Occupational therapy in the neonatal intensive care unit: an asynchrnous elective course

Occupational Therapy's Role in the Neonatal Intensive Care Unit: An Asynchronous Elective Course

by

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Abstract

Background: Although the neonatal intensive care unit (NICU) is a niche practice area for occupational therapists, the impact it has on patients and their families is profound. The skills needed to safely and effectively practice in the NICU are extensive. However, education on this setting is not widely included in occupational therapy programs. Therefore, OTs wishing to pursue a career in the NICU or pediatric occupational therapists wishing for further foundational knowledge on the topic are forced to rely on costly continuing education courses to fill this gap.

Objective: This project aims to develop an online, asynchronous elective course on occupational therapy's role in the NICU for current and future students pursing a doctorate degree in occupational therapy at Georgia State University (GSU).

Methods: Literature reviews were conducted on the current availability of NICU-specific education for occupational therapy students, as well as the current best practice in the NICU (including but not limited to assessments, interventions, equipment, and educational resources). The capstone student also engaged in an 8-week observational rotation in a level four NICU at Children's Healthcare of Atlanta to gain a full picture of actual OT practice in this setting. Additionally, literature on pedagogical theories, models, and frameworks were reviewed in order to construct course content, learning activities, and assessments.

Output: The result of this capstone project is a 10-unit asynchronous elective course focused on occupational therapy's role within the NICU. It is designed to cover background knowledge on the NICU unit as a whole, medical equipment, and medical conditions as well as the entire occupational therapy process including assessments, interventions, and caregiver support and education. The models and frameworks this course is based on include cognitivism, humanism, The Community of Inquiry framework, and Bloom's Taxonomy.

Conclusion and Relevance: If this course is offered as an elective in GSU's Doctor of Occupational Therapy Program, it will allow students to further their knowledge on a specialized practice area that has far-reaching implications into pediatric practice in general. Having this foundational knowledge will not only prepare students for pediatric level II fieldwork rotations, but for their future careers as well. Additionally, it will help diversify the program's curriculum and attract future students who are interested in this area of practice.

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Introduction

Occupational therapy (OT) is an essential service within the neonatal intensive care unit (NICU). According to one study, 100 percent of babies in the NICU received OT services starting as early as 30 weeks post-menstrual age (Ross et al., 2017). Becoming a neonatal therapist requires extensive continuing education and years of experience in the field of pediatrics or acute care. Additionally, to become certified as a neonatal therapist, you must obtain 40 hours of NICU- related education, 40 hours of mentored experience within the NICU, obtain 3,500 hours of experience in the NICU, and pass the neonatal therapy certification examination, which must be renewed every five years (Neonatal Therapy Certification Board, 2023). Despite the extensive educational requirements to become a neonatal therapist, 74 percent of NICU therapists only receive one to three *lectures* on the NICU during their degree process (Pineda et al., 2019). The NICU is a vital part of pediatric OT practice, as babies in the NICU often continue to receive occupational therapy services well into childhood to address developmental concerns. According to one source, approximately 72 percent of OTs work in pediatrics (Zippia, n.d.), meaning that it is vital for there to be an option to learn foundational information about the NICU and the lasting effects it can have on children during the pursuit of a degree in occupational therapy. Therefore, an asynchronous elective at Georgia State University about OT's role in the NICU would be beneficial to anyone considering a career in pediatrics or the NICU.

The purpose of this capstone project is to create an asynchronous elective course for Georgia State University's Doctor of Occupational Therapy program that focuses on OT's role within the neonatal intensive care unit (NICU). It is important to create this course because a great number of OTs end up in pediatrics and should therefore be educated about the NICU and the impacts it can have on children well into childhood. Additionally,

neonatal therapists often do not have the option to take full courses about the NICU while pursuing their degree and must instead rely on costly continuing education courses. Therefore, having the option to learn foundational knowledge about the NICU while in OT school would be a valuable experience for GSU students.

The elective course that is created as part of this capstone project will have long lasting impact on the education of future occupational therapy students. By taking this course, students will gain foundational knowledge on the assessments, interventions, equipment, and resources occupation therapists use to treat patients in the NICU and how to support their families. Additionally, students will learn why intervention at the NICU stage is so important for optimal development and what can happen if OT services are not received in the NICU. This knowledge will better prepare students to treat infants in the NICU or other pediatric settings such as early intervention and outpatient clinics. Lastly, this knowledge will help students continue to advocate for occupational therapy services within the NICU.

CHAPTER 1

Literature Review

Introduction

The field of occupational therapy (OT) is unique in the way that it can be applied to any stage of life, from the moment you are born to the moment you pass. One of the more niche areas of practice within OT is the neonatal intensive care unit (NICU). OTs are able to provide essential services for NICU infants and their families to improve developmental outcomes and educate family members and other professionals on how to care for NICU infants from a therapeutic perspective. Becoming a *certified* neonatal therapist requires extensive continuing education and clinical experience that takes place after completing OT school (Neonatal Therapy Certification Board, 2023). However, it is not necessary to become certified to practice within the NICU, and most NICU OTs report that they do not receive enough foundational education about the NICU while completing their degree in occupational therapy (Pineda et al., 2019).

Why OT in the NICU is Important

Studies have shown that infants in the NICU can have future delays in motor, language, cognitive, and sensory development and display behavioral issues due to medical conditions, prematurity, and/or the NICU environment (Philpott-Robinson et al., 2017). During normal fetal development, the uterus provides a safe environment for infants to develop their various bodily systems. Infants who are born prematurely and/or with various disorders or disabilities are often kept in the NICU for a period of time due to medical fragility. Unlike the uterus, the NICU environment can be overstimulating and uncontrolled, which can potentially lead to developmental issues that last well into childhood. The main environmental concerns in the NICU are excess touch, noise, and lighting (Philpott-Robinson et al., 2017). Pain is another concern in the NICU, as it is a negative sensory experience that is more common due to the,

often high, number of invasive procedures required for the medical management of NICU babies (Valeri et al., 2015). OTs are in the unique position to implement interventions that can help control the NICU environment, promote neuroprotection, facilitate normal infant occupations (feeding, sleeping, playing, etc.), educate/support parents, and more (Boell et al., 2020; Adams et al., 2022; de Castro, 2022).

NICU Education During the Degree Process

Despite the vital role of OT within the NICU, most OT students are not exposed to it during their degree process. According to one source, 74 percent of NICU therapists (including OTs, PTs, and SLPs) only receive one to three lectures on the NICU while pursuing their degree (Pineda et al., 2019). While OT school is meant to develop generalist OTs, not specialists, the availability of a more comprehensive education is important for those who are interested in the NICU or intend to go into pediatric practice. Approximately 72 percent of OTs go on to work in pediatrics (Zippia, n.d.), further underscoring a need for a basic understanding of the NICU and how it can impact developmental outcomes and create deficits that necessitate OT, or other therapeutic services, well into childhood.

Requirements for Neonatal Therapists

Becoming a certified neonatal therapist requires extensive continuing education and years of experience in the field of pediatrics or acute care. To become certified as a neonatal therapist, one must obtain 40 hours of NICU-related education, 40 hours of mentored experience within the NICU, 3,500 hours of practice experience within the NICU, and pass the neonatal therapy certification examination, which must be renewed every five years (Neonatal Therapy Certification Board, 2023). The extensiveness of this process can be daunting and overwhelming, especially when considering the fact that most OTs are not given the opportunity to learn about the NICU while in school.

Conclusion

Occupational therapy interventions within the NICU can have a profound impact on NICU infants and their families. Since a majority of OTs end up working in pediatrics at some point, it is vital that this education starts as early as possible. Therefore, there should be an option for OT students to take an elective course that focuses on OT's role within the NICU while completing their degree. This elective would serve as a way to expose students to the NICU as a future area of interest and/or educate them on the challenges NICU babies can face later in life that they may encounter in other areas of practice.

Aim of this Project

The aim of my capstone project is to create an asynchronous elective course about occupational therapy's role within the neonatal intensive care unit. This education is vital for OT students that plan on entering into pediatric practice or specializing in NICU practice.

CHAPTER 2

Needs Assessment

Purpose

The purpose of this needs assessment was to gauge the amount of interest current Georgia State Occupational Therapy Doctorate students have in taking an elective course about OT's role in the NICU and why. The secondary purpose was to gauge how much education current GSU OTD students are receiving about OT's role in the NICU. The information gathered from this needs assessment will help determine if there is interest in and/or a need for an elective course on the NICU specifically within GSU's OTD curriculum. The needs assessment survey was approved by the GSU Institutional Review Board (IRB) on April 19, 2024. The IRB approval form can be found in Appendix 3.

