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Formalizing The Virtual Mentoring Space: A Feasibility Study

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Formalizing The Virtual Mentoring Space: A Feasibility Study

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ABSTRACT

Background: Despite high student satisfaction with mentoring programs in occupational therapy education, evidence as to best practices and guidelines is scarce. This study focuses on formalizing the virtual mentoring space program supporting student learning as an adjunct to the OCTH 606 Adult and Older Adult Neurological Occupational Therapy course at Towson University.

Objective: This study aimed to develop a virtual mentoring space for the OCTH 606 Adult and Older Adult Neurological Occupational Therapy course at Towson University.

Study Design: This study was a feasibility study.

Participants: Participants in this study included students enrolled in and faculty affiliated with the OCTH 606 Adult and Older Neurological Occupational Therapy course at Towson University

Methods: This study occurred in multiple phases, which included receiving feedback on the process, implementation, and perceived outcomes from students and faculty. This study utilized needs assessments and satisfaction survey instruments to collect data, descriptive statistics to note trends in score distribution and a content analysis approach for evaluation.

Results: The needs assessment indicated 100% of students (n = 6) and faculty (n = 2) reported the need for a virtual mentor in the course. The content expert checks confirmed alignment of learning modules with the syllabus and suggested modifying content to sharpen analysis and application skills. The satisfaction survey revealed that 100% of students (n = 17) found the virtual mentorship supportive, with 94% (n = 16) highly satisfied with the virtual mentor support and quality. Both faculty members (n = 2) agreed the virtual mentor covered the syllabus content.

Conclusions: Despite student satisfaction with the learning activities and instructional supports utilized in the virtual mentoring space, the program's feasibility for future use is contingent upon the course budget to accommodate adjunct faculty to facilitate a virtual mentoring program for the full semester duration.

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TABLE OF CONTENTS

LIST OF TABLES

The Virtual Mentoring Space

Occupational Therapy Education

Technological advances coupled with the COVID-19 pandemic precautions have changed the way problem-based and case-based learning strategies are implemented (Dhawan, 2020; Sanwick et al., 2019). Occupational therapy education has been described as reflective of the entire continuum of cognitive processes, encompassing remembering, understanding, applying, analyzing, evaluating, and creating (Griswold et al., 2017). Hence, it is imperative that students learn new concepts and apply those concepts to clinical examples (Griswold et al., 2017). Occupational therapy education has traditionally been delivered in either face-to-face or blended learning formats, in alignment with the program's pedagogy. This pedagogical alignment prepares students for entrance into the profession, equipping them with the knowledge and skills necessary to practice in various contexts (Griswold et al., 2017; Gustafsson, 2020).

From undergraduate, graduate, and post-professional education, to professional development courses, information pertinent to the profession is commonly presented using didactic, lecture-based strategies. An alternative to lecture-based learning is the flipped classroom. The flipped classroom is a strategy instructors utilize to enhance didactic teaching and learning strategies by delving deeper into the material while fully engaging learners (Swanwick et al., 2019). In the flipped classroom, students complete readings and listen to lectures prior to class, to be discussed in the subsequent class, intended to lay a foundation and allow them to learn at their own pace (Henderson et al., 2020). However, in occupational therapy education, evidence supporting the use of the flipped classroom is scarce (Henderson et al., 2020).

Mentoring

Mentoring, at the core of skill acquisition, is defined as "a relationship and a process between at least two individuals that provides support and an exchange of knowledge and expertise" (Williams & Kim, 2011, p. 80). The synchronous and asynchronous virtual mentoring process, described as student-centered, is one where the meeting frequency necessary to sustain motivation and focus is subject to change as learning needs change (Doyle et al., 2016). Occupational therapy students perceive mentoring as a means of achieving academically-oriented goals. In contrast, occupational therapy practitioners perceive mentoring as a means of bolstering continued competency and achieving evidence-based practice (Doyle et al., 2019).

Research has suggested that mentoring has positive effects on mentees as it facilitates the development of self-esteem and confidence, both of which are necessary to succeed in educational programs (Kowtko & Watts, 2008). Doyle, Jacobs, and, Ryan 2016) indicated that while existing literature on mentoring in the occupational therapy profession focuses on faculty members or practicing professionals, there is little literature exploring mentoring, mentoring relationships, and mentoring processes for occupational therapy students. This dearth of literature is in spite of research findings indicating that mentoring within occupational therapy programs encourages student satisfaction, professionalism, and productivity in academic endeavors (Doyle et al. (2016). As such, guidelines and best practices vis-a-vis designing mentoring processes are sparse (Gafni et al., 2018).

Virtual Mentor-Mentee Relationship

Despite the scarcity of mentoring guidelines and best practices, virtual mentoring has the potential to benefit both the mentor and the mentee. Professional growth is bi-directional.

Research shows that mentors develop similar self-efficacy and self-confidence in virtual mentoring relationships as their mentees (Neely et al., 2017). In virtual mentor and mentee relationships, mentees develop their expanded professional networks, knowledge base, communication skills, and career goals. In contrast, mentors develop expanded support networks and experience a sense of fulfillment and satisfaction (Neely et al., 2017). With the increasing online presence by institutions of higher learning, virtual learning environments provide integrated tools such as discussion boards and quizzes to support learning, affording students opportunities to seek course-related and moral support from a mentor (Smailes & Gannon-Leary, 2011). Furthermore, access to computer technology networking sites like Blackboard for social commentary can begin and sustain the mentoring process as it breaks down social barriers in the classroom (Smailes & Gannon-Leary, 2011). Virtual learning environments such as Blackboard, in existence since the 1990s, have been well integrated into teaching and learning and can provide opportunities for social mentoring interactions alongside course-related conversations (Smailes & Gannon-Leary, 2011). Doyle, Jacobs, and Ryan (2016) indicated that in addition to the focus on the academic and professional goals of the student, the mentoring relationship provides instrumental support and psychological support to challenge and motivate.

Learning Theories used in Occupational Therapy Education

Capitalizing on the learners' prior knowledge and experiences lays a foundation for acquiring additional skills and subsequent transfer of newly acquired knowledge from one situation to another. This concept speaks to the dynamic interactions among the cognitive, behavioral, and environmental factors that psychologist Albert Bandura asserted to influence learning (Kaufman, 2018). Repetitious and corrective adjustments usually perfect skills during the production of behavior until the behavior matches the internal conception of the experience

(Bandura, 2001). In occupational therapy education, these interactions influence the learning process and shift in power from a dependent learner to an independent, self-directed learner so students can acquire skills for the achievement of academic goals (Booker & Mitchell, 2021; Hollis & Madill, 2016).

Social Cognitive Theory

Social cognitive theory (SCT) used in education posits that the knowledge one acquires results from interactions with the environment as well as from what one sees and hears in order to reproduce desired behavior. SCT emphasizes that the interplay among personal attitudes, perceptions, values, goals, and the environment influences the achievement of goals, thus facilitating self-development, adaptation, and change (Kaufman, 2018; Bandura, 2005). Speaking to the duality of environment and behavior apropos learning, SCT highlights interactions' dynamic and reciprocal nature among various factors such as goals, influences, attitudes, values, knowledge, and prior experiences (Kaufman, 2018). These interactions are not static but subject to change based on the social and physical environment.

