribed using thematic analysis and inductive reasoning. Codes were generated based on the transcript and organized into categories to reveal common themes. Quantitative analysis using a paired t-test was performed on the pre-/post-test survey results. Qualitative portions are presented as thematic and narrative responses from the subjects.

Results

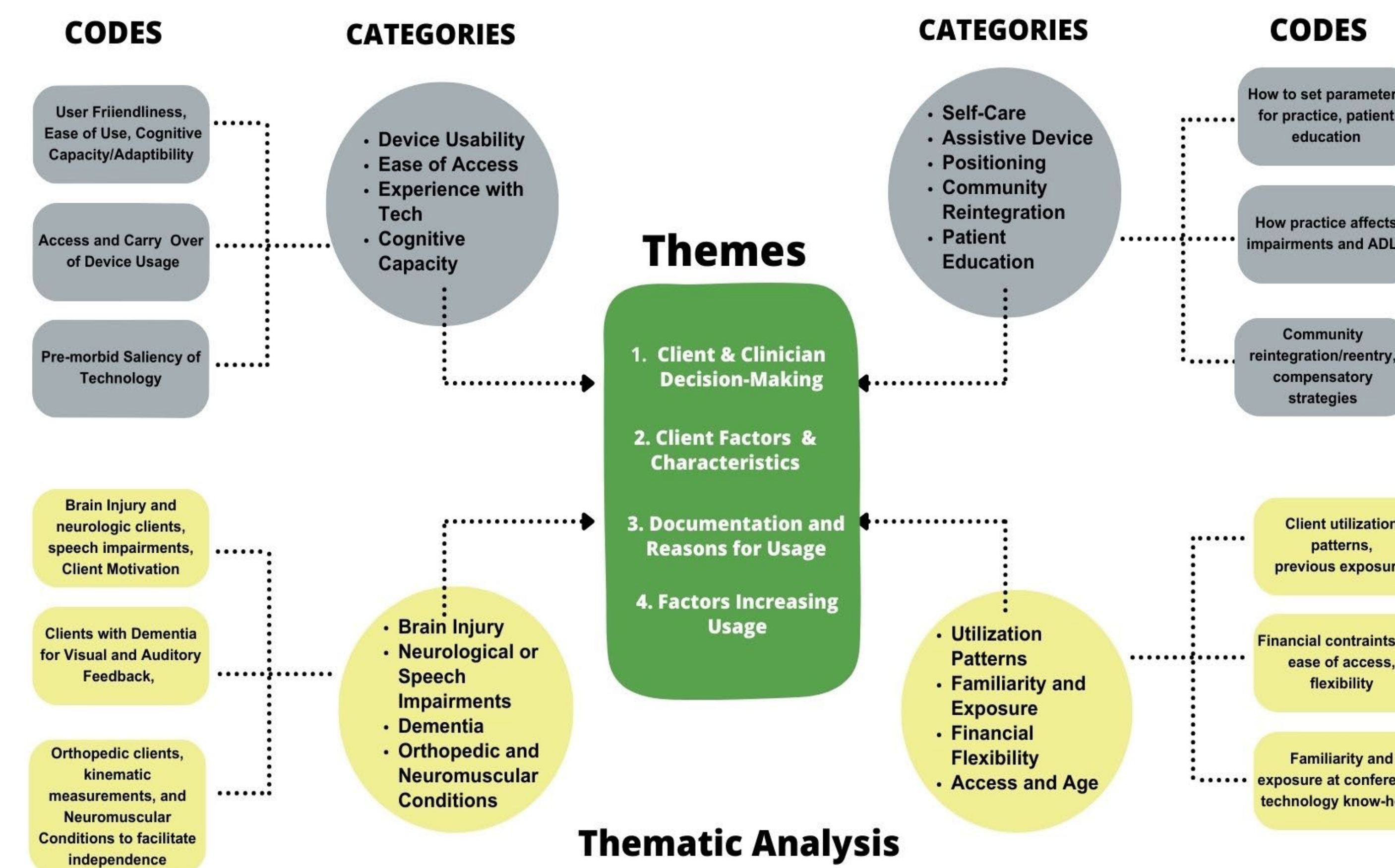


Figure 1. Thematic Analysis Flowchart with Generated Codes, Categories, and Themes based on Focus Group Transcript