Methodology

Research Design

The design for this needs assessment is a cross-sectional survey. Quantitative data being collected includes what cohort the participant is in and the number of hours of education they have received about the NICU during their time in the GSU OTD program. Other data being collected includes open-ended questions pertaining to the participant's intended area of practice and their reasoning for not being interested in taking an elective course about OT's role in the NICU (if applicable).

Recruitment

Participants were recruited through convenience sampling methods. Potential participants were initially contacted via email using the Georgia State University Doctoral Occupational Therapy program's listserv. Follow-up contact was facilitated through private student GroupMe messages.

Participants

In order to participate in the survey, participants had to be a current student within the Georgia State University Doctoral Occupational Therapy program (students graduating in 2025, 2026, and 2027). Exclusion criteria were being under 18 years of age and/or not being a current student in the GSU OTD program.

Instruments

To conduct the needs assessment, a seven-question, online survey was created through Qualtrics (www.qualtrics.com). The survey collected all data anonymously. The survey consisted of both multiple-choice and free-response questions.

Procedure

Following IRB approval, the needs assessment survey was sent out via email by the GSU OT department's administrative assistant to all current students. This email consisted of an invitation to participate in the survey and a brief description of the purpose of the capstone project. The email also contained the link to the survey, which ensured that all answers were anonymous. One week after the email containing the survey link was sent out, the student principle investigator sent a reminder to complete the survey in the private GroupMe group chat containing students from all three current cohorts. The survey was active for a total of three weeks before being closed to participants.

Analysis

Results from the survey were analyzed through the Qualtrics website. Both descriptive and categorical analysis was used. Descriptive analysis, such as frequencies and percentages, was used for questions that collected quantitative data. Open-ended questions that collected qualitative data were analyzed by grouping answers into categories such as intended practice settings.

Results

41 survey responses were recorded. Of those 41 responses, 39 were usable. Two participants consented to begin the survey but did not answer any of the seven questions. The results of the survey are as follows.

Of the 39 participants, 14 (36%) were in the 2025 cohort, 17 (44%) were in the 2026 cohort, and 8 (21%) were in the 2027 cohort. When asked about their intended area of practice upon graduating, with the option of giving multiple answers, 27 participants specified that they are interested in pediatrics (2 specified that they would like to practice in the NICU in the future), 7 were interested in adult inpatient rehab, 5 were interested in neurological populations (including stroke, SCI, and TBI), 4 were unsure/undecided, 3 were interested in adult acute care, 3 were interested in orthopedics (including hand therapy), 2 were interested in the school system, and 1 was interested in mental health. Additionally, 100% of participants indicated that they have shadowed in a pediatric OT setting at some point.

When asked whether or not the participant has received education on OT's role in the NICU while at GSU, all of the participants in the 2025 cohort answered "yes" whereas all of the participants from the 2027 cohort answered "no". Answers from the 2026 cohort were varied. Of the 21 participants that indicated that they had received education on OT's role in the NICU, 15 (71%) indicated that they received 1 to 3 hours of lectures on the topic and 6 (29%) indicated that they had received 4 to 6 hours of lectures.

In terms of current student's interest in taking an online, asynchronous elective course on OT's role in the NICU, 24 (62%) participants said they would be interested, 11 (28%) said they might be interested, and 4 (10%) said they would not be interested. Of the four respondents that indicated they would not be interested in taking a NICU elective while at GSU, two reported that

they did not have any interest in working in the NICU, one reported they had already met their required number of electives, and one reported that they will be graduating in the coming year.

Discussion and Implications

After thorough analysis of the survey results, the following conclusions have been made. All of the participants have shadowed in pediatrics at some point. This is not surprising as pediatrics is a large area of practice within the field of occupational therapy (Zippia, n.d.). Additionally, out of the 39 respondents, 29 indicated that they are considering working in some area of pediatric practice upon graduating (including outpatient, inpatient, early intervention, NICU, and school-based OT). In terms of interest in taking an elective course about OT's role in the NICU, 62 percent of participants said that they would be interested, and 28 percent of participants said they might be interested. These results indicate that there is substantial interest in the proposed elective among GSU OTD students.

The second purpose of this survey was to gauge the amount of education GSU OTD students are already receiving during their degree process. Of the participants who have already taken classes where NICU education is included, 15 said they received 1 to 3 hours of education on the topic and 6 said they have received 4 to 6 hours. The difference in answers to this question could be attributed to recall error, a difference in professors, and/or a difference in curriculum implementation between cohorts. However, it is safe to assume that students are currently not receiving more than a few hours' worth of content on OT's role in the NICU while at GSU. This is not enough education to provide an adequate understanding of OT's role within the NICU and the effects of the NICU on infants and their families when compared to the amount of education and training that is required to become a practicing NICU therapist.

Conclusion

This needs assessment shows that there is significant interest in an elective focused on OT's role in the NICU amongst current GSU OTD students. It also shows that the current amount of NICU education GSU OTD students are receiving is not comparable to a full 3-credit course, which has the potential to provide more comprehensive knowledge on the subject.

CHAPTER 3

Frame of Reference

Introduction

The purpose of this project is to create a comprehensive online course about OT's role in the NICU. Online classes have become increasingly common since the Covid-19 pandemic, and have their pros and cons. In order to ensure that the online elective course is of high caliber, the Community of Inquiry framework is being used as the basis for the creation of the course. The following image is a visual depiction of the Community of Inquiry framework and its various components.

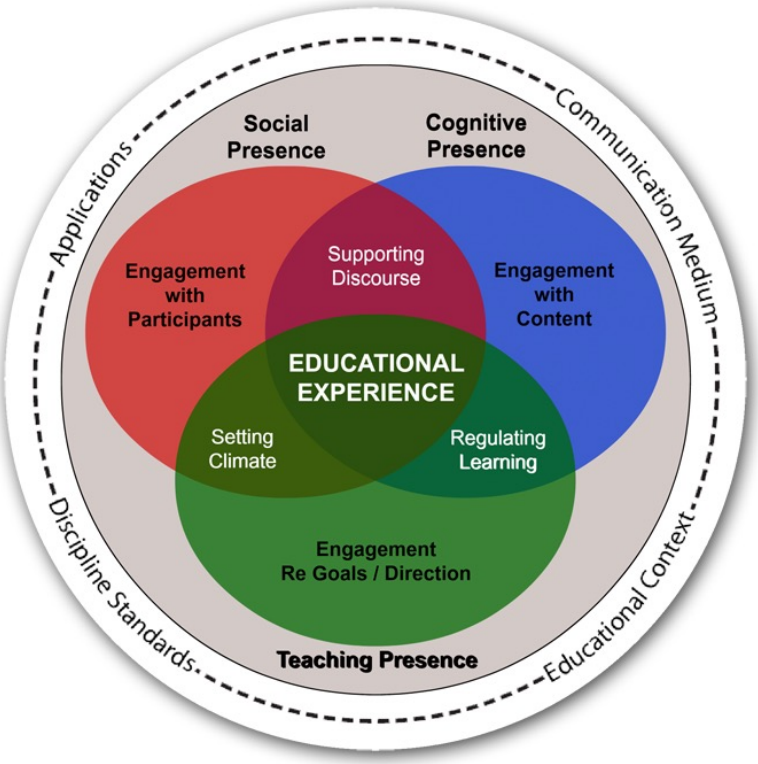

Figure 1: The Community of Inquiry framework. Image used with permission from the Community of Inquiry website and licensed under the CC-BY-SA International 4.0 license (https://creativecommons.org/licenses/by-sa/4.0/). The original image is located at https://www.thecommunityofinquiry.org/framework

Community of Inquiry Framework

The Community of Inquiry (CoI) framework was originally created by Garrison et al. (2000). According to the framework, an "educational community of inquiry" is a group of individuals who engage in discussion and reflection in order to create personal meaning and achieve understanding of a certain topic (The Community of Inquiry, 2021). In order to create this sort of community within an educational course, three essential and overlapping elements must be present; cognitive presence, social presence, and teaching presence (The Community of Inquiry, 2021). Cognitive presence, or the engagement with course content, when combined with teaching presence, creates a regulated learning environment (The Community of Inquiry, 2021). When cognitive presence is combined with social presence, supportive and stimulating discussion on content is possible (The Community of Inquiry, 2021). Combining social presence with teaching presence creates an optimal social climate for effective learning (The Community of Inquiry, 2021). When stimulating discourse is supported, there is an optimal learning environment, and learning is appropriately regulated by the instructor, a beneficial educational experience can take place.

