Implementation of a Neurotechnology Course for Healthcare Practitioners

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DCE SITE DESCRIPTION

- **The Neuro Specialist Institute** (NSI) is a non-profit organization comprised of neuro-scientists, physicians, neurologists, and therapists created to train healthcare practitioners (HCPs) in interventions and skills to treat the neurological population
- Continuing education: Certified Neuro Specialist (CNS), CNS-Advanced, Certified Neuro Practitioner (CNP)
- Mission statement: "To provide a high-quality and affordable certification program from practitioners who are passionate about neurological conditions"

SUMMARY OF NEEDS ASSESSMENT

1. Reaching a Broader Audience
2. Incorporation of More Courses
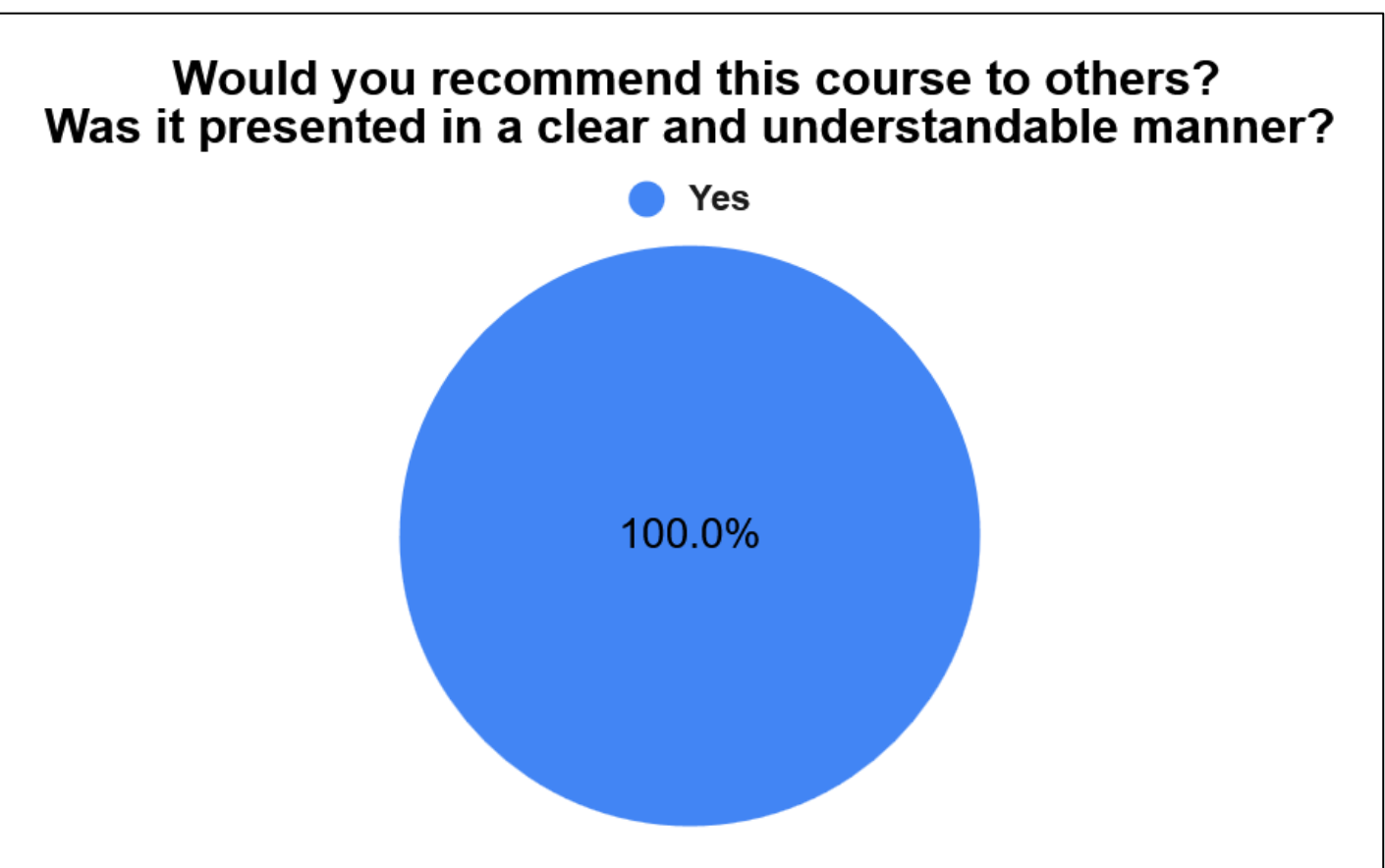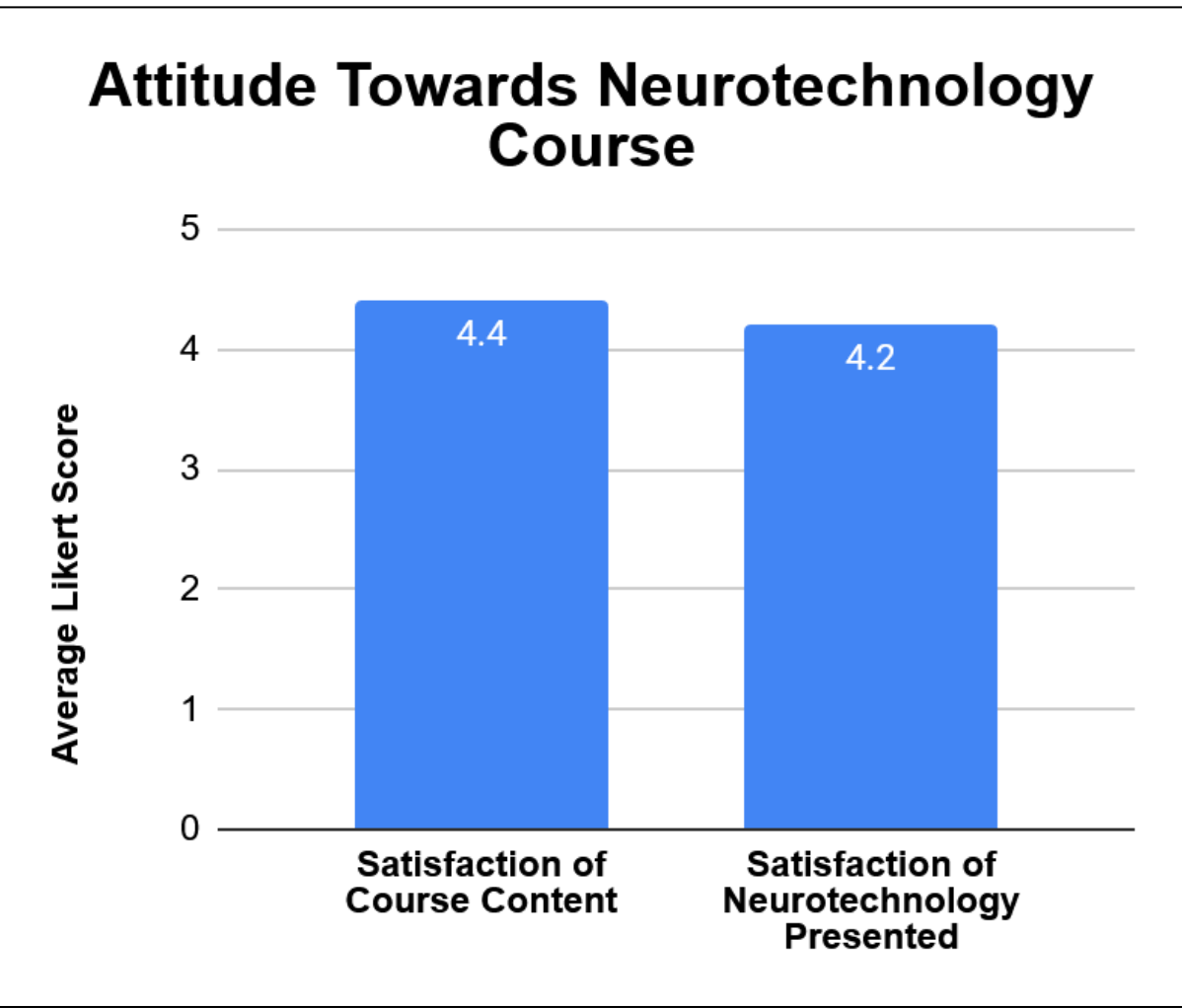3. Increased Need for Neurotechnology Research

