

Development of an Advance Neuro Course for Orthotic Devices



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Description of DCE Site

- Non-profit Organization in Los Angeles, CA
- Small team of highly respected neurologists, neuroscientists, physicians, occupational therapists, and physical therapists
- The Neuro Specialist Institute is motivated to provide practitioners, who work with individuals with neurological conditions, with an affordable yet ingenious certification and advance courses
- **Mission:** to treat the physical, cognitive, perceptual, psychosocial, and environmental systems comprehensively to maximize neuroplasticity



Summary of Needs Assessment

1. Design a curriculum with current evidence-based interventions that support the use of orthotics in neurorehabilitation
2. Finding cost-efficient materials or solutions for the advanced orthotics labs
3. is a need to expand marketing techniques within the NSI to offer the CNS certification and the advanced courses in other states and countries as the NSI is a relatively new company with minimal marketing efforts.

Literature Review

- Continuing Education
 - Employers tend to seek candidates that have a higher level of education or specialty as they are more prepared for the specific line of work (Kliucharev and Latov, 2016).
 - The paradigm for teaching technical skills is through practicing on a simulation (Hagermann et al, 2014)
- Benefits of Custom Orthotics
 - Custom orthotics are better than prescribed or prefabricated splints (Ghambir, 2016).
 - Orthoses may lead to a long-term stage of recovery regarding improving function in individuals with moderate-to-severe post-stroke hemiparesis (Barry, Ross, and Woehrle, 2012).
- Fabricating an Orthosis
 - Practitioner should apply controlled forces on the foot to aid in pressure transfer, pressure redistribution, or motion restriction to maintain neutral or near-neutral joint alignment to increase functional mobility (Elattar, et al., 2018)

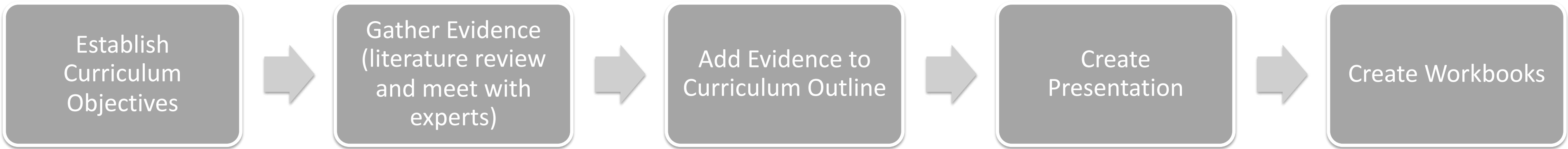
Student Learning Objectives

By the end of the 14 weeks, the doctorate student has:

1. Obtained pedagogical skills in academia by creating an advanced certification course at the Neuro Specialist Institute.
2. Refined their skills within administration by developing business marketing skills.
3. Enhanced their own clinical practice skills by advancing their knowledge of the neurological population and orthotics.

Project Description & Process

Capstone Focus Areas: Education, Administration, Clinical Practice Skills



- Curriculum objectives were established by both the community site mentor, the Neuro Specialist institute, and doctorate student
- Some keywords used for literature review were spasticity, Stroke, Dystonia, Brain Injury, Subluxation, foot drop, movement disorders, and many other commonly seen conditions within neurorehabilitation
- The doctorate student met with an expert to learn how to fabricate custom orthosis that they found to be best practice

Evaluation, Outcomes, & Implications

To evaluate the course, a form was created based on criteria items of American Occupational Therapy Association's guideline to become an approved continuing education provider. The capstone site mentor graded the course.