Cognitive Presence

Cognitive presence is "the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication" (The Community of Inquiry, 2021). Essentially, it is the ability of students to learn information through course content and interaction. Cognitive presence can be built by instructors through four phases of the practical inquiry model (PIM); (1) the triggering event, (2) exploration, (3) integration, and (4) resolution (Fiock, 2020). Phase one (the triggering event), is when a student identifies a problem, phase two (exploration) is when the student explores the issue further through various avenues of information, phase three (integration) is when the student integrates

the information from all of the sources they gathered in phase two and create meaning from it, and phase four (resolution) is when the student applies their new knowledge to real-world situations (Fiock, 2020). Another vital part of creating cognitive presence is reflection, where students can look back on the things they have learned and identify what new knowledge and skills they have gained throughout the course.

There are several strategies that instructors can employ to enhance cognitive presence within online classrooms. These include, but are not limited to, allowing students to self-select topics they are interested in, involving students in discussions, establishing course guidelines to facilitate a positive learning environment, using a mix of assignments, having clear grading rubrics, facilitating teamwork, respecting diversity, using examples, and sharing additional resources on course topics (Singh et al., 2022).

Social Presence

Social presence is "the ability of learners to project their personal characteristics into the community of inquiry, thereby presenting themselves as 'real people'" (The Community of Inquiry, 2021). There are several ways to facilitate social presence in an online class. The most common is virtual conferencing (VC) technology, such as WebEx or Zoom, which allows students to communicate with each other and the instructor in real time. In a study done by Yoon and Leem (2021), it was shown that using VC to facilitate social presence led to increased group cohesion, group efficacy, and academic performance. If VC is not accessible or is incompatible with the class structure, other ways to facilitate social presence could be through interactive discussion posts or instant messaging platforms. In a study conducted by Tang and Hew (2020), instant messaging proved to be the preferred and more effective avenue of online text communication when compared to discussion posts. However, there are pros and cons to both. The pros of online discussion forums are that they are organized, topic-centered, and facilitated

by the instructor. Cons are that they are less engaging, harder to access/ less mobile friendly, and more formal (Tang & Hew, 2020). The pros of instant messaging are that it is less formal, more interactive, facilitates higher levels of emotional expression (through non-verbal cues such as emojis), allows for multimodal messages (i.e. photos and videos), and is easily accessible (Tang & Hew, 2020). The cons of instant messaging are that students can find it stressful due to constant notifications/alerts that make them feel like they have to respond right away and that it is unorganized due to the chronological display of messages (as opposed to the topic/ thread organization of online forums) (Tang & Hew, 2020).

It is also important that instructors model and facilitate appropriate social presence within the online classroom. Ways to facilitate social presence as an instructor include sending out a welcome note at the beginning of the semester, introducing themselves (as well as giving students the opportunity to introduce themselves), timely communication, sharing personal stories, and using timely and continuous feedback (Singh et al., 2022).

Teaching Presence

Teaching presence is "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes" (The Community of Inquiry, 2021). Teaching presence is essential for bringing the other elements of the community of inquiry together and creating a meaningful experience. It involves not only course design and providing instruction, but facilitating discussion, providing feedback, and motivating students (Singh et al., 2022). One aspect of teaching presence that is unique is that it must start before the actual class begins. When structuring the course, instructors must pre-plan their desired learning activities, gather teaching materials, create evaluations, decide on the structure of the course, and plan how they will facilitate interaction (Singh et al., 2022). Once the course starts, instructors are responsible for

presenting information in a clear manner, modeling and moderating student discussion, supporting and guiding students, assessing the students' knowledge, providing feedback, resolving problems, and motivating their students (Singh et al., 2022).

The evidence-based approaches to creating teaching presence within online classrooms include creating a personalized online platform, having open office hours, checking in with students regularly, helping students become familiar with the necessary technology, providing support and praise to students, and setting clear expectations regarding assignments (Singh et al., 2022).

Conclusion

As part of this capstone project, an entire online, asynchronous course is being created; including a syllabus, course content materials, extra resources, assignment rubrics, and assessments. However, the course is not being implemented as part of the project. Therefore, the main components of the Community of Inquiry framework being used are cognitive and teaching presence, as they are the only components that can be started/planned for before the class actually begins. Certain strategies for social presence will be taken into account and planned for but, ultimately, the actual implementation of social presence is up to the instructor(s) that will be teaching the course in the future.

The teaching presence strategies being used to create this course include building an I-college shell to house course content, creating clear learning objectives and course expectations in the syllabus, creating clear assignment rubrics, and providing an easily accessible WebEx platform for virtual office hours. Cognitive presence elements being used include using a variety of assignment styles, including allowing students to self-select a NICU-related research article that they are interested in. Additionally, discussion boards will be created to allow students and the instructor(s) to openly discuss topics and ask questions that they may have regarding content.

To promote different learning styles, a variety of resource types will be included within the course content, including but not limited to charts/tables, videos, images, and written materials. Lastly, to promote social presence, a discussion board will be used to facilitate instructor and student introductions at the beginning of the course. Additionally, the instructor(s) that implement the course can create voice-over components for each slide deck to provide real-world examples related to specific topics and explain their clinical reasoning.

CHAPTER 4

Methodology

Project Design

This project design is based on program development. However, instead of a program that is implemented in a community setting, this is an educational course that will hopefully be implemented as part of a graduate school program. The course will cover the basics of occupational therapy practice in the NICU. Intended participants are current and future GSU OTD students.

Site Descriptions

Eight weeks of observation were completed to gain direct knowledge of current best practice within the NICU and to gain knowledge of educational practices at the graduate level. Three days per week were spent observing in the NICU at Children's Healthcare of Atlanta and one day per week was spent observing a graduate-level occupational therapy course at Georgia State University.

Children's Healthcare of Atlanta

Founded in 1915, Children's Healthcare of Atlanta (CHOA) is the leading provider of pediatric healthcare in the state of Georgia (Children's Healthcare of Atlanta, n.d.). It is comprised of three hospital locations plus multiple outpatient centers, urgent cares, etc. They offer over 60 pediatric specialties, including but not limited to developmental conditions, emergency care, GI, ENT, genetics, cardiovascular, rehabilitation services, and preventative care (Children's Healthcare of Atlanta, n.d.). My specific site was the neonatal intensive care unit at Arthur M. Blank Hospital, which was established in 2024. This is a level four NICU that offers the highest level of neonatal care available. Services available in this unit include subspecialty

doctors and surgeons, nurses, pharmacology, rehabilitation services, respiratory therapy, case management, social work, and child life specialists. Staff working in this unit are experts in neonatal care and are equipped with the highest level of technology available.

Georgia State University

My secondary site was Georgia State University's Occupational Therapy department. The department's program (Occupational Therapy Doctorate, OTD) consists of didactic learning, fieldwork rotations, and research projects. Professors in the OTD program are experts in a multitude of practice areas such as pediatrics, neurorehabilitation, orthopedics, and mental health. They also conduct active research projects within the department and in conjunction with other disciplines and universities. Additionally, the department offers several study abroad programs that allow students to learn about the global application of occupational therapy and how cultural differences inform care. Part of the GSU OTD program's mission is to "prepare occupational therapists to engage in research and evidence-based practice that maximizes health and well-being of all individuals, groups, and populations…" (Byrdine F. Lewis College of Nursing and Health Professions, n.d.). The course being created as part of this capstone project is intended to teach students about the evidenced-based practices OTs use in the NICU to promote the health and wellness of their patients and their patient's families. Therefore, if this course were to be offered to future GSU OTD students, it would be fulfilling part of the program's mission to create occupational therapists that are equipped with evidenced-based knowledge and practices.

Course Development

The development of educational courses has long been based in pedagogy, the theory of learning. There are several well know pedagogical theories, such as constructivism, behaviorism, cognitivism, and humanism, but none of them are fully capable of informing the perfect learning

structure or environment (Arghode et al., 2017). Therefore, instructors need to use multiple theories in combination in order to create comprehensive courses that meet the needs of adult learners. Online learning poses an additional challenge when creating courses, due to the fact that there are limited chances for interaction between the instructor(s) and students. However, the basic tenants of learning theories can and have been applied to online learning. The two learning theories that were applied in the creation of the course are humanism and cognitivism. Additionally, the Community of Inquiry was used as a framework to create specific learning activities and resources.