LITERATURE REVIEW

- Neurotechnology enhances intrinsic motivation by use of gamification to make rehabilitation enjoyable, visualizing progress to boost engagement, creating immersive virtual reality experiences, fostering a sense of control, and increasing self-efficacy for better outcomes (Chen et al., 2023; Laffont et al., 2020; Marín-Medina et al., 2024).
- A return to independence is supported by empowering patients with home-based solutions, enhancing gait independence, improving distal extremity recovery, and promoting far transfer of learning for daily activities (Caeyenberghs et al., 2018; Chen et al., 2023; Hu et al., 2024).
- The implementation of neurotechnology is essential for enhancing neuroplasticity and functional recovery, reducing the burden on therapists, targeting specific brain regions, and providing multisensory stimulation to optimize rehabilitation outcomes (Chen et al., 2023; Fan et al., 2015).

PROJECT DESCRIPTION & IMPLEMENTATION

- A course implemented as part of the CNS program to educate HCPs about neurotechnology for improving limb functioning to improve functional outcomes of neurological patients.
- **Course content:**
  - Overview and efficacy of neurotechnology
  - Brain-Computer Interface, Virtual Reality, Robotics, and Functional Electrical Stimulation
  - Neurotechnology devices

EVALUATION OUTCOMES

Attitude Towards Neurotechnology Course — Average Likert Score: Satisfaction of Course Content 4.4, Satisfaction of Neurotechnology Presented 4.2

Would you recommend this course to others? Was it presented in a clear and understandable manner? Yes — 100.0%

- High satisfaction scores indicating that the course content and neurotechnology presentations are engaging and valuable
- The high scores support the efficacy of the course in delivering knowledge and maintaining engagement
- **100% of respondents** would recommend the course and found it clear and understandable

Continue to develop the course through continuing research and collaborating with professionals and companies to update the technology list.

Themes:
- Interest in Deeper Exploration and Hands-On Learning
- Challenges in Neurorehabilitation Technology
- Emerging Trends and Ethical Considerations in Neurotechnology

LEARNING OBJECTIVES

1. Demonstrated advanced clinical knowledge of neurorehabilitation, treatment strategies, and technology
2. Developed a course to educate neuropractitioners about neurotechnology
3. Implemented and evaluated a neurotechnology course for neuropractitioners

SUMMARY OF DELIVERABLES

CNS: Neurotechnology Course
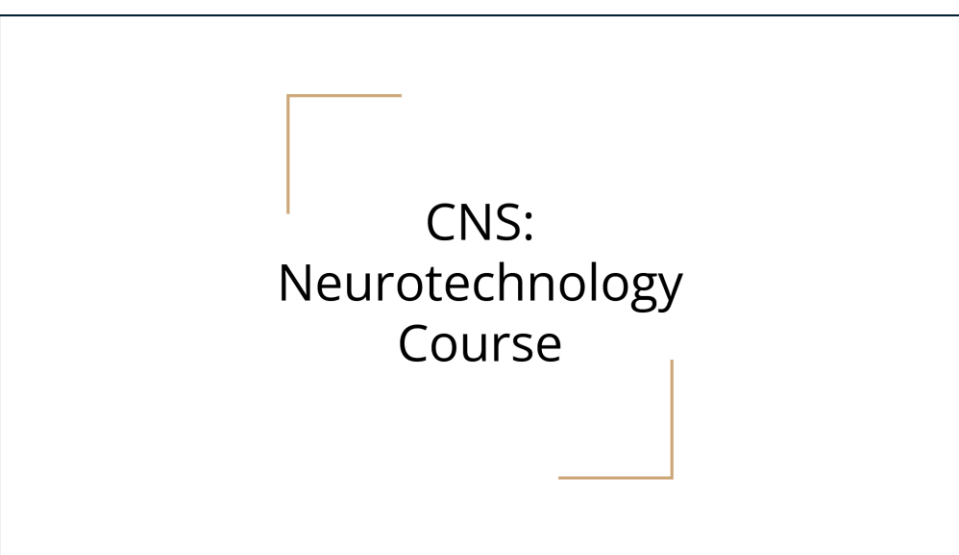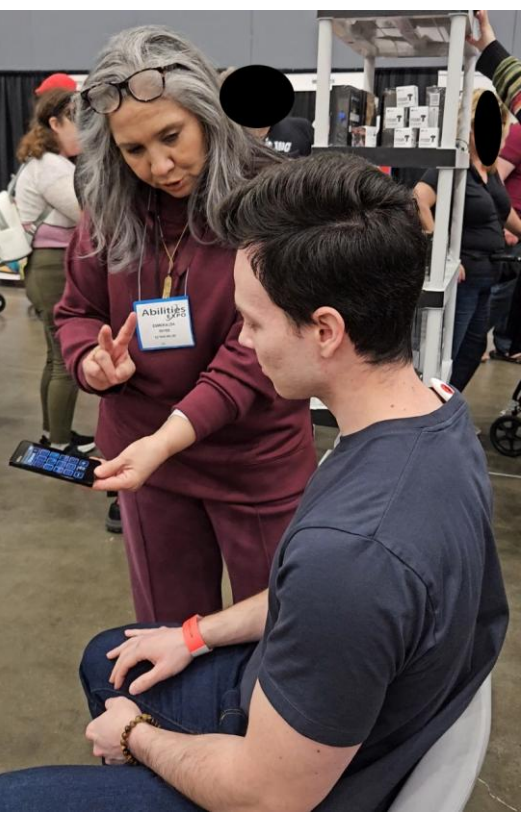
Course content, including videos, photos, recordings, and devices, is the property of the NSI.

IMPLICATIONS

Technology has advanced at a rapid pace in recent years. With the advancements, it is hard to know what new technology is available for neurorehabilitation. Neurotechnology is revolutionizing rehabilitation by enhancing recovery, personalizing treatment, and expanding applications in neurorehabilitation and mental health. With new advancements still being made in neurotechnology, it is important to educate HCPs about neurotechnology to improve the functional outcomes of neurological patients.

REFERENCES