Section 12: <ul style="list-style-type: none">• Evidence-informed practice is based on integrating critically appraised research results (e.g., CAPS, CATS; systematic reviews) with the practitioner's clinical expertise, and the client's preferences, beliefs, and values. To promote evidence-informed practice, AOTA has developed a number of resources to help members find and utilize clinically relevant literature to respond to both their clients' needs and external demands for information from the scientific literature.• In order to award AOTA CEUs, PD activities must reflect best available evidence. Interventions related by a professional association and/or regulatory agency in white papers or official documents cannot be used to award AOTA CEUs.• Occupational therapy is a science-driven profession that applies the most up-to-date research to service delivery	1: Not meeting criteria 2: Needs Improvement 3: Meets criteria 4: Exceeds criteria
Section 14: <ul style="list-style-type: none">• Assessment of learning outcomes refers to the specific process through which learners demonstrate the attainment of learning outcomes. In every activity for which AOTA CEUs are awarded, the provider has the obligation to require learners to demonstrate that they have attained the learning outcomes.• How learners will demonstrate their attainment of the outcomes should be an integral part of the activity planning and include determination of the assessment procedure, its timing, and its application.• In an activity in which individual practice competency is a goal, demonstration by each individual should be required. The assignment of individual scores would be appropriate. A pass/fail designation would also be appropriate. In an activity where individual proficiency is not a specific goal, group demonstrations (e.g., group activities, discussion) may be appropriate.• While participant self-reflection of their competency (using a 1-5 Likert scale) can be important, it should NOT be the only assessment procedure.• Learners must be informed prior to the PD activity that learning outcomes will be assessed and how they will be assessed.	1: Not meeting criteria 2: Needs Improvement 3: Meets criteria 4: Exceeds criteria
Section 13: <ul style="list-style-type: none">• Learning outcomes are statements that specify what participants will know, be able to do, or be able to demonstrate when they have completed a PD activity.• Learning outcomes specify an action by the student that must be observable, measurable, and demonstrable.• Learning outcomes provide the basis for providing periodic feedback, measuring progress, and conducting a final assessment of learning.• Learning outcomes are realistic and appropriate in number for the planned activity (e.g., for conferences and multi-topic events/activities, learning outcomes must be developed for each session). AOTA recommends assigning no more than 4 learning outcomes for each hour of educational time.• Learning outcomes reflect the level of the PD activity. For example: A PD activity at the intermediate or advanced level should NOT have learning objectives that begin with the verb "understand." At this level participants should be applying, analyzing, evaluating, and creating.	1: Not meeting criteria 2: Needs Improvement 3: Meets criteria 4: Exceeds criteria
Section 15: <ul style="list-style-type: none">• Instructional methods (e.g., lecture, group discussion, lab, case study) should appeal to the diverse learning styles of each audience. The delivery format (e.g., workshop, online course, self-study) should be appropriate for the given content and support the identified learning outcomes.	1: Not meeting criteria 2: Needs Improvement 3: Meets criteria 4: Exceeds criteria
Total: *Student must receive a score of 76% or higher to receive a "Pass" grade	13 / 16 81.25%

- This implies that the course integrated evidence-based practice and critically appraised research to emphasize that occupational therapy is a science-driven profession

- The course outlined the learning outcomes well, the learning outcomes leave room for feedback and progress, and that the course included a final assessment of learning so that participants are applying and analyzing rather than just understanding the material

- The learning outcomes were appropriately assessed and that participants who would take the course would demonstrate competency prior to receiving certification

- The methods for teaching the course appeals to a diverse group of learning styles.

Summary of Deliverables



The Neuro Specialist institute will have all original documents including the curriculum outline, course presentation and workbooks.

Guiding Theoretical Frameworks

Person-Environment-Occupation-Performance Model

- The characteristics of a person include physiological, psychological, motor, sensory/perceptual, cognitive, or spiritual, which aligns with the NSI's mission
- Highlights the collaborative relationship between a patient and therapist, which will be of importance when creating a custom orthotic
- Framed the curriculum of the doctorate student's capstone project by emphasizing the NSI's mission of treating a patient physically, cognitively, perceptually, psychosocially, and environmental system comprehensively to maximize neuroplasticity.

Adult Learning Theory – Andragogy

- Allows adults to draw from their own experiences and knowledge to create new learning
- Framed the lab portion of the course with a pragmatic approach based on the adult learner drawing from their own experience and applying what will be learned to customizing an orthotic device

Rehabilitative Frame of Reference

- The course emphasized that therapists should focus on the patient's remaining abilities when creating custom orthotics in the course curriculum

Acknowledgments

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Dr. Friberg, thank you for your guidance throughout this process.

References

References are available upon request