Humanism is based on the idea that learning is a personal experience that should lead to self-fulfillment and personal growth (Arghode et al., 2017). A main component of humanism is allowing students to take responsibility for their learning. This fits well with asynchronous learning, as it requires learners to be self-motivated and self-directed. The instructor is there to provide information that is relevant to the students' interests, but they have to work through the information at their own pace and are responsible for following up with the instructor or doing independent research if they have questions or concerns. As this course is an elective, students are not required to take it. Therefore, it is safe to assume that students who are taking the course are personally interested in the topic of OT in the NICU and want to grow as an occupational therapist in the area of pediatric and/or neonatal practice, in accordance with the humanism theory of learning.

Cognitivism is focused on the way that learners process, store, and retrieve information (Arghode et al., 2017). According to the cognitivism theory, course information should be presented in an organized, logical, and easy to understand way. It should also be interesting and engaging, as cognitivism purports that learning can be facilitated through extrinsic motivation (Arghode et al., 2017). Therefore, the content for this course will be presented through units that

are organized by topic and by the flow of the therapeutic process (knowledge of conditions and equipment, followed by assessment, followed by intervention and caregiver education, followed by long-term impacts). These slide decks will include images, videos, and "pop questions" to keep students engaged. Additionally, according to cognitivism, students should be given the opportunity to be involved in the learning process (Arghode et al., 2017). One way to do this is to allow students to pick their own topic of interest. Therefore, one of the learning activities for this course will involve students selecting a NICU-related research article based on their personal interests to review and summarize for other students. This way, they are able to not only pursue a topic of personal interest, but also learn from and interact with their peers through discussion boards.

Pedagogical theories do not provide specific learning activities or teaching strategies. Therefore, these activities and strategies were developed based on an educational framework, the Community of Inquiry. As discussed in Chapter Three, the Community of Inquiry involves three essential and overlapping elements; cognitive presence, social presence, and teaching presence (The Community of Inquiry, 2021). Since this project only involves the development of the course, not implementation, the main elements addressed are cognitive presence and teaching presence, as they are the only components that can be started before the class actually begins. Please refer to Chapter Three for details on specific learning activities and teaching strategies being used for this course.

The last component of course development is assessment. Assessments in this course include unit quizzes and a final exam. The types of questions on these assessments are based on the Bloom's Taxonomy hierarchy (Bloom et al., 1984). Bloom's Taxonomy is commonly used to create assessment questions due to the fact that each level represents a step in the learning process (Brar, 2024). The first level is "remembering", which involves memorizing basic

information (Brar, 2024). These questions may involve simple definitional questions or listing the steps of a certain process. Level two is “understanding”, which involves the students’ ability to describe information in their own words (Brar, 2024). Level two questions may involve short-answer explanations or summaries of a certain concept. Level three is “application”, which involves applying knowledge to real-world examples (Brar, 2024). These questions may involve reading a short case study and choosing the appropriate assessment and/or intervention. Level four is “analysis”, which requires critical thinking and the examination/understanding of the different components of concepts (Brar, 2024). An example of a level four question may be comparing/contrasting two different assessments. Level five is “evaluation”, which is when students must create and defend their own opinions based on available information (Brar, 2024). An example of level five questions would be asking students to evaluate the effectiveness of a certain intervention based on available research. The final level, level six, is “creation”, which involves students creating their own ideas by combining different sources of information in new ways (Brar, 2024). An example of this type of question would be asking students to come up with their own intervention activity or educational resource. For this course, assessment questions will target levels one through four. This is because these levels are easier to assess via multiple choice, matching, fill in the blank, and short answer questions. Additionally, there is a time limit for assessments, and higher-level questions take longer to answer due to having to compile research to defend your answer. Therefore, levels five and six will be evaluated through course assignments, rather than timed assessments.

CHAPTER 5

Outputs

Intended Participants

The intended participants for this course are students in Georgia State University's OTD Program. Students who wish to take the course must meet certain pre-requirements; including taking and passing Gross Anatomy, Neuroanatomy, Medical Conditions, Occupations, and Neurological Conditions Assessment and Intervention I.

Course Format

This course will be offered online and will be asynchronous. Content will be shared via I-college. There will be an "course introduction" folder that contains the syllabus, course details slide deck, and introduction discussion board. Each unit will be assigned a folder which will contain the slide deck(s), additional resources, and unit quiz. The final exam will be in a separate folder. There will also be an "assignments" folder that will contain all three assignment rubrics and materials. Discussion boards will be created for each unit for students to add content questions to. All of these materials will be available at the beginning of the course, with the exception of the final exam. The final exam will automatically open when the student has completed all 10 of the unit quizzes.

Course Components

Instructional Content

Instructional content is the main output of this project. Materials will be split into 10 units of information covering medical equipment, medical conditions, the assessment and intervention process, and caregiver education/support. Material will be presented in the form of PDF slide decks created in Canva. In addition to slide decks, the instructor(s) who eventually offer this course may include voice-overs to provide additional information and real-world experiences.

Supplemental resources such as research articles, educational videos, charts/tables, and images will be included in certain units as well. Detailed breakdown of the units are as follows:

Unit One: Introduction to the NICU

- Levels of NICU Care
- NICU Care Teams
- Normal Fetal Development
- Occupations of Infants
- Developmental Milestones

Unit Two: Medical Equipment

- Vitals Monitoring
- IV Lines
- Feeding Tubes
- Respiratory Equipment
- NICU Beds

Unit Three: Prematurity

- Levels of Prematurity
- Birth Weight Categories
- Prematurity Risk Factors
- Calculating Corrected Age
- The Synactive Theory of Development

Unit Four: Common Medical Conditions

- Neurological Conditions
- Gastrointestinal Conditions
- Respiratory Conditions

- Cardiac Conditions
- Genetic Conditions
- Conditions of Prematurity
- Cranial Deformities

Unit Five: Assessments

- Chart Review
- Naturalistic Observation
- Movement Assessment
- Vision Assessment
- Assessment Scales/ Outcome Measures
- Head Measurement
- Infant Reflexes

Unit Six: Sensory & Environmental Interventions

- Tactile Interventions
- Vision Interventions
- Auditory Interventions
- Olfactory Interventions
- Gustatory Interventions
- Vestibular Interventions
- Proprioception Interventions

Unit Seven: Developmental and Physical Interventions

- Developmental Care
- Range of Motion
- Positioning

- Splinting

Unit Eight: Feeding Interventions

- NPO Interventions
- Bottle Feeding
- Breastfeeding
- Positioning
- Adaptive Feeding Equipment

Unit Nine: Caregiver Education and Support

- Mental Health Outcomes of Parents
- How to Support Parents in the NICU
- Intervention Education
- Educational Resources
- Caregiver Support Programs

Unit Ten: NICU Implications

- Survivability Rates
- Long-term outcomes of NICU Infants
- Long-term outcomes of NICU Parents

Assignments

In addition to instructional material, three assignment rubrics will be created. The first assignment will be to select a research article related to the NICU that the student is personally interested in. The students will then summarize their article and post the summary in a discussion board where other students will be able to learn from each other. The second assignment will be a video submission in which the students will demonstrate their ability to perform reflex testing. They will demonstrate the correct testing procedures on a willing participant or doll/stuffed

animal and verbally explain the desired response for each infant reflex covered in Unit Five. The third assignment will be a case study. The students will be given a patient description from which they will need to select one appropriate assessment, three appropriate interventions, and one caregiver education topic. Using this information, they will write a SOAP note detailing a treatment session with the assigned patient and their caregivers.

Assessments

In order to test students' knowledge on the course content, there will be unit quizzes and a final exam. Each unit quiz will consist of 10 questions specifically covering information learned during that unit. Students will be given 15 minutes per quiz. The final exam will be cumulative and consist of 50 questions. Students will be given one hour to complete the exam. Question formats will include multiple choice, true or false, matching, fill in the blank, and short answer. All assessments will allow the students to refer to their books or notes as needed.

