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# Closing the gap: the development of a knowledge translation course designed to improve evidence-based clinical practice for school professionals

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BOSTON UNIVERSITY  
SARGENT COLLEGE OF HEALTH AND REHABILITATION SCIENCES

Doctoral Project

**CLOSING THE GAP:  
THE DEVELOPMENT OF A KNOWLEDGE TRANSLATION  
COURSE DESIGNED TO IMPROVE EVIDENCE-BASED CLINICAL  
PRACTICE FOR SCHOOL PROFESSIONALS**

by

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## **DEDICATION**

I would like to dedicate this work to my unbelievably kind and supportive parents, Mitch and Sherry, who have inspired me to never give up, and to my siblings, Matthew and Sarah, who initially inspired me to pursue occupational therapy in the first place.

Without you all, I would not be who I am today.

## **ACKNOWLEDGMENTS**

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**ABSTRACT**

Knowledge translation includes the steps of researching and establishing best practices, communicating those findings to stakeholders and consumers, and then using that information effectively in practice (Straus, Tetroe, & Graham, 2009). Knowledge translation usually takes the form of conducting research, creating systematic reviews and other research articles, and publishing in academic journals, all of which are not enough to guarantee that knowledge will actually be used in clinical practice (Straus et al., 2009). Therefore, there needs to be a more explicit process for improving knowledge translation to increase the use of evidence-based interventions in clinical practice (Straus et al., 2009). This doctoral project will focus on improving knowledge translation as it applies to occupational therapy researchers disseminating research knowledge to school-based professionals and will further explore the barriers both occupational therapy researchers and school professionals face with knowledge translation.

The proposed solution is an online course titled *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School*

*Professionals.* This course will be developed in order to address the current gap between knowledge translation and clinical practice; and to improve research utilization in occupational therapy in school settings in particular. This six-week course utilizes an online learning environment through teachable.com in order to increase accessibility of information to course participants and to allow for weekly self-paced learning to promote participant success. The course will include multiple professional development activities, such as small discussion work through an online discussion board, case studies, and problem-based learning as these are proven methods to effectively promote confidence with integrating research into clinical practice (Anaby, Korner-Bitensky, Law, & Cormier, 2015; Cahill, Egan, Wallingford, Huber-Lee, and Dess-McGuire, 2015).

The online course described above aims to improve evidence clinical practice in school settings by increasing direct communication between the school professionals and researchers, by having school professionals practice applying research to relevant clinical cases, and by having researchers practice communicating research findings to other professionals. This online course is critically needed in order to make knowledge translation more intentional, to improve evidence-based clinical practice, and to achieve AOTA's 2025 Vision of being an effective and evidence-based profession.



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## **LIST OF ABBREVIATIONS**

AJOT	American Journal of Occupational Therapy
AOTA	American Occupational Therapy Association
CIHR	Canadian Institute of Health Research
CINAHL	Cumulative Index of Nursing and Allied Health Literature
DCOTA	District of Columbia Occupational Therapy Association
DOI	Diffusion of Innovation
EA	Evaluability Assessment
EBP	Evidence-Based Practice
ERIC	Education Resources Information Center
KT	Knowledge Translation
OT	Occupational Therapy, Occupational Therapist
PT	Physical Therapy, Physical Therapist
SLP	Speech Language Pathology, Speech Language Pathologist

## **CHAPTER ONE - Introduction**

### **Nature of the Problem**

The Canadian Institutes of Health Research defines knowledge translation as “a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health... provide more effective health services and products, and strengthen the health care system” (Canadian Institute of Health Research [CIHR], 2018, para. 1). Knowledge translation includes the steps of researching clinical interventions and establishing best practices through systematic reviews and other research articles, communicating research findings and recommendations for practice to stakeholders and consumers, and then consumers using that information effectively in practice (Straus, Tetroe, & Graham, 2009). Both researchers and clinicians are included in these steps of knowledge translation. Researchers are primarily involved in the early steps, such as conducting primary research and creating systematic reviews. Researchers must then share their research findings with stakeholders, usually through the form of publishing their work in academic journals. Then, stakeholders, such as clinicians, must actually use the knowledge gained from the research in practice in order for knowledge translation to formally occur (Straus et al., 2009). However, conducting research, creating systematic reviews, and publishing in academic journals is not enough to guarantee that knowledge will actually be used in clinical practice by clinicians (Straus et al., 2009). Therefore, there needs to be a more explicit process for improving knowledge translation to improve the use of evidence-based interventions in clinical practice (Straus et al., 2009).