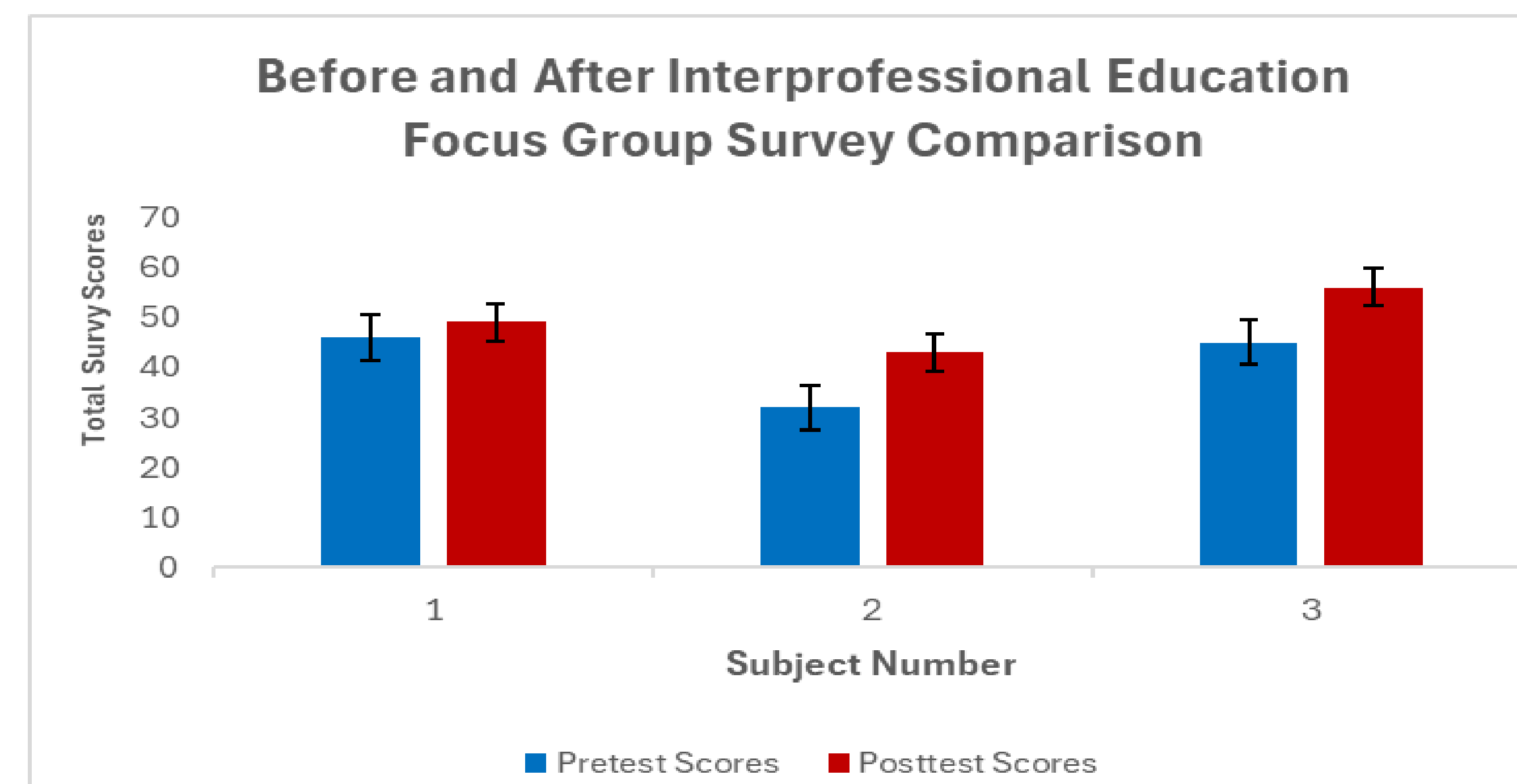


Figure 2. Paired t-test Analysis of Pre/Post Test Survey Results

Question Prompts	Subject 1 Narrative Answers	Subject 2 Narrative Answers
As a clinician, what is the first thing you think about when trying to incorporate technology into intervention?	"User-friendliness, cognitive capacity and adaptability for clients with physical limitations."	"Accessibility, ease of use of devices. How likely is it to carry-over into the home environment."
What types of clients can benefit from VR/AR therapy and what types of impairments are addressed?	"Brain injury clients with speech impairments, dementia."	"Motivated clients with neuromuscular and orthopedic conditions."

Table 1. Sample Question Prompts to Thematic Responses.

Conclusions

The results of this mixed-methods research study revealed a statistically significant difference between the pre- and post-test survey score. A paired t-test was used to compare the mean difference between the two group and obtained p-value=0.04, which indicates a rejection of the null hypothesis with threshold significance set at $\alpha \leq 0.05$. This suggests that the interprofessional education among the participants in the focus group did in fact alter the perception of technology utilization, resulting in a statistically significant change in survey responses. Thematic analysis of the focus group transcript yielded codes that led to various categories. These categories reflected common reoccurring themes.

1. The client and the clinicians' decision-making as crucial in deciding whether to use devices for intervention.
2. Client factors and impairment characteristics dictate the match between device usage and clinical conditions.
3. Documenting justification of usage to facilitate functional independence appears to be key for reimbursement.
4. Increased usage patterns and carryover is dependent on familiarity and prior exposure as well as other financial factors to dictating access.

Implications for Occupational Therapy

- Interprofessional education has the capacity to influence both the clients' and clinicians' perspectives in the decision-making process of utilizing an AR/VR device for intervention.
- Collaborative efforts to identify client factors and impairment characteristics are crucial in determining the perfect match between client's clinical condition and the technology device.
- Education among colleagues and peers revealed that documentation of device usage needs to provide adequate justification for utilization using the OTPF-4.
- Exposure and familiarization with advanced technologies through education and training increases likelihood of usage and reveal potential ways to increase access for intervention.
- Continued education and development of training resources are essential to increase familiarity with AR or VR technologies and to provide a good match between device and client.

References

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