CHAPTER 6

Discussion

Project Impact

The aim of this project was to create a course that provides occupational therapy students with foundational knowledge of OT practice in the NICU. Literature shows that this kind of education is currently lacking throughout occupational therapy programs. As it stands, 74% of developmental therapists only received one to three lectures on the NICU while pursuing their degree (Pineda et al., 2019). Therefore, therapists wishing to pursue a career in the NICU have to rely on continuing education courses and on-site training to gain this knowledge. These courses are expensive and time consuming, often costing anywhere between $100 to $400 for an online seminar. In-person courses are even more expensive and often require therapists to take time off of work to attend. The course created for this project helps fill this gap by offering a course on OT practice in the NICU as part of the degree process. This allows for students to explore a specialized area of interest while also gaining knowledge and skills that can be applied during their pediatric fieldwork rotations and future jobs.

Literature vs. Actual Practice

When reflecting on the knowledge gained throughout this experience, three things that I observed during my time shadowing in a NICU stand out. First, while developmental care in the NICU is highly researched and evidenced-based, it is not always understood by other NICU professionals. This requires NICU therapists to develop strong advocacy and interdisciplinary skills. Specifically, NICU therapists need to work closely with nurses to coordinate support during care times for extremely ill and/or premature infants and advocate for developmental sessions outside of care times for more stable infants. It is important that current and future NICU therapists are able to explain their role within the unit and emphasize its importance as it

pertains to patient outcomes. Secondly, a large portion of available literature on OT in the NICU focuses on developmental care as it pertains to environmental modification, positive sensory experiences, and regulation of the infant. However, from my experience during this project, there seems to be a lack of available research on the acquisition of appropriate developmental skills in the NICU as it pertains to developmental milestones (vision, fine motor, gross motor, etc.). This could be attributed to the fact that most research seems to focus on infants that are still pre-term, and these kinds of sessions are typically started when infants are closer to their due-date and medically stable. These kinds of interventions are important for infant outcomes and help make the transition to outpatient pediatric services/ early intervention services smoother. Lastly, NICU therapists are not as involved in emotional and bereavement support for caregivers as they could be. Occupational therapists in particular have a background in mental health practice and are qualified to be involved in this kind of care. As it stands, emotional and bereavement support is mostly handled by doctors, nurses, social workers, and child life specialists. However, developmental therapists could be an incredible addition to that team by helping to support the roles, routines, and occupations of caregivers experiencing periods of emotional stress and grief.

Limitations

The limitations of this project are twofold; experience and time. First, observation only took place in a level four NICU. While this is the highest available level of NICU care and offered the best opportunity to see complex conditions, equipment, and treatments, it also did not allow for the inclusion of lower level NICU practice as part of this course. Additionally, the NICU in which shadowing took place delineates feeding interventions to speech therapists, not occupational therapists. This is not uncommon despite both specialties having the skills and knowledge needed to address feeding difficulties in the NICU. However, this meant that course content on feeding interventions was created based on literature review and observation with

speech therapists, not occupational therapists. The second limitation was time. The capstone experience takes place over 14 weeks. During this time, the first 8 weeks were mostly dedicated to observation (4 days per week for 8 weeks). Upon reflection, more observation hours would have been helpful, especially if some of them were in lower level NICUs as originally planned. The remaining 6 weeks of the capstone experience were dedicated to content creation. Possible ways of extending this project are to create voice-overs for each slide deck and more assignments, however that was out of the scope for the current project due to time limitations.

Future Directions

Hopefully, this course will be offered as an elective for the GSU OTD program. Before the course is offered, content should be evaluated by current staff members for quality and accuracy. Changes should be made based on feedback from these staff members. Once the course is offered, student feedback on course content should also be taken into account. If the course is successful, it could eventually be offered as an in-person course that involves hands-on learning experiences. Depending on the level of success and interest, the course could also be offered at other OT schools in Georgia and throughout the country. Alternatively, if the material is not successful as an educational course, it could be converted into a book. This could then be offered to current and future occupational therapists as a guide for occupational therapy practice in the NICU. Additionally, it could serve as an educational resource for parents with a child receiving developmental care in a NICU.

CHAPTER 7

Implications

Impact on GSU OTD Students

Providing opportunities for students to explore more specific areas of practice not only benefits them in terms of choosing career paths, but it also helps them become more knowledgeable, well-rounded practitioners. Students who are able to learn about areas of practice they are interested in before going into level II fieldwork rotations may be more well-equipped to know what kind of placements they want and have the foundational knowledge they need to be successful in those settings. Even though the NICU is a very specific practice setting and not many level II students are able to find placements within one, a good amount of the information covered in this course is also applicable to treating infants in outpatient pediatrics, inpatient pediatrics, and early intervention, which are more common fieldwork settings. Additionally, this course is being offered online and asynchronously. This gives students more flexibility when it comes to completing coursework on top of their in-person and synchronous classes. This format also makes it possible for students to take this elective during one of their level II fieldwork semesters if they chose to do so.

Impact on GSU OTD Program

If this course were to be offered as an elective within GSU's OTD program, it would help diversify their curriculum and set them apart from not only other OT schools in the state of Georgia, but around the country. Offering unique learning experiences such as this course could help attract more applicants to the program as well as attract professionals with diverse experiences and specialties to the teaching staff. Additionally, it could make GSU OTD students who take the course more attractive to pediatric acute care settings as they are considering level II fieldwork students. As mentioned previously, the asynchronous nature of this course is

beneficial for students, but it is also beneficial to the GSU OTD staff due to not having set class times. Additionally, the majority of the course content is already created. However, the instructor(s) that offer the course should create voice-over recordings for slide decks to include additional information and real-world examples.

CHAPTER 8

Implementation Plan

Implementation

Staffing

There are two options for how this course can be staffed. First, this course could be offered by a current GSU OTD professor with knowledge of pediatric practice. This would save time and money that would be needed to hire an additional instructor and train them. However, that means that this professor would have to be willing to take on another course, which may not be feasible with the way the department is already structured. Additionally, if the professor does not already have a basic knowledge of OT practice in the NICU, they will need to learn the material and do independent research on the topic. The second option is to hire a new part-time instructor to just teach this course. Ideally, this person would have experience practicing in a NICU. If not, they should at least have experience treating infants in an outpatient pediatric setting and/or early intervention setting. This option would require the department to add an additional staff member to the payroll and allocate time and resources to train them.

Semester Plan

This course consists of 10 units of lecture material plus three course assignments and a final exam. With the expectation that students will take one week to complete each unit, this course has to be offered during 14-week semesters. This allows students four weeks to complete assignments and take the final exam. Additionally, it allows the instructor who offers the course to add content as they deem necessary. This could include creating additional course assignments as well. The following table details the week-by-week implementation plan for the proposed course.

Table 1

Implementation Plan

Unit	Slide decks	Additional resources	Assignments	Assessments
Introduction	- Course Introduction	Syllabus	Introduction Discussion Board Post (due ___)	n/a
Unit 1	- Intro to the NICU - Typical Infant Development	- Unit 1 discussion board	Research Article Review	Unit 1 Quiz
Unit 2	- Medical Equipment	- Unit 2 discussion board	n/a	Unit 2 Quiz
Unit 3	- Prematurity	- Synactive Theory of Development Article - Unit 3 discussion board	n/a	Unit 3 quiz
Unit 4	- Medical Conditions	- Unit 4 discussion board	n/a	Unit 4 Quiz
Unit 5	- Assessments - Infant Reflexes	- Unit 5 discussion board	Reflex Demo Video	Unit 5 Quiz
Unit 6	- Sensory and Environmental Interventions	- Unit 6 discussion board - Music Therapy Fact Sheet	n/a	Unit 6 Quiz
Unit 7	- Developmental and Physical Interventions	- Unit 7 discussion board	n/a	Unit 7 Quiz
Unit 8	- Feeding	- Unit 8 discussion board	n/a	Unit 8 Quiz
Unit 9	- Caregiver Support and Education	- Unit 9 discussion Board - Parent SENSE Booklet	Case Study	Unit 9 Quiz
Unit 10	- NICU Outcomes	- Unit 10 discussion board	n/a	Unit 10 Quiz
Final	n/a	n/a	Course Evaluation/ Feedback	Final Exam

Infrastructure

As this course is being offered online, it requires that the instructor(s) and students have access to a computer and internet connection. All materials will be shared via I-College, which is the online learning platform that is used across Georgia State University. This site allows students to view course material, submit assignments, have online discussions, and take quizzes/exams all in one place. It also allows instructors to send feedback to students, post announcements, and publish grades.