In addition to the lack of an explicit process, stakeholders also face challenges related to the early steps of knowledge translation. Stakeholders, such as clinicians, patients, policy makers, managers, and others, encounter challenges related to accessing research evidence, understanding and applying research evidence, managing the high volume of research evidence produced, and not having the time needed to read articles nor the skills to analyze research evidence (Straus et al., 2009). Additionally, there are institutional barriers that negatively impact effective communication between researchers and stakeholders, such as different career structures (Crosswaite & Curtice, 1994). Researchers tend to prioritize publishing their research articles in academic journals and furthering the body of research for various topics. However, consumers of information tend to be clinicians who prioritize client care and finding interventions that effectively target their clients' specific needs. Therefore, researchers and consumers have different foci within their fields of work and use research differently to achieve their professional goals. Communication between researchers and stakeholders is also influenced by barriers researchers face with the process of publishing in academic journals, such as the pressure to use scientific terminology and specific jargon related to their research and analysis, and consumers who lack trust in research evidence (Crosswaite & Curtice, 1994). Stakeholders also face a variety of barriers related to personal factors, such as insufficient skills to analyze and understand what the evidence suggests, as well as institutional barriers, such as overwhelming amounts of information and available research to sift through in order to find relevant research articles, limited access to the relevant research, and time constraints limiting one's ability to sort through all the

information. These barriers not only make it hard for clinicians to access the recommendations for evidence-based practice, but also make the research very difficult to implement into clinical practice.

Of note, evidence-based practice and knowledge translation are two different processes, with knowledge translation being a broader process than evidence-based practice due to the fact that knowledge translation includes a wider range of potential stakeholders who are related to the health care system (Salbach, 2010). Knowledge translation attempts to take what is known from scientific research and facilitate how that information is used by various stakeholders within health care services (Salbach, 2010). Evidence-based practice relates to a specific practitioner making decisions about the needs for a specific client (Salbach, 2010). The fact that knowledge translation has a wide and potentially diverse audience makes it difficult to communicate findings appropriately to all necessary parties.

### **Occupational Therapy Implications**

The American Occupational Therapy Association's 2025 Vision describes occupational therapy as a profession that improves the lives of others "through effective solutions that facilitate participation in everyday living" (AOTA, 2019a, para 1). AOTA's Vision further clarifies that the term "effective" means that the profession is "evidence-based, client-centered, and cost-effective" (AOTA, 2019a, para. 2). Therefore, in order to enact effective occupational therapy services, an occupational therapist should incorporate evidence, or treatments indicated to be effective by research, into practice. However, incorporating evidence-based research into practice is challenging, especially

when it comes to occupational therapy in school-based settings. School-based practice can be particularly challenging due to diverse needs of the students receiving services, as well as the various types of school settings within school practice, such as inclusion classrooms or special education specific classrooms. There are many barriers that limit school-based occupational therapy practitioners' ability to incorporate research findings into practice, such as the use of jargon in research articles with which school professionals may be unfamiliar; institutional barriers, such as a lack of access to published research journals; a lack of time to review research due to heavy caseloads and diverse student needs; and limited research availability on topics related to school-based occupational therapy. All of these barriers contribute to a lack of research utilization in school-based practice and will be discussed further in Chapter 2.

### **Approach to Address the Problem**

This doctoral project was designed to address the barriers to research utilization in clinical practice through the development of an online course titled, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*. This 6-week online course will address the current gap between knowledge translation and clinical practice and aims to improve research utilization in occupational therapists in school settings in particular. The overall objectives of this course are: 1) to develop and maintain school practitioners' abilities to access, synthesize, and apply relevant research to their settings and 2) to improve researchers' ability to disseminate research findings to the appropriate professionals. The proposed course is unique in that it will provide the opportunity for school-based



professionals and occupational therapy researchers to discuss barriers and specific research evidence with one another through an online discussion forum. By increasing direct communication between occupational therapy researchers and school professionals, the course will attempt to improve knowledge translation methods between those involved in conducting and producing research and those utilizing research evidence.

## **CHAPTER TWO – Theory and Evidence Base Related to the Problem**

### **Overview of the Problem**

Diffusion of Innovation (DOI) theory was developed by E.M. Rogers in 1962 and is considered one of the earliest social sciences theories (LaMorte, 2019). DOI theory examines communication in order “to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system,” (LaMorte, 2019, para. 1). During its early stages, DOI theory was used amongst different disciplines of researchers to study the spread of a new idea (Rogers, 1983). For example, rural sociologists examined how agricultural innovations were taught to farmers and educational researchers studied how new teaching ideas were spread to school personnel (Rogers, 1983). DOI theory has been used in a variety of social science fields to examine the transfer of knowledge between populations to explain how new information is spread (Green, Ottoson, Garcia, & Hiatt, 2009). It is for these reasons that DOI theory will be used to explain why there is a gap between what clinical interventions are indicated by research to be effective and the interventions used in clinical practice.