Observational learning can take various forms, such as modeling new behavior patterns, judgemental processes, cognitive competencies, and rules to create a new behavior, asserting that individuals learn from that which they notice (Bandura, 1989). Fryling, Johnston, and Hayes (2011) described reinforcements as the personal or environmental factors that may impact the likelihood of a behavior to continue or discontinue. Individuals are likely to model observed behaviors if they result in valued outcomes versus punishing effects (Bandura, 1989). Central to SCT is self-efficacy, which is the judgment of one's skills specific to an activity. Self-efficacy is not only influenced by beliefs and goals but also by perceived barriers and opportunities in the environments in which one may find oneself (Kaufman, 2018). Cook and Artino (2016) suggest that self-efficacy is context-specific and influences one’s motivation to learn.

Adult Learning Theory

Adult learners are described as individuals who can direct their learning, have a collection of life experiences that are resources for learning, have learning needs reliant upon dynamic social roles, are intrinsically motivated to learn and have a desire to apply knowledge (Merriam, 2001). Additionally, contexts in which learning occurs should be considered when applying and integrating knowledge (Knecht-Sabres et al., 2015). Personal life experiences, prior knowledge, and psychological factors can play a role in how adults learn. The reciprocal movement among the factors and contexts allows learners to draw from previous experiences and set goals based on them (Kaufman, 2018). Adult learning theory tailors the learning experience to the cognitive and behavioral processes intended to facilitate the "transfer of learning from academic mode to one that involves more practical content" (Kaufman, 2018, p. 51). Both methods are intended to encourage a degree of personal investment and stake in the learning experience.

The adult learner often relies on their previous knowledge and experiences (Weinstein et al., 2019). Often, a learner's previous experiences are not aligned with the required coursework. The coursework is often more rigorous than initially perceived by the learner. The learner must use prior knowledge and skills to develop new skills, integrate new concepts, and create new abstractions of information. This process often facilitates the learner to develop a new professional learning identity (Weinstein et al., 2019). This type of processing helps increase awareness of what one does know while establishing a foundation of knowledge and skills necessary for learning to occur. Adult Learning Theory posits a power shift from being a dependent learner to a self-directed, independent learner (Kaufman, 2018). Ownership of the

learning experience is taken to make those connections, where goals and processes required for learning are actualized (Kaufman, 2018).

Virtual Learning Environments

Research suggests that combining face-to-face lectures with virtual technologies supports the higher-order learning needs of professional occupational therapy programs (Hollis & Madill, 2006). In-person, virtual, and hybrid learning formats could also supplement lecture and lab-based, didactic learning strategies (Swanwick, Forrest & O'Brien, 2019). According to Gustafsson (2020), blended learning, the integration of face-to-face classroom instruction and virtual educational methods and technologies, is not new to occupational therapy education. McDonald (2020) discusses virtual learning in the context of physician assistant programs and the paradigm shift within health professions education to using blended learning approaches to facilitate and promote active engagement with instructional material and information.

Dhawan (2020) describes virtual learning or learning that is occurring online as a "panacea" in the wake of COVID-19, in that learning environments can be accessed at any time and anywhere, on one's personal schedule. Such methods are used to enhance face-to-face courses and support active learning (MacDonald et al., 2020). To facilitate the cognitive processes that transfer knowledge from the learning environments to clinical application, educators in occupational therapy programs create unique ways of organizing information by utilizing various virtual educational methods (Griswold et al., 2017). Results from Matilla et al. (2020) support the growing body of evidence suggesting that virtual technologies such as discussion board platforms and video simulation technologies such as The International Clinical Educators Video Library (ICE Video Library) and YouTube serve to make instructional content 'come alive'. In this way, students have an audio-visual representation of the instructional

material in order to facilitate a deeper understanding of complex concepts and different perspectives by providing audio-audiovisual explanations that written explanations alone do not (Bachman, 2020). Likewise, video technologies can enhance competence, confidence, preparedness, and clinical reasoning as well as help facilitate the acquisition of psychomotor skills and keen observation skills, all of which are required for the delivery of occupational therapy services. for clinical occupational therapy education. Additionally, discussion, both synchronous and asynchronous, provides opportunities to review quizzes, improve critical thinking and reflective thinking skills, promote collaboration as well as seek differing viewpoints (Bachman, 2020).

Gap In Literature

Doyle, Jacobs and Ryan (2016) suggested that existing literature on mentoring in the occupational therapy profession focuses on faculty members or practicing professionals; there is, however, little research exploring mentoring, mentoring relationships, and mentoring processes for occupational therapy students. This assertion is despite research findings indicating that mentoring within occupational therapy programs encourages student satisfaction, professionalism, and productivity in academic endeavors (Doyle et al., 2016). Additionally, research suggests mentoring has positive effects on the mentees as it facilitates the development of the self-esteem and confidence necessary to succeed in educational programs (Kowtko & Watts, 2008). To address this gap and in order to understand the effectiveness of virtual mentoring programs as well as student perspectives, a theoretically grounded, innovative, evidence-based response ought to be developed (Doyle et al., 2016).

Problem statement

Existing literature has provided little to no evidence regarding the development and effectiveness of virtual mentoring programs despite reports of high student satisfaction with such programs in occupational therapy education. To address this gap and to understand the impact of supplemental virtual programs on instruction, an innovative, evidence-based, theoretically grounded virtual mentoring program was developed. Aiming to formalize and implement The Virtual Mentoring Space that supported student learning in adjunct the Masters-level OCTH 606 Adult and Older Neurological Occupational Therapy course at Towson University, the purpose of this study was to develop a virtual mentoring space and assess feasibility, via satisfaction survey instrument, for integrating a virtual mentoring space program into existing curriculum.

Purpose And Research Questions

This mentoring space included virtual learning modules to support occupational therapy students' knowledge acquisition in the OCTH 606 'Adult And Older Adult Neurological Occupational Therapy' course at Towson University. Accordingly, the research question to which this study sought to respond was: *What are the guidelines for developing a virtual mentoring space program within the OCTH 606 Adult And Older Adult Neurological Occupational Therapy course to supplement traditional classroom instruction? The* sub-question *was: What is the feasibility of this instructional method to be integrated into the occupational therapy curriculum*?

Aims

This study aims to formalize and implement The Virtual Mentoring Space. This mentoring space included virtual learning modules to support occupational therapy students' knowledge acquisition in the OCTH 606 'Adult And Older Adult Neurological Occupational Therapy' course at Towson University. The virtual mentoring space supplemented traditional

classroom instruction. Additionally, this supplemental instructional method was evaluated for satisfaction via a survey. Student and faculty satisfaction was a determining factor in the feasibility of the program's future use.

Methods

Description of the research site

Towson University, an institution of higher education within the University of Maryland System, was the host site for this study. This was the selected site because, at the time of the study, Towson University was the only Accreditation Council for Occupational Therapy Education (ACOTE) accredited graduate-level educational program for occupational therapy in Maryland. Prior to conducting this feasibility study, the primary student researcher secured approval [NCR224030] on August 9th, 2022 from The George Washington University Institutional Review Board (IRB), with which the primary student researcher has an affiliation (see Appendix A).