Sustainability

Course Evaluation

To determine if this course is working as part of the GSU OTD curriculum, it should be monitored in terms of interest and pass-rate. Interest should be monitored by the number of students who register for the class each semester. If the number of students who register each semester falls below 8 students, whether or not the course is offered should be reevaluated by GSU OTD staff. Pass rate for GSU OTD courses is 73% and above. If more than 3% of the registered students do not pass the course, the content should be reevaluated and edited to provide clarity and additional information. Extra resources such as research articles and educational videos could also be included to improve pass-rates. Additionally, course evaluation feedback from students should be taken into account and used to refine the class as necessary.

CHAPTER 9

Conclusion

The purpose of this project was to create a comprehensive asynchronous elective course on occupational therapy's role within the NICU. To create the course, extensive literature review and observation in a level four NICU were completed. In total, 13 slide decks were created ranging from 15 to 50 slides each. In addition, a syllabus, 3 assignment rubrics, 10 unit quizzes (10 questions each), and a 50-question final exam were created. The students who take this course will gain foundational knowledge on the NICU setting and the developmental care of infants. This knowledge can be applied in any level of NICU care, in early intervention settings, and in pediatric outpatient clinics. Taking this course will help prepare GSU OTD students for pediatric fieldwork rotations where they may treat infants and for future careers in pediatric practice. Additionally, this course will help set Georgia State's OTD program apart from others in the region and across the country. By diversifying the type of elective courses they offer, the program can attract more students with an interest in occupational therapy as it relates to early development and prepare them for their desired careers.

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APPENDIX 1

Summary Pages

Problem

Occupational therapy (OT) is an essential service within the neonatal intensive care unit (NICU). According to one study, 100 percent of NICU babies received OT services starting as early as 30 weeks post-menstrual age (Ross et al., 2017). Becoming a neonatal therapist requires extensive continuing education and years of experience in the field of pediatrics or acute care. Additionally, to become certified as a neonatal therapist, you must obtain 40 hours of NICU-related education, 40 hours of mentored experience within the NICU, obtain 3,500 hours of experience in the NICU, and pass the neonatal therapy certification examination, which must be renewed every five years (Neonatal Therapy Certification Board, 2023). Despite the extensive educational requirements to become a neonatal therapist, 74 percent of NICU therapists only receive one to three *lectures* on the NICU during their degree process (Pineda et al., 2019). Additionally, the NICU is a vital part of overall pediatric OT practice, as NICU babies often continue to receive occupational therapy services well into childhood to address developmental concerns. According to one source, approximately 72 percent of OTs work in pediatrics (Zippa, n.d.), meaning that it is vital for there to be an option to learn foundational information about the NICU and the lasting effects it can have on children during the pursuit of a degree in occupational therapy. Therefore, an asynchronous elective at Georgia State University about OT's role in the NICU would be beneficial to anyone considering a career in pediatric or NICU practice.

Purpose

The purpose of my capstone project is to create an asynchronous elective course for Georgia State University's Doctor of Occupational Therapy program that focuses on OT's role within the neonatal intensive care unit (NICU). It is important to create this course because a great number of OTs end up in pediatrics and should therefore be educated about the NICU and the impacts it can have on children well into childhood. Additionally, neonatal therapists often do not have the option to take full courses about the NICU while pursuing their degree and must instead rely on costly continuing education courses. Therefore, having the option to learn foundational knowledge about the NICU while in OT school would be a valuable experience for GSU students.

Aims

The specific aim of this project are as follows:

1) Complete a thorough review of current literature on the best assessments, intervention, and resources OTs use in the NICU.
2) Develop an online, asynchronous elective course on OT's role in the NICU.

Outputs

The main output for this project is the course on OT's role in the NICU. This will include the course syllabus, 10 PowerPoints covering course content, 3 assignment rubrics, 10 quizzes, and a final exam consisting of 50 questions.

Outcomes

The elective course that is created as part of this capstone project will have long lasting impact on the education of future occupation therapy students. By taking this course, students will gain foundational knowledge on the assessments, interventions, equipment, and resources occupation therapists use to treat patients in the NICU and how to support their families. Additionally, students will learn why intervention at the NICU stage is so important for optimal development and what can happen if OT services are not received in the NICU. This knowledge will better prepare students for future careers within the NICU or general pediatric practice. Lastly, this knowledge will help students continue the advocacy for occupational services within the NICU.

APPENDIX 2

Learning Objectives

Learning objectives (LTGs) (What you hope to learn; must fit with the GSU OT Curricular Design & Objectives)	**Short-term objectives (STGs)** (Short-term steps to help you reach your learning objectives)	**Learning activities** (What you will do to achieve the learning objective)	**Outcome measures** (What will you produce as evidence for achieving the learning objective; the deliverables of your project)	**Timeline for completion** (When will this outcome measure be completed)
1. Student will develop an adequate understanding of current evidence-based assessments and interventions used by OTs in the NICU.	1A. Student will develop an adequate understanding of current evidence-based assessments. 1B. Student will develop an adequate understanding of current evidence-based interventions. 1C. Student will compare and contrast assessments and interventions in the literature and assessments and interventions actually used in practice.	1a. Student will complete a literature review of existing research on OT's role in the NICU. 1b. Student will observe a NICU OT at least one day per week for 6 to 8 weeks during the capstone experience. 1c. Student will interview neonatal therapists to learn more about the most commonly used assessments and interventions in the NICU.	i. Literature Review ii. Observation notes iii. List of assessments and interventions gathered from therapist interviews.	April 14th, 2025
2. Student will develop advanced clinical observation skills.	2A. Student will learn how to ask probing questions during observation. 2B. Student will learn how to take comprehensive observation notes.	2a. Student will observe a NICU OT at least one day per week for 6 to 8 weeks during the capstone experience.	i. Observation notes	March 7th, 2025

		2b. Student will meet with site mentor once a week to review observation notes and ask any additional questions.		
3. Student will gain knowledge on how to construct a comprehensive course for doctoral level occupational therapy students.	3A. Student will gain knowledge on how to construct a course syllabus. 3B. Student will gain knowledge on how to create comprehensive pre-recorded lecture material. 3C. Student will gain knowledge on how to create relevant assignments and rubrics. 3D. Student will gain knowledge on how to write quiz/test questions.	3a. Student will observe a GSU OTD faculty member's class one day per week for 6 to 8 weeks. 3b. Student will review ACOTE standards and select the ones pertinent to the NICU course. 3c. Student will meet with a faculty member from GSU CETLO to discuss how to build online courses 3d. Student will review prior course syllabi. 3e. Student will attend a continuing education course on OT in the NICU. 3f. Student will research universal learning design and best practice on building quality rubrics and test questions	i. Course syllabus ii. 10 modules with at least one pre-recorded lecture per module. iii. 10 quizzes (one per module). iv. 3 assignments with rubrics. v. Final exam that covers all course content.	April 14th, 2025

APPENDIX 2

Supervision Plan

*Any highlighted sections are open to input/modification from site mentor

1) Roles and Responsibilities:

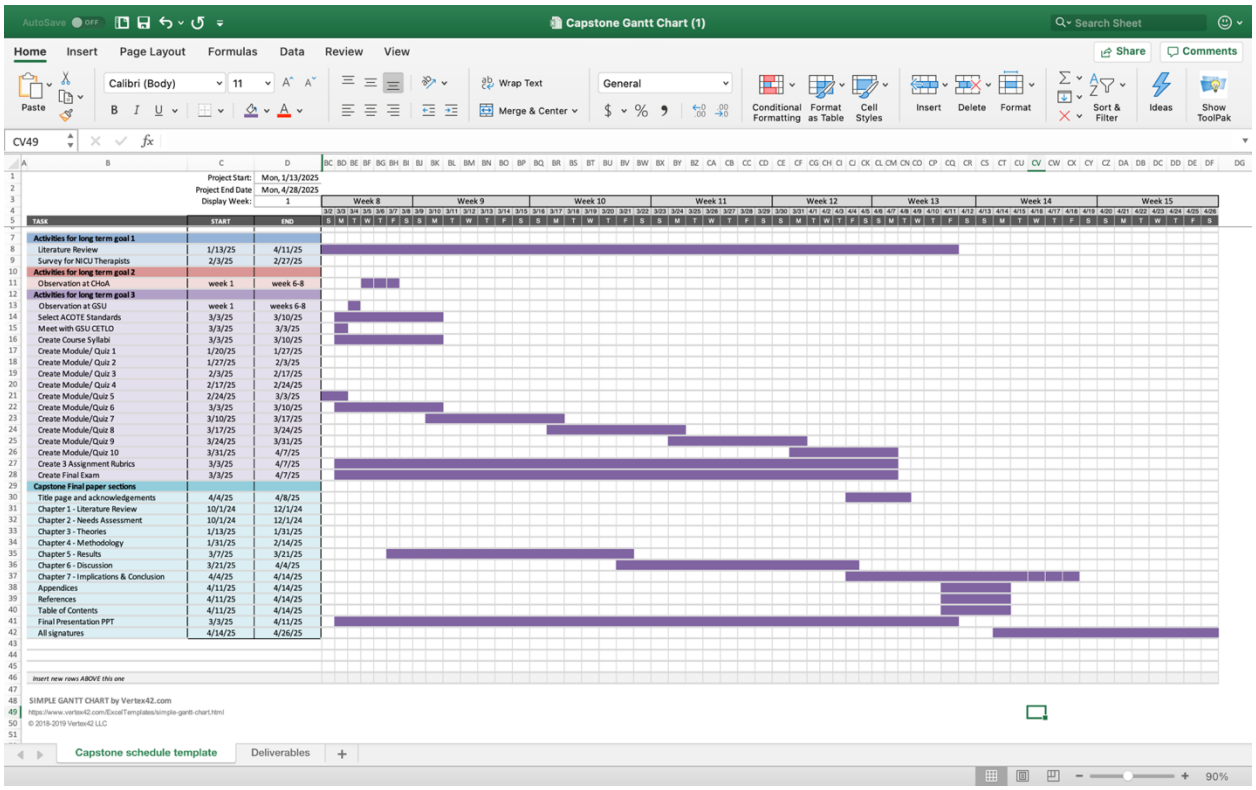
- Student: The student will be responsible for being punctual for shadowing hours, maintaining professional behavior, and adhering to hospital and school policies while shadowing, taking comprehensive notes, asking thoughtful questions, doing independent research, and creating all course content. Student will also be responsible for maintaining communication with supervisor throughout the 14-week capstone experience and providing feedback to the supervisor as applicable.
- Supervisor: The supervisor will be responsible for orienting the student to the NICU and all relevant hospital policies, providing shadowing hours for student 3 days per week for 8 weeks, attending scheduled meetings with student, and teaching the student about the assessments, interventions, and resources that OTs routinely use in the NICU setting. The supervisor will also be responsible for answering email/text communications in a timely manner and reviewing and providing feedback on all course content created by the student.

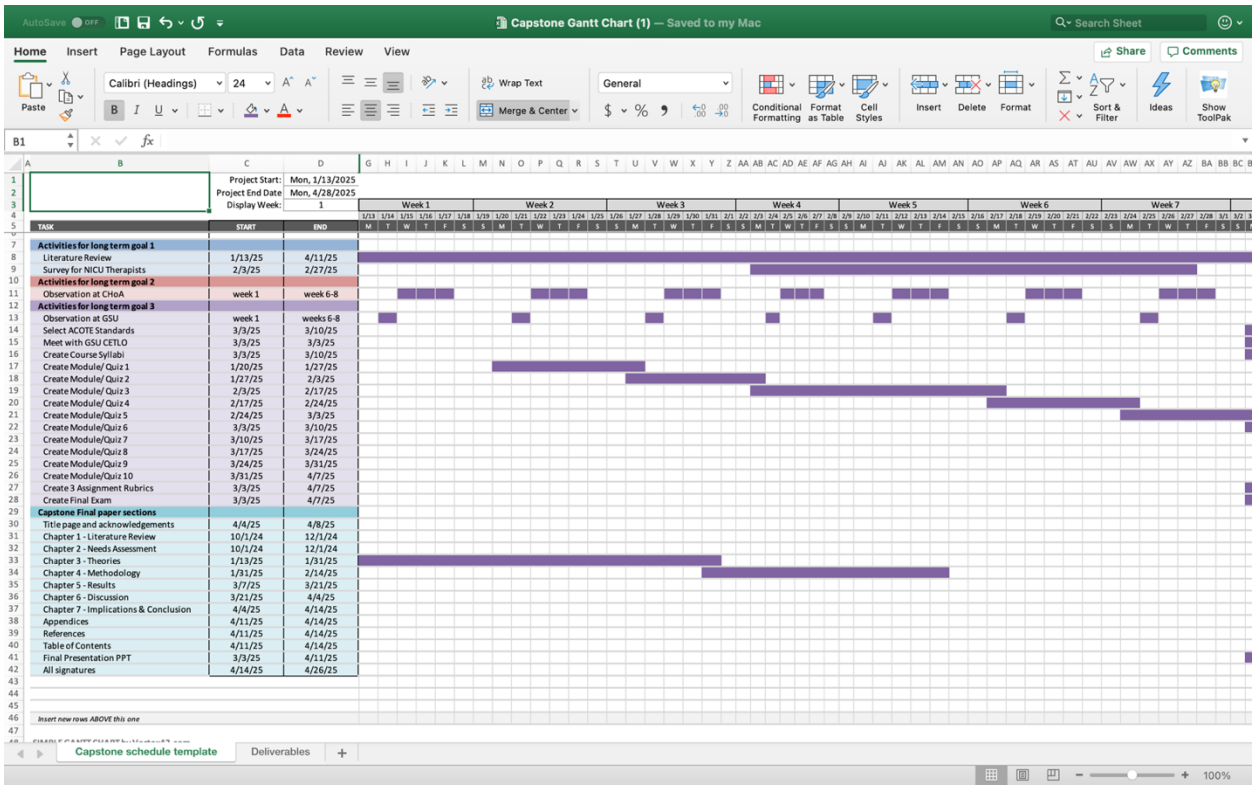
2) Requirements of the project:

- Paper: The final capstone paper will consist of chapters on the literature review, needs assessment, theory, methodology, results, discussion, and conclusion as well as all relevant documents such as the summary pages, purpose statement, problem statement, learning objectives, supervision plan, and MOU.

- Course Content: The course content being created will consist of the course syllabus, 10 modules, 10 quizzes, 3 assignments with rubrics, and the final exam. Each module will have one or more PowerPoint presentations and may include additional resources.
- Presentation: A PowerPoint presentation on the entire capstone process and end products will be given on April 28th, 2025.

3) Timeline of deliverables:





- Course modules: Rough drafts of modules 1-3 should be reviewed at the first content meeting, drafts of modules 4-6 should be reviewed at the second content meeting, and drafts of modules 7-10 should be reviewed at the third content meeting. Final drafts of all modules should be reviewed at the fourth and final content meeting.
- Assignment ideas: assignment ideas should be run by the supervisor as they are generated. Once rubrics are created, the supervisor may review them to make sure the assignment covers all key elements. Dates will vary depending on idea generation, but all rubrics should be completed and reviewed by week 12.
- Test/ quiz questions: Quiz questions will be reviewed as part of the module review at content meetings. Test questions for the final exam should be reviewed at the last content meeting.

4) Communication methods:

- Email: student and supervisor should be available to answer email communications within 24 business hours (9 am to 5 pm Monday through Friday).
- Text: If preferable, student and supervisor will exchange personal phone numbers (or other message-based communications methods such as GroupMe) for communication outside of shadowing hours. As with email communication, student and supervisor should be available to answer text communications within 24 business hours (9 am to 5 pm Monday through Friday).
- In person: In person communication will take place during agreed upon shadowing days (3 days per week for 8 weeks).

5) Scheduled Meetings:

- Initial meeting: Student and supervisor will set up a virtual meeting before the start of the shadowing rotation for introductions and to review the purpose of the student's capstone project.
- Bi-weekly meetings: Supervisor and student will schedule meetings once every other week (weeks 1, 3, 5, and 7) to review notes and answer any outstanding student questions about the assessments, interventions, and/or resources OTs use in the NICU. These meetings should happen in-person unless a virtual meeting is agreed upon by student and supervisor.
- Content Meetings: Student and supervisor will schedule four, 1 to 2-hour meetings (weeks 3, 6, 9, and 12) to review the course content produced by the student up to that point. These meetings can take place in person or virtually. Optionally, if schedule conflicts prevent longer content meetings from taking place, supervisor may review content independently and send feedback notes to student via email.