Rogers (1983) explained that, “diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system” (p. 5). Therefore, the core idea behind DOI theory is that new information is communicated in various ways over time to people. Rogers (1983) states that the four main elements of Diffusion of Innovation Theory, or the four elements needed to spread information effectively, are “innovation, communication channels, time, and the social system” (p. 10). These four elements are directly related to several of the key barriers

and factors listed in a visual model that was created to explain the nature of the knowledge dissemination problem (See Figure 2.1). At the top of the model is Communication Skills, which is influenced by the elements of innovation and communication channels. Under Communication Skills is Institutional Barriers, which is affected by the social system element. Further down, under Institutional Barriers is Lack of Time, which reflects the time element in DOI theory. Also under Institutional Barriers is Limited Research in Schools, which will be elaborated on later in this chapter. All of the above main factors associated with the knowledge gap (Communication Skills, Institutional Barriers, Lack of Time, and Limited Research in Schools) influence one another and eventually lead to a lack of research utilization in clinical practice, which is the last barrier listed in the visual model.

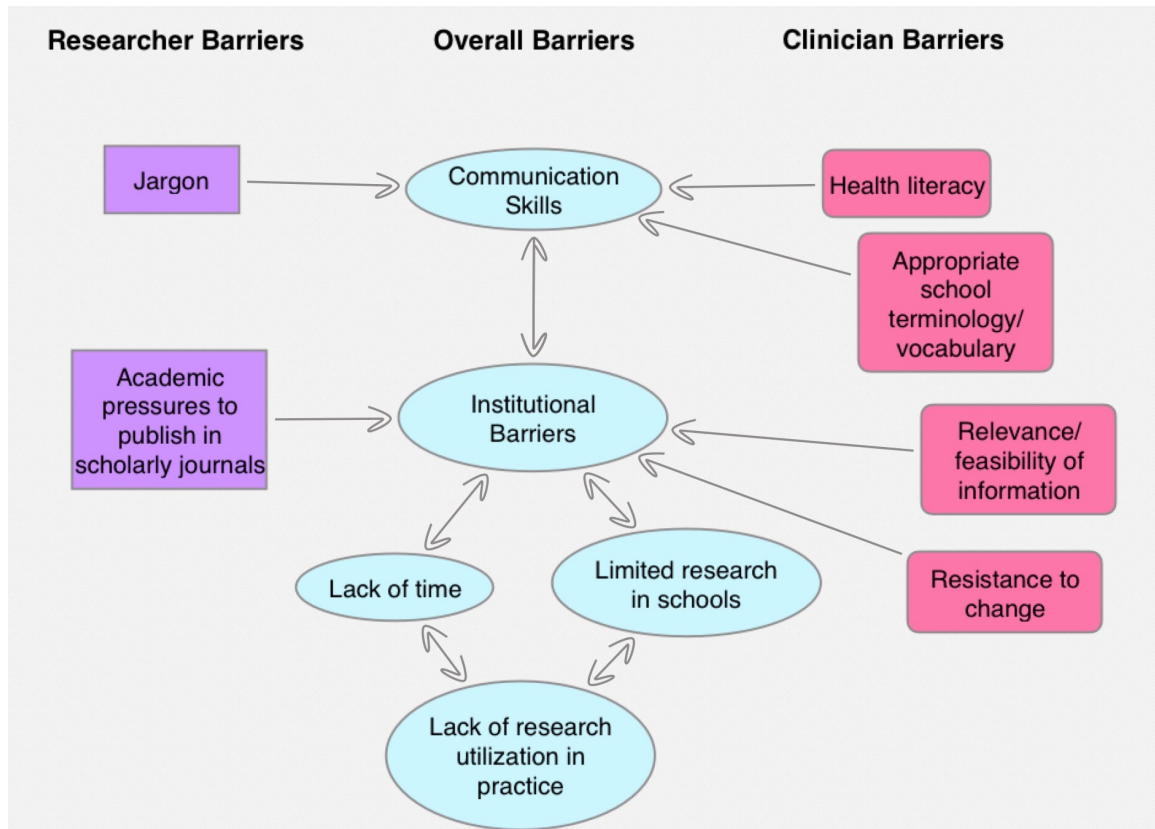


Figure 2.1: Proposed visual model of knowledge dissemination problem

### Communication Skills

In DOI theory, communication channels are described as how messages spread from one individual to another (Rogers, 1983). Rogers (1983) explains that the relationship between the two individuals exchanging information will affect whether an innovation, or new idea, is transmitted to the