Participants

This study utilized a convenience sampling of students enrolled in the Fall 2022 OCTH 606 Adult And Older Adult Neurological Occupational Therapy course at Towson University. Additionally, this study used a convenience sample of faculty affiliated with the course, namely the course instructor and the entry-level occupational therapy doctorate program director. Participants must have been enrolled in or have a faculty affiliation with the course. On the first day of class, the primary student researcher presented the project to the potential participants via a prerecorded video detailing the study's aims, procedures, minimal risks, confidentiality, and benefits. The primary student researcher also responded to questions that arose thereafter from potential participants. The primary student researcher provided the informed consent to potential

participants via email containing a Google Drive link to a PDF copy of the document, which they could view, download, or print for their independent review, and also provided one week to ask for additional questions. Potential participants who proceeded with research activities implied consent to being surveyed. The primary student researcher sent an email containing informed consent through the Blackboard course email distribution tool. Potential participants were instructed to contact the researcher with any questions in the interim by anonymously calling the number provided in the informed consent.

Developing The Virtual Mentoring Space

The virtual mentoring space was developed using the principles of the social cognitive theory and the adult learning theory.

Phase One included conducting an anonymous needs assessment survey to identify and understand learning, curricular, programmatic, and virtual mentoring needs as they pertain to the course (see Appendix B). The needs assessment, developed based on instructional supports and learning activities readily available to support student learning within the course, was created in Redcap, and distributed among the students and faculty, including the course instructor and the entry-level occupational therapy doctorate program director.

Phase Two developed learning modules for The Virtual Mentoring Space based on needs assessment survey responses. This phase also included periodic content expert checks to ensure the program was aligned with instruction and meeting the needs of the course. The primary student researcher conducted content expert checks with the course instructor and entry-level occupational therapy doctorate program director via email correspondence. The Content experts were asked the following questions for each of the six virtual mentoring space learning modules: 1) *Is the learning module practical and reasonable?*; 2) *Is the module easy to understand?*; 3)

Are there any problems with the learning module that need to be addressed?; 4) *What modifications, if any, need to be made to the learning module?;* 5) *Is there anything you would like to add to or remove from the learning module?*; 6) *Is there sufficient alignment between the learning module and course content?*; and 7) *Would you like to include any additional information in the learning module?* Once the content experts provided feedback, learning modules were modified as appropriate.

Phase Three conducted a pilot study implementing all the components of the virtual mentoring space. Due to the permissions granted by virtual teaching assistant status within the course, the primary student researcher served as the virtual mentor. The virtual mentor facilitated and moderated interactive discussions, both written and virtual, as well as provided instructional support using learning activities that utilized realistic clinical situations and examples. To protect the privacy and confidentiality of the participants, the primary student researcher, serving as the virtual mentor, was blinded to those students who participated in the needs assessment that occurred in the preceding phase and did not request nor require students to have their cameras on during synchronous sessions.

Students enrolled in the course were asked to participate in at least four of the six learning modules offered in the virtual mentoring space. To incentivize participation, points were awarded by the course instructor. As such, attendance was recorded for each of the synchronous sessions by copying the participant list in Blackboard Collaborate Ultra and pasting the list into a Google Doc table that was shared with the course instructor.

Instructional activities such as online, mini-lectures, video simulations that support case-based learning, and discussion forums were used asynchronously so students could ask more thoughtful questions in the interim as they arose. Students were afforded opportunities for

an independent review of materials as well as peer-initiated questions and answers, which facilitated discussion. The synchronous instructional support and learning activities utilized in the virtual mentoring space included video conferencing and virtual quiz games on Kahoot! platform, discussion surrounding application-based exercises and case studies, opportunities for reflection, and debriefing.

Phase Four surveyed the students on their satisfaction with the program as well as the course instructor and the entry-level occupational therapy program director to evaluate benefits and satisfaction for the feasibility and sustainability of such a program and its alignment with the needs of the course objectives (see Appendix C). The aims of this project included gaining perspective into a) student satisfaction with virtual mentoring; b) students' self-awareness of skills and knowledge acquired from the program as well as c) the course instructor and the program director's perspective on the feasibility and sustainability of the virtual mentoring program. Accordingly, variables are defined as follows: Satisfaction is how well the program met the expectations of the students, course instructor, and program director as a support for learning and as a supplement to instruction within the course. Self-awareness is students' self-reported confidence on the Likert scale in their ability to apply acquired knowledge to realistic clinical situations through module progression. Feasibility is the likelihood that this program can be easily implemented and sustained in future installments of the course based on the program's implementation for this project.

Phase Five included the post-survey analysis and dissemination to The George Washington University and Towson University Occupational Therapy faculty.

Data Collection

Data collected in this study was generated from needs assessment and satisfaction surveys. The primary student researcher created the survey instruments within RedCap, an electronic research data capture survey platform. The needs assessment and satisfaction survey instruments included both open- and closed-ended questions. The survey instruments underwent multiple revisions and peer reviews. Additionally, the survey instruments were piloted by the primary investigator and the co-investigator, distributed via an emailed link, and completed anonymously. Survey data was collected and stored within RedCap, then exported for analysis.

Data Analysis

Data analysis occurred using qualitative content analysis to interpret and understand open-ended question responses to make contextually valid inferences through the frequency of words (Portney, 2020). Additionally, descriptive statistics, namely frequencies and percentages, were utilized to note trends for the group based on score distribution.RedCap was used to perform data analysis.

Needs Assessment Results

The results from the needs assessment surveys indicated that 100% of students (n=6) believed that there was a need for a virtual mentor in the course. The reasons provided varied from the perceived difficulty of the topic area, the pressures and stressors of program demands for success, experience sharing, sharpening focus “on what’s important,” bridging past and future knowledge, “expanding knowledge beyond the textbook,” individualized support, sharing information from a different perspective than that of the course instructor and having opportunities to ask more thoughtful questions that they may not want to ask in class (Table 1).

Table 1. Reasons For Virtual Mentoring Needs In The OCTH 606 'Adult And Older Adult Neurological Occupational Therapy Course

Reason Provided
"Classes that are focused on neurology tend to be particularly difficult for students, and having a TA or mentor is beneficial".
"This program is difficult, and the demand for academic excellence puts a lot of pressure on students. Mentor would help alleviate some of the burden students feel while in the program by helping us see the bigger picture and focus on what is important. The first year is already hands-on and application-based information, and for those with no background and with a lack of assistance, school becomes stressful instead of an exciting and welcoming challenge. For foreigners, Africans, Spanish-speaking individuals, and other individuals of color, a mentorship could be a great way to connect and learn from those who have been through what you are currently going through".
Classroom theory and experiential/fieldwork learning is very different, so having a mentor to bridge past and future knowledge would be beneficial! It is easy to get lost when an end goal isn't presented or reminded of, so having an older mentor will complete the "big picture" of OT. Examples from clinic work or real-world demonstrations will be effective in expanding knowledge beyond the textbook".
I think having the extra resources is always a great idea. One-on-one time will allow us to ask more thoughtful questions we may not want to ask in the class setting".
"Any additional support or point of view is valuable".
I assume it would be helpful to have a mentor for this course, but I can't say for sure as I don't know what the course will be like. However, I understand we have fieldwork. In my previous fieldwork, I would've liked more 1:1 support, such as from a mentor. Therefore, I can see a similar need arise".

One hundred percent (100%) of faculty (n=2) also indicated the need for individualized virtual mentoring to support student learning within the course beyond standard instructor office hours. The course instructor noted that while interactions with students were moderate in frequency, these interactions were high in quality. Nevertheless, the course instructor also indicated that "students might be more apt to ask questions of the mentor in a low-pressure, small group setting than in class, especially those who are shy or struggling grade-wise". Despite

indicating a need for virtual mentoring, the course instructor also voiced concern regarding the sustainability of such a program with just a lone instructor.

Additionally, the entry-level occupational therapy doctorate program director indicated a need for individualized virtual mentoring beyond the course instructor's office hours. The reasons provided for the mentoring needs within the course pertain to the difficult and complex nature of the topic and acquiring the knowledge "to distinguish the differences among conditions to "discern appropriate courses of action to take based on personal, contextual, and occupational factors". Furthermore, it is suggested that these courses of action are discernable through explanations, examples, and practical applications from different perspectives.

Results from the needs assessment survey also indicated which learning activities were the most beneficial to students as well as the instructional supports that best supported their learning in the course. The students who completed the needs assessment survey identified the following learning activities as the most beneficial: peer-initiated questions and answers, video simulations, discussion forums, virtual quiz games, and opportunities for reflection. Additionally, other instructional supports identified included practice tests and Kahoot!s, application-based exercises, and case studies, as well as opportunities for reflection (Table 2).

Table 2. Learning Activities Identified As Beneficial

Learning Activity	**Score Distribution (frequency)** *n=6*
Peer-initiated Q & A	83% (5)
Video simulations	83% (5)
Discussion forums	50% (3)
Virtual quiz games	50% (3)
Opportunities for reflection	50% (3)
Other	33% (2)

The instructional supports that students felt would best support their learning were identified as interactive, online mini-lectures, videoconferencing, in-class discussion, instructor feedback, and debriefing. In addition, the other instructional support was identified as going over heavy and confusing topics regularly (Table 3).

Table 3. Instructional Supports Identified To Best Support Learning

Instructional Support	**Score Distribution (frequency)** *n=6*
Debriefing	100% (6)
Interactive, online mini-lectures	83% (5)
Instructor feedback	83% (5)
In-class discussion	83% (5)
Video conferencing	33% (2)
Other	16% (1)

Moreover, the needs assessment identified qualities and characteristics a mentor should possess, exhibit, and demonstrate to be effective. Those qualities and characteristics included flexibility, positivity, approachability, humility, kindness, compassion, and empathy. Additionally, it was indicated that an effective mentor should be able to utilize different learning tools based on students' needs and preferences, not pass judgment nor draw comparisons as well as be a good communicator when sharing realistic situations when conversing as one would with a peer or colleague to help prepare the student mentee. Lastly, an effective mentor should be able to "address the impacts of diversity, equity, and inclusion on studies and career with student mentees" (Table 4).

Table 4. Effective Mentor Qualities And Characteristics

Qualities And Characteristics
“Kind, friendly, flexibility, and willingness to help others”.
“Flexible, non-judgmental, gives constructive feedback, uses students' strengths and weaknesses to guide or help them, avoids comparison, good communication, and can use different learning styles".
“The mentor should have compassion and empathy in reflecting on their first experience with the topic matter, even though they are now experienced. Being able to recognize where the mentee currently is will allow the mentor to cater learning tools that best help the mentee. The mentor should also be positive and passionate, while also presenting as realistically as possible, to prepare the student".
“Be able to provide real-life scenarios and talk to us students as more of a co-worker and not from a teacher's perspective".
“Accepting, positive, approachable".
“Knowledgeable with a helping attitude; patient and humble; addresses how diversity, equity and inclusion impacts studies and career".

Content Expert Check Results

Each learning module developed for the virtual mentoring space underwent content expert checks. The content expert checks generated feedback that facilitated the modifications of the learning modules as appropriate to ensure alignment with the current curriculum. While the feedback provided sufficient guidance for which module components needed to be addressed, it also offered different complementary perspectives from the faculty affiliated with the course, namely the course instructor and entry-level program director. There was also an agreement between the content experts pertaining to alignment with the course, as well as suggestions for modifying areas to be addressed.

Module One Age-Related Sensory Changes

Module one was presented as an online, interactive mini-lecture centered around age-related sensory changes. This module included video simulations as well as synchronous and

asynchronous discussions that allowed students opportunities for reflection as well as critical thinking. The course instructor agreed with the feedback provided by the entry-level occupational therapy doctorate program director regarding module components that needed to be addressed. Both faculty content experts indicated that students could benefit from further discussion regarding interventions as that seems to be an area with which many students have struggled. As such, guiding questions were developed to facilitate discussions that occurred in the synchronous session as well as asynchronously on the discussion board (See Table 5). Additionally, the course instructor provided insight into the focus of the module topic as well as the in-class learning activity in which the students would participate. Moreover, this module was the impetus for determining when to conduct the synchronous mentoring sessions and open the discussion board for asynchronous discussion based on the current participating cohort's course schedule.

Table 5. Module One Content Expert Check

Content Expert Feedback	**Modifications Made**
"It's very helpful for those who need a little extra explanation".	–
Encourage peer interactions on the discussion board. Update hearing video to reflect new legislation for Over The Counter (OTC) hearing devices	Encouraged students to engage with peers on the discussion board, following the facilitated synchronous discussion. In the absence of a suitable video, the facilitated discussion addressed the legislative changes pertaining to OTC hearing devices.
Determine synchronous meeting times and asynchronous discussion board availability	Two synchronous sessions were offered weekly. The discussion board was 'open access' meaning students could access the boards anytime during the 6-week duration.
Focus on intervention to address sensory loss. Students are familiar with adapting and grading	Facilitated synchronous & asynchronous discussion with opportunities for peer-initiated Q &A with instructor feedback

Module Two Motor Control Assessment

Presented as an online mini-lecture focused on motor control assessment, module two included the following components; synchronous and asynchronous discussion as well as a virtual quiz game on the Kahoot! platform. The faculty content experts concurred that module two demonstrated alignment with course content pertaining to motor control assessment was practical and easy to understand. As such, the module component that was suggested as needing modification was taken under advisement to determine how best to add an experiential activity. To maintain alignment with the content presented in the module, the suggested modification was addressed using images students may understand, such as noodles in raw, al dente, and boiled forms, to allow them to conceptualize rigidity, spasticity, and flaccidity (See Table 6).

Table 6. Module Two Content Expert Check

Content Expert Feedback	Modifications Made
“I like the analogies you use that are different from what is described during the lecture for the course". “I like that it is short and concise".	–
“It would be great if you could give students some kind of experiment to try at home to help them learn about spasticity and flaccidity from an additional perspective".	Facilitated discussion with guiding questions and relatable examples with replicable practical applications to offer an additional perspective.
“Would like more information on what will be discussed during the synchronous discussion. Will it be more like a question/answer time or more structured”?	Provided details regarding synchronous session structure. “It is intended to be a healthy balance of Q & A and structure. Guiding questions were prepared to facilitate discussion as well as a Kahoot! [for] participants to play.
Concerns were raised regarding scant student participation	An email reminder was sent notifying students of synchronous session times and clarifying how points were earned for participation.

Module Three Neurological Rehabilitation

Module three was presented as an online mini-lecture with a supplemental component, with synchronous and asynchronous discussion as well as a Kahoot! virtual quiz game focused on neurological rehabilitation. The content experts indicated that the module was both practical and easy to understand, for the most part, noting that navigating to the module supplement was awkward as it was linked within the corresponding slides. In every effort to minimize awkwardness, the supplemental package link was included in the module's table of contents slide and listed separately in the module details on Blackboard. It was also noted that there should be opportunities to question student participants to encourage the application of concepts within different contexts (See Table 7).

Table 7. Module Three Content Expert Check

Content Expert Feedback	Modifications Made
"It will be important that you ask students to apply and analyze more often".	Facilitated discussion with case-related questions to encourage practical application/critical thinking.
"You may want to add a slide or two about DD [Degenerative Disease] - we do a compare and contrast activity between CVA, SCI, TBI, and DD"	Added an additional slide on DD to the module (slide #6) and supplemental package (slide #6) to support in-class learning activity.
""Yes"., I would focus on comparing and contrasting the generalizations of each dx; agree and add more analysis-level questions"	Facilitated discussion to compare and contrast CVA, SCI, and DD using case-related, practical application guiding questions.

Module Four Spin The Wheel Review

Presented as an online mini-lecture review for exam one, module 4 was formatted as an interactive 'spin the wheel' game. Additionally, this module included synchronous discussion

and Kahoot! Virtual quiz game. Content experts concurred that the module was a “nice review". Nevertheless, they indicated students should be able to apply concepts to clinical situations in order to progress with the course. As such, guiding discussion questions and a Kahoot! virtual quiz game centered around case examples for practical content application to mirror exam format was developed. (See Table 8).

Table 8. Module Four Content Expert Check

Content Expert Feedback	**Modifications Made**
“Nice review! I like that you refer students back to prior learning modules” “I agree”!	–
Upper and lower motor neuron content is switched in the 6-option spin (slide #4)	Corrected by modifying slides # 9 & #10 titles to correspond to the wheel.
“It would be great if some of the items moved students to understanding and application on these wheels. For example, asking students to distinguish between concepts versus knowing the definition” “The case applications in the 24 spin wheel are good! It would be good to include answers for those questions and those where students are supposed to think about concepts”.	Facilitated discussion with case questions to encourage clinical reasoning and differentiate concepts for appropriate contextual application. Facilitated peer-initiated Q & A, surrounding case questions to encourage peer-to-peer interactions and critical thinking.
“In the cranial nerve part, add 3,4,6 that are specific to vision because we explicitly discussed them in class”	Content added to reflect suggestions,
“Topics are aligned, but the depth of the review could be improved. Students need to know this content well in order to move forward in the course and need to be able to apply and analyze these concepts/information".	Facilitated discussion and encouraged peer-initiated Q & A, which afforded opportunities for ‘instructor feedback’ to clarify content-related misunderstandings. Kahoot! Developed with application/analysis-based questions.

Module Five Neurological Case Example

Module five, presented as a neurological case example in an online mini-lecture format, was developed to systematically guide the participant through the occupational therapy process. Additionally, this module was designed to encourage critical thinking and the application of knowledge necessary for clinical reasoning by laying a foundation for intervention selection (See Table 9).

Table 9. Module Five Content Expert Check

Content Expert Feedback	Modifications Made
Nice application and analysis, thanks for sharing your story".	–
"May need more information on bac pumps - we have not reviewed in class yet. Why would a client get it? Why taken out? What to expect? What are the trials like?"	Developed guiding questions to facilitate discussion centered around Baclofen pumps to encourage student-initiated Q&A and deepen understanding
" It would be good to have students provide answers to the case application questions with a justification for their answer. This mirrors how some of the test questions are formulated. There could be a good discussion around which answers were the BEST".	Facilitated discussion centered around module-related case questions to encourage peer-to-peer interactions with mentor feedback.

Module Six Motor Control And Motor Learning

Module six was developed and presented as an online mini-lecture with discussion, both synchronous and asynchronous, as well as Kahoot! Components that focused on motor control and motor learning. Additionally, module discussions were focused on clarifying content-related misunderstandings and case-based applications. Kahoot! virtual quiz game questions were

formulated to have players encourage student-mentor interactions to refine skills necessary to analyze information and apply knowledge to clinical situations relative to motor control and motor learning frame of reference (See Table 10).

Table 10. Module Six Content Expert Check

Content Expert Feedback	Modifications Made
"Add reflex part to Brunnstrom"	Reflex (developmental sequence) bullet added to the corresponding slide (#15).
"I would add some Kahoot application questions for which the explanation for the correct answer is provided. At this point in the semester, students should be building upon what they already know and refining their application and analysis skills. "	Facilitated discussion surrounding module case examples to explain the appropriate application. Developed Kahoot! with application-based questions to sharpen analysis skills.

Satisfaction Survey Results

Satisfaction with The Virtual Mentoring Space was evaluated via a survey that asked participants to respond to closed and open-ended questions. The survey was completed in RedCap by students as well as faculty, which included the entry-level occupational therapy program director and course instructor. While the feedback was primarily positive, it offered insight into which learning activities and instructional supports were the most beneficial in support of learning and understanding of lab and lecture content, as well as which components could be improved. Moreover, the satisfaction survey provided perspective on student satisfaction with the virtual mentoring space, the quality of support provided by the virtual mentor, as well as the program's feasibility as perceived by the faculty affiliated with the course.

Of the 17 student survey respondents, participants indicated that they visited the virtual mentoring space twice, at the minimum. While the survey indicated that scheduling conflicts prevented one (n= 1) participant from visiting more frequently, it was suggested that an

availability survey be conducted better to accommodate the course and activity schedules of students. Considering students were asked to participate in four out of the six learning modules that were offered, eleven (n= 11) of the survey respondents indicated they had visited the virtual mentoring space at least four times, thus earning points that incentivized their participation. Five of the student participants who completed the survey indicated they had visited the virtual mentoring space three times (See Table 11).

Table 11. Number Of Virtual Mentoring Space Visits

Number Of Visits	Visit Distribution (*frequency) n=17*
2	6% (1)
3	29% (5)
4	17% (3)
5	24% (4)
6	24% (4)

With respect to student perception of their interactions with the virtual mentor, 12% (n = 2) of respondents indicated a neutral feeling about said interactions, whereas 88% (n=15) described them as beneficial. One hundred percent of survey respondents (n=17) indicated that the learning modules were clear and concise. Additionally, student respondents stated that “the modules were very helpful in providing students with concise and key points of lectures allowing us to comprehend the material better”.

One hundred percent (100%) of student survey respondents (n = 17) indicated the learning activities utilized in the learning modules were beneficial. Survey respondents provided various reasons that included connecting information taught in class to real-world, case-based

applications and emphasizing key points of lab and lecture content, which was helpful for studying in preparation for the first exam (Table 12).

Table 12. Learning Activities Identified As Most Beneficial

Learning Activity	**Score Distribution (frequency)** *n=17*
Virtual quiz games	100% (17)
Opportunities for reflection	65% (11)
Peer-initiated Q & A	47% (8)
Discussion forums	35% (6)
Video simulations	24% (4)
Other	6% (1)

The instructional supports student survey respondents felt best supported their learning in the course included online mini-lectures, video conferencing, instructor feedback, in-class discussion, and debriefing. As such, it was noted that one survey respondent indicated that “The thoroughness and case study examples in the module [Google Slides] presentations supported my learning best in a mini-lecture format". Additionally, students stated that the Google Slides module presentations were “a great study tool they found a lot of benefit in looking through and “having the opportunity to ask questions about the modules via video [conferencing via Blackboard Collaborate Ultra] was also most helpful". (See Table 13) While characterized as a learning activity, the other instructional support that was identified as supporting student learning was Kahoot! virtual quiz games.

Table 13. Instructional Supports Identified That Best Supported Learning

Instructional Support	**Score Distribution (frequency)** *n= 17*
Interactive, online mini-lectures	88% (15)
Video conferencing	71% (12)
Debriefing	35% (6)
In-class discussion	35% (6)
Instructor feedback	18% (3)
Other	6% (1)

When asked to rate *how satisfied they were with the quality of support provided by the virtual mentor* and *how satisfied are you with [their] virtual mentor, 94% of* respondents (n=16) indicated that they were very satisfied, whereas six percent (n=1) responded with a neutral rating and ninety-four percent of respondents (n= 17) indicated that they were very satisfied, respectively. While six percent (n=1) responded with a neutral rating regarding the quality of support the virtual mentor provided, no additional feedback was provided. Nevertheless, student respondents highlighted Selina's effective facilitation of discussion, case-based application of the content learned from the modules, and use of Kahoot! quizzes at each review session, allowing students to test their knowledge and comprehension of the material. She was instrumental in students ' ability to make sense of all the information that was thrown at them". Moreover, student respondents emphasized that Selina created a safe and non-judgmental space where they felt comfortable asking questions. Students also reported an appreciation for her knowledge-sharing and ability to make complex concepts understandable through various

realistic and relatable examples. Selina's qualities as an effective communicator, good listener, knowledgeable, confident, empathetic, challenging, and funny were identified as factors that facilitated and reinforced student learning. The feedback also highlighted Selina's leadership skills, as she was described as encouraging, helpful, kind, pleasant, and fun. It was also noted that "Selina is a great leader" who was encouraging, helpful, kind, pleasant, and fun (See Table 14).

Table 14. Mentor Qualities Demonstrated Believed To Facilitate And Reinforce Learning

Mentor Quality	Score Distribution (frequency) *n=17*
Knowledgeable	100% (17)
Effective communicator	94% (16)
Confident	94% (16)
Empathetic	94% (16)
Good listener	88% (15)
Funny	82% (14)
Challenging	59% (10)
Other	6% (1)

While 71% of the students (n = 12) who responded to the satisfaction survey indicated that the learning modules contributed to the knowledge gained in the course, 29% indicated that the modules occasionally contributed to their learning. Students were asked to *describe [their] confidence in skills and knowledge acquired from the virtual mentorship experience*, and while 23% described their confidence as neutral, 77% described it as very confident. Nevertheless, when asked if *this virtual mentorship experience was a good support system for [their] learning preferences and understanding*, 100% of survey respondents indicated that "yes" it was, adding that it "improved [their] grades and self-efficacy". Moreover, students added that the virtual

mentoring space was a “great supplement to the class, rounding out areas the professor did not have time to focus on, giving us a scaffold for knowledge and two distinct teaching styles,” and stated to “definitely continue this program!”. Despite positive feedback from the students who responded, the faculty satisfaction with the virtual mentoring space varied between the entry-level occupational therapy doctorate program director and the course instructor. The entry-level program director expressed the potential program continuation with ongoing refinement, while the course instructor expressed the unlikelihood of continuation due to budget constraints and the additional workload of implementing the Virtual Mentoring Space program alongside teaching. In spite of this, the course instructor acknowledged the positive impact on student understanding and suggested involving a graduate assistant to facilitate The Virtual Mentoring Space. The program director reported potential cost-effectiveness by reducing time spent answering student questions, while the course instructor noted that the virtual mentor's content aligned well with the syllabus and proposed implementing it for the full duration of the semester.

Evaluation

This study utilized a content analysis approach for evaluation, which could be used to inform decisions about its future as well as summative and formative evaluation processes for program revisions to improve its efficacy. Quantitative information served as the basis for the summative evaluation method and allowed for individual performance to be documented relative to the achievement of curricular objectives, competencies, and assessment of the individual who implemented the virtual mentoring space curriculum. Additionally, satisfaction surveys were conducted with students, the course instructor, and the program director to obtain feedback on how well the virtual mentoring space met their expectations. This evaluation method could lead

to behavior or practice changes regarding the ways in which information is presented should this program be adopted for future use within the course. As such, this feasibility study lent itself well to ascertaining perceptions of efficacy and value that translated into suggestions for improvement.

Costs

This study redeployed human resources and course materials allocated and budgeted-for within the course as a "hidden opportunity cost". The resources required to implement the virtual mentoring space include a) the time and energy of the course instructor, primary student researcher (teaching assistant; virtual mentor), and students; b) the virtual learning platform; c) course materials; and d) course budget. While the itemized resources were required and available within the course, they were vital for the successful implementation of the virtual mentoring space and its associated curriculum. At the time this study was conducted, the course budget was not impacted due to the primary student researcher, who also was the teaching assistant for the course, served as the virtual mentor, donated her time, energy as well as personal and professional expertise to facilitate the virtual mentoring space. There was a current third-year occupational therapy student who functions as a graduate assistant and was reimbursed for their time.

Considering virtual mentoring, structure aside, may be beyond the scope of a teaching assistant, future costs would include financial resources to reimburse adjunct faculty (e.g., lab instructor) for time and energy spent to facilitate the virtual mentoring space for the duration of the entire semester. While further investigation is warranted, this feasibility study highlights the need for additional course resources. These resources include financial as well as human resources, such as the time and energy of implementing and participating parties in order to

effectively incorporate best practices and guidelines for sustaining virtual mentoring programs as a supplement to traditional classroom instruction.

Discussion

This use of learning activities and instructional support aligns with the Towson University institutional and departmental mission, which encompasses supporting critical thinking, fostering intellectual inquiry, and promoting clinical reasoning; this alignment enables students enrolled in the neurological occupational therapy course to "think like therapists" (Towson University, n.d.). In this way, preparing occupational therapy students to enter the profession supports Towson University's mission, which aims to prepare graduates to serve as effective, ethical leaders and engaged citizens (Towson University, n.d.).

The virtual mentoring space capitalized on both the synchronous and asynchronous nature of virtual learning environments and shifted power to the learners to take ownership of their learning. Serving as an additive, supplemental instructional method, the learning modules utilized different types of instructional technologies designed to support the higher-order learning needs of occupational therapy students in a virtual environment (Swanwick, Forest & O'Brian, 2019; Hollis & Madill, 2006). As products and producers of the environment, students reported that having "low stakes" opportunities to ask questions in a safe space where it "was okay to be wrong" was helpful and allowed them to learn from the mentor and each other in a small group setting. The Virtual Mentoring Space facilitated students' achievement of academically-oriented goals and improved their self-efficacy, as there was an exchange of knowledge and expertise (Doyle, Lachter & Jacobs 2019). Participation points awarded by the course instructor provided reinforcement to facilitate learning in the course. This incentive was to encourage learners and reinforce the self-directed nature of adult learning, as they had to make an active choice to

participate, hence taking ownership of their learning experience. These acts of personal agency, self-directed learning, and reinforcement to continue performing desired behaviors within a virtual learning environment describe the theoretical foundation on which The Virtual Mentoring Space is built. As such, the Virtual Mentoring Space program addresses the gap in the literature pertaining to the determination of best practices and guidelines for the development of theoretically grounded virtual mentoring programs in occupational therapy education.

The duality of learning activities and instructional supports embodies the pillars of the social cognitive theory and reinforces alignment with adult learning theory, thus facilitating the reciprocal interactions among environment, cognitive skills, acts of personal agency, observational learning, and reinforcement to draw from previous knowledge to produce desired behavior, which in turn, are outcomes of knowledge and skill expansion (Bandura, 2010; Kaufman, 2018). Additionally, tailoring the learning experience to the cognitive and behavioral processes facilitated the "transfer of learning from academic mode to one that involves more practical content" and encouraged a degree of personal investment and stake in the experience (Kaufman, 2018, p. 51).

The Virtual Mentoring Space supplemented traditional classroom instruction by utilizing flipped classroom methodology. The flipped classroom was utilized to allow students to review the modules that were posted in the Blackboard course prior to the interactive, synchronous sessions moderated by the virtual mentor twice weekly. The flipped classroom instructional strategy allowed students to delve deeper into the material and be fully engaged while learning at their own pace (Swanwick, Forrest & O'Brien, 2019; Henderson et al., 2020). Students seemed to prefer the online mini-lectures and virtual quiz games, as well as both synchronous and asynchronous discussions that resulted in interactions with the virtual mentor. As suggested by

Lachter and Ruland (2018), the role of a mentor included the provision of feedback based on observed performance, one-on-one instruction, and emotional support, in addition to serving as a role model and encouraging reflection through guided discussion.

Moreover, the fulfillment of the mentor role, as well as the establishment and maintenance of mentoring relationships, were supported through the utilization of the aforementioned learning activities, instructional strategies, and technologies in a virtual learning environment.

Accessing the virtual mentoring space offered students flexible, innovative opportunities to reinforce learned information. Integrating virtual instructional technologies that are relatively new to students increased active learning and broke the monotony of utilizing traditional, familiar classroom teaching and learning strategies. Additionally, introducing students to new instructional technologies increased their awareness of what course content is known or unknown. This awareness impacted the confidence students have in their acquired skills and knowledge, which provided opportunities to develop critical thinking and keen observation skills necessary for the practical application of the information in contextually appropriate situations. It is this awareness that facilitates the development of one's professional identity by improving self-efficacy—the central pillar of social cognitive theory— and drawing from previous knowledge, skills, contexts, and experiences to abstract information—which adult learning theory characterizes as the way in which adults learn (Kaufman, 2018, Weinstein et al., 2019).

More research is needed to investigate student perception of instructional technologies for application to active learning (Bachman, 2020). As such, many of the students who engaged with the virtual mentoring space expressed their satisfaction with the integration of instructional technologies on a virtual learning environment platform such as Blackboard. The Blackboard

features, Collaborate, and discussion boards helped establish the mentoring relationship and sustain its duration. Using Blackboard as the virtual learning environment supported the use of other instructional technologies, including the online 'mini-lecture' Google Slides presentations that infused video streaming and video simulation technologies in addition to Kahoot! virtual quiz games. These instructional technologies helped to facilitate modeling, observation, and the achievement of learning outcomes (Bachman, 2020). Moreover, feedback from both the virtual quiz games and the mentor helped reinforce learned information, desired behavior, and skills, which ultimately supported the learning needs and preferences of participating students. Although, despite high student and faculty satisfaction, the determining factor in the feasibility of the program's future use remained the constraints of the course budget, disallowing adjunct faculty to implement the program as designed and be justly compensated.

Implications For Occupational Therapy Education

This study offers insight into virtual mentoring program development as it pertains to guidelines for integrating this supplemental instructional method into the existing occupational therapy curriculum. Additionally, this study contributes to the existing body of literature regarding the determination of best practices and guidelines for developing virtual mentoring programs to support students' learning as a supplement to traditional classroom instruction based on student and faculty satisfaction. Each institution of higher learning that offers occupational therapy education is reflective of its unique institutional mission to support students' learning needs and preferences.

Furthermore, it is essential to build upon the determination of which best practices and guidelines can be implemented and integrated into respective curricula to ensure optimum student success and satisfaction. Addressing the gap in the existing body of literature with a

theoretically grounded, innovative program inadvertently amplifies the need for programs such as The Virtual Mentoring Space. In this way, The Virtual Mentoring Space program has the potential to support emerging trends in occupational therapy education that facilitate the development and enhancement of guidelines for professional expertise beyond traditional teaching and learning methods. Despite its benefits, consequences of redeploying existing budgeted-for course resources include risks of inadequate support for staffing necessary to support the needs of a supplemental course resource such as The Virtual Mentoring Space.

Limitations

While the virtual mentoring space met student expectations and was successfully implemented, it was not without flaws. Based on student feedback, it was suggested that an availability survey be conducted to accommodate students' course and activity schedules.

With the course divided into two sections, the synchronous session times were selected based on the master schedule that indicated times that each cohort would not be otherwise engaged in program-related curricular activities. Despite synchronous sessions being offered twice weekly—one afternoon and one evening session—it was difficult to cater to every student's schedule. As such, the limitations of this study included a small sample, a six-week duration, and that implementation was limited to one specific course at a single institution. Participant self-selection may have primed a positive experiential viewpoint. It is this combination of factors that, in turn, limits the generalizability of the virtual mentoring space program to other institutions and occupational therapy courses.

Conclusion

This study informs guidelines for developing a virtual mentoring program that is feasible to supplement traditional classroom instruction. As such, this study identified guidelines for the consideration of integrating this instructional method into the current occupational therapy curriculum in place at Towson University.

Despite positive feedback from students regarding their perception of satisfaction with and self-awareness of skills and knowledge acquired from the program, the feasibility of a virtual mentoring program such as the one implemented in this study is dependent upon the course budget. It was indicated that the course budget does not currently support adjunct faculty, which would make it difficult for the course instructor to implement the program in addition to teaching the course in the future. This, then, validated the concern raised by the course instructor regarding the sustainability of the program, should implementation become the responsibility of the lone instructor. Nevertheless, given the structure provided, someone other than the teaching assistant (e.g., a graduate assistant) could, in essence, facilitate the virtual mentoring space. With the modules already completed and set up in Blackboard, the graduate assistant could implement the virtual mentoring space. In this way, students could access the asynchronous content on their own, and the teaching assistant could facilitate the synchronous components, which is a potentially viable option for future use. To that point, students serving as graduate assistants would lack the professional insight of an experienced, board-certified, and licensed occupational therapist to facilitate the synchronous sessions and respond to discussion forum posts accordingly. Considering the program's alignment with the syllabus, the virtual mentoring space could be integrated into the current curriculum, as allowed by the constraints of the course budget. However, in order for the program to maintain alignment with the content covered in the

syllabus and be fully integrated into the current occupational therapy education curriculum for future use, the virtual mentoring space ought to be the duration of the entire semester rather than limited to six weeks. In this way, budgeting for adjunct faculty to facilitate and sustain the longevity of The Virtual Mentoring Space program would be justified. As the profession continues to seek ways to support emerging trends in occupational therapy education, further investigation into how to financially support this student resource may be required.

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Appendix A Institutional Review Board Approval

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Date: August 09, 2022
To: Roger Ideishi, JD
From: The George Washington University Committee on Human Research, Institutional Review Board (IRB), FWA00005945
Subject: **NCR224030,** *"The Virtual Mentoring Space"*
Risk Level: **Not Greater than Minimal Risk under 45 CFR 46 / 21 CFR 56**
Status: Open

IRB Approval Date: 08/09/2022

The George Washington University's Institutional Review Board **fully approved** the above referenced study via expedited review procedure under:

- Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies of 45 CFR 46.110.

This approval is limited to the activities described in the approved IRB Application. Modifications may not be initiated without prior IRB review and approval except where necessary to eliminate apparent immediate hazards to human participants.

Under the HHS regulations at 45 CFR 46 (2018 Common Rule), it has been determined this research study does not require continuing review and does not have an expiration date.

This protocol has been approved for **a maximum number of 32 subjects** to be enrolled under the auspices of George Washington University. If you wish to increase enrollment beyond this number, you must submit a modification request to the IRB and obtain approval before exceeding this number.

WOD MINIMAL RISK: The IRB has determined that a waiver of the subjects' signature as documentation of consent for **STUDY POPULATION** is justified under 45 CFR 46.117 (c2) based on the following criteria:

1. The research presents no more than Minimal Risk to subjects.
2. The research involves no procedures for which written consent is normally required outside of the research context.
3. The investigator will provide a written statement regarding the research that embodies the elements of consent.

SITE PERMISSION(S) IN PLACE: The George Washington University Committee on Human Research has received site permissions for you to conduct research at the following sites:

- *1. Towson University*

Refer to posted OHR guidance for requirements regarding in-person research interactions during the COVID-19 pandemic.

Appendix B Needs Assessment Survey Stakeholder Questions

Student Questions

Needs Assessment
1. Based on prior occupational therapy courses you have taken, do you think a virtual mentor (whose role is to provide one on one instruction and feedback, and serve as a role model virtually by sharing knowledge and expertise) is needed in the OCTH 606 Adult And Older Adult Neurological Occupational Therapy course? ☐ Yes ☐ No
2. Please provide a reason for your response to question #1
3. What learning activities do you feel are most beneficial to you? (Select all that apply) ☐ Peer-initiated Q & A ☐ Video simulations ☐ Discussion forums ☐ Virtual quiz games ☐ Opportunities for reflection ☐ Other
4. If you selected "other", please describe what learning activities are beneficial to your learning.
5. What instructional supports in the virtual mentoring space do you feel would best support your learning in the course? (Check all that apply) ☐ Video conferencing ☐ Interactive, online mini-lectures ☐ Instructor feedback ☐ In-class discussion ☐ Debriefing ☐ Other

6. If you selected "other", please describe what resources support your learning?
7. What qualities and characteristics do you believe an effective mentor should have (possess/exhibit/demonstrate)?

Course Instructor questions

1.Do you believe there is a need to provide regular individualized or small group virtual mentoring beyond regular instructor office hours for this course? ☐ Yes ☐ No
2. Please provide a reason for your response to the previous question
3. Based on previous experience teaching the neurological occupational therapy course, how did you perceive the frequency of interactions with the students enrolled in the neurological occupational therapy course? ☐ Infrequent ☐ Moderate frequency ☐ Frequent
4. Based on previous experience teaching the neurological occupational therapy course, how did you perceive the quality of interactions with the students enrolled in the neurological occupational therapy course? ☐ No Quality Interactions ☐ Adequate Quality Interactions ☐ A Lot of Quality Interactions ☐ Substantial Quality Interactions

5. How do you envision mentor-mentee interactions in the virtual mentoring space?
6. Please provide a reason for your response to question #5:

Program Director questions

1. Do you believe there is a need to provide regular individualized or small group virtual mentoring beyond regular instructor office hours for this course? * must provide value ☐ Yes ☐ No
2. Please provide a reason for your response:
3. What additional resources do you feel are needed to support student learning in the neurological occupational therapy course?

Appendix C Satisfaction Survey Stakeholder Questions

Student

Satisfaction
1. How often did you visit The Virtual Mentoring Space"? ☐ Never ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
If you have never visited the virtual mentoring space or only visited once or twice, could you please describe the reason(s) why? (branching logic if never, 1 or 2 is selected^)
2. How would you describe the interaction with the virtual mentor? ☐ Not beneficial ☐ Neutral ☐ Beneficial
3. Were the learning modules clear and concise? ☐ Yes ☐ No
Please provide a reason for your response to the previous question (branching logic if no is selected^)
4. How beneficial were the learning activities in enhancing your understanding of instructional content taught in lab and lecture? ☐ Not beneficial ☐ Neutral ☐ Beneficial
5. How satisfied are you with your virtual mentor? ☐ Not satisfied

☐ Neutral ☐ Satisfied
6. What qualities did the virtual mentor demonstrate that you believe were the most beneficial to facilitate and reinforce your learning? (select all that apply) ☐ Effective communicator ☐ Good listener ☐ Knowledgeable ☐ Confident ☐ Empathetic ☐ Challenging ☐ Genuine ☐ Funny ☐ Other
If ”other” please describe here.
8. Do you think the virtual mentoring learning modules contributed to the knowledge gained in this course? ☐ YES ☐ NO ☐ Occasionally
9. Is this virtual mentorship experience a good support system for your learning preferences and understanding? ☐ YES ☐ NO ☐ Occasionally
10. Describe your confidence in skills and knowledge acquired from the virtual mentorship experience ☐ Not confident ☐ Neutral ☐ Confident
11. Please provide any additional comments you may have.

Course Instructor questions

1. How did the content covered by the virtual mentor align as a supplement to course instruction as outlined in the syllabus?

2. How do you see the virtual mentoring space fitting into the course curriculum for future use?
3. How likely is the virtual mentoring space to continue as an adjunct to the neurological occupational therapy course?
4. Did the learning module assessments facilitate/support your measurement of student learning?

Program Director questions

1. How likely is the virtual mentoring space to continue as an adjunct to the neurological occupational therapy course?
2. Could the virtual mentoring space be implemented and facilitated by someone other than the teaching assistant (eg. a graduate assistant)?
3. In what ways is the virtual mentoring space cost-effective?