- Faculty Advisor Meetings: Student will set up and participate in meetings as needed with Dr. Sutanuka Bhattacharjya to review chapter content for final paper and course content being created.

6) Feedback Methods:

- Student: The student will provide feedback for the supervisor as requested and as required for any school or hospital reasons. Student will discuss with supervisor their preferred method of feedback during the initial meeting.
- Supervisor: Supervisor will provide feedback on notes taken by student and any and all course content created for the purpose of the capstone project. Preferred communication methods will be discussed with student during the initial meeting.

7) Resolving disputes:

- Student: If any disputes between the student and supervisor arise, the student will resolve the matter in a professional manner. The student's capstone coordinator (Dr. Yi-An Chen) and staff mentor (Dr. Sutanuka Bhattacharjya), should be notified of any dispute as soon as it happens so that they are all aware of the situation.
- Supervisor: If any disputes between the student and supervisor arise, the supervisor will resolve the matter in a professional manner. They will also be responsible for notifying the capstone coordinator at the site and any of their managers of the situation.

8) OTD Curricular Design (How the proposed capstone project is in line with GSU's curricular design)

- Understanding and utilizing occupation to promote health and wellness: The course content created as part of the capstone project will review the occupations of infants and interventions that support the health and wellness of NIU babies and their families.

- Use of evidence-based practice to support the doctoral capstone project: The student will conduct a thorough literature review of current best practice within the NICU. This research, combined with observation notes, will serve as the basis for the created course content.
- Understanding and using professional ethics and values: The student will consider the AOTA Code of Ethics and values of occupational therapy throughout the creation and implementation of the capstone project.
- Enhancing advocacy and leadership skills: The knowledge gained through observation hours and the creation of the course will support the student's ability to advocate for OT services within the NICU. Additionally, any future student who may take the course that is created will also gain the knowledge they need to continue these advocacy efforts. Leadership skills will be demonstrated through the professional collaboration between the student, site mentors, faculty mentors, and any other professionals consulted during the creation of this capstone project.
- Lifelong professional growth and development: The completion of the capstone project will help the student develop the skills needed to continue with self-guided education and research after beginning their professional career as an occupational therapist.
- Enhancing diversity, inclusion, and cultural competence: The student will be aware of and respectful of any and all cultural differences encountered during the capstone experience. DEI will also be included as part of the module regarding family interaction and education within the NICU.

APPENDIX 3

IRB Outcome Letters

Georgia State University IRB Letters

Needs Assessment

INSTITUTIONAL REVIEW BOARD

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May 20, 2024

Principal Investigator: Sutanuka Bhattacharjya

Key Personnel: Bhattacharjya, Sutanuka; McClure, Emma W

Study Department: Georgia State University, Department of Occupational Therapy

Study Title: The Importance of Creating a NICU Elective Course at Georgia State University

Submission Type: Exempt Protocol Category 2

IRB Number: H24555

Reference Number: 379524

Determination Date: 04/19/2024

Status Check Due By: 04/18/2027

The above-referenced study has been determined by the Institutional Review Board (IRB) to be exempt from federal regulations as defined in 45 CFR 46 and has evaluated for the following:

1. Determination that it falls within one or more of the eight exempt categories allowed by the institution; and
2. Determination that the research meets the organization's ethical standards

If there is a change to your study, you should notify the IRB through an Amendment Application before the change is implemented. The IRB will determine whether your research continues to qualify for exemption or if a new submission of an expedited or full board application is required.

A Status Check must be submitted three years from the determination date indicated above. When the study is complete, a Study Closure Form must be submitted to the IRB.

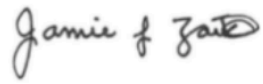
This determination applies only to research activities engaged in by the personnel listed on this document.

It is the Principal Investigator's responsibility to ensure that the IRB's requirements as detailed

in the Institutional Review Board Policies and Procedures For Faculty, Staff, and Student Researchers (available at gsu.edu/irb) are observed, and to ensure that relevant laws and regulations of any jurisdiction where the research takes place are observed in its conduct.

Any unanticipated problems resulting from this study must be reported immediately to the University Institutional Review Board. For more information, please visit our website at www.gsu.edu/irb.

Sincerely,



Jamie Zaikov, IRB Member

Observation Notes

INSTITUTIONAL REVIEW BOARD
University Research Services and Administration

Mailing Address:
P.O. Box 3999
Atlanta, GA 30302-30303

In Person:
58 Edgewood Ave NE
3rd Floor
Atlanta, GA 30303

Office 404-413-3500
Email irb@gsu.edu
Web gsu.edu/irb

Georgia State University

December 17, 2024

Principal Investigator: Sutanuka Bhattacharjya

Key Personnel: Bhattacharjya, Sutanuka; McClure, Emma W

Study Department: Georgia State University, Department of Occupational Therapy

Study Title: OT in the NICU- An Asynchronous Elective Course

Submission Type: Exempt Protocol Category 2

IRB Number: H25333

Reference Number: 382773

Determination Date: 12/17/2024

Status Check Due By: 12/16/2027

The above-referenced study has been determined by the Institutional Review Board (IRB) to be exempt from federal regulations as defined in 45 CFR 46 and has evaluated for the following:

1. Determination that it falls within one or more of the eight exempt categories allowed by the institution; and
2. Determination that the research meets the organization's ethical standards

If there is a change to your study, you should notify the IRB through an Amendment Application before the change is implemented. The IRB will determine whether your research continues to qualify for exemption or if a new submission of an expedited or full board application is required.

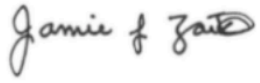
A Status Check must be submitted three years from the determination date indicated above. When the study is complete, a Study Closure Form must be submitted to the IRB.

This determination applies only to research activities engaged in by the personnel listed on this document.

It is the Principal Investigator's responsibility to ensure that the IRB's requirements as detailed in the Institutional Review Board Policies and Procedures For Faculty, Staff, and Student Researchers (available at gsu.edu/irb) are observed, and to ensure that relevant laws and regulations of any jurisdiction where the research takes place are observed in its conduct.

Any unanticipated problems resulting from this study must be reported immediately to the University Institutional Review Board. For more information, please visit our website at www.gsu.edu/irb.

Sincerely,



Jamie Zaikov, IRB Member

Observation Notes Amendment

INSTITUTIONAL REVIEW BOARD
University Research Services and Administration

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Georgia State University

January 28, 2025

Principal Investigator: Sutanuka Bhattacharjya

Key Personnel: Bhattacharjya, Sutanuka; McClure, Emma W

Study Department: Department of Occupational Therapy

Study Title: OT in the NICU- An Asynchronous Elective Course

Review Type: Expedited Amendment

IRB Number: H25345

Reference Number: 383316

Approval Date: 01/08/2025

Expiration Date: 01/07/2028

Amendment Effective Date: 01/28/2025

The Georgia State University Institutional Review Board reviewed and **approved** the amendment to your above-referenced study.

This amendment is approved for the following modification(s):

- Adding outcome letter from Children's Healthcare of Atlanta

The amendment does not alter the approval period, which is listed above, and the study must be renewed at least 30 days before the expiration date if research is to continue beyond that time frame. Any unanticipated events or problems resulting from this investigation must be reported immediately to the University Institutional Review Board.

For more information visit our website at www.gsu.edu/irb.

Sincerely,

Jamie Zaikov, IRB Member

Children's Healthcare of Atlanta IRB Letter

NOT HUMAN RESEARCH DETERMINATION

January 22, 2025

Nashifa Momin
Nashifa.Momin@choa.org

Dear Nashifa Momin:

On 1/22/2025, the IRB reviewed the following protocol:

Type of Review:	Modification / Update
Title of Study:	NHSR: OT in the NICU- An Asynchronous Elective Course
Investigator:	Nashifa Momin
Mod Number:	MOD00008110
Study Number:	STUDY00002444: OT NICU Elective

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations. This project is limited to routine student observation activities. Project is not a systematic investigation nor will contribute to generalizable knowledge. Any information gained from the shadowing experience is within the scope of usual educational and training practices. Project intent is to improve OT training at Georgia State University.

IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are research involving human in which the organization is engaged, please submit a new request to the IRB for a determination. You can create a modification by clicking **Create Modification / CR** within the study.

Sincerely,

Office of the IRB

Submission ID: MOD00008110
Date Effective: 1/22/2025
Date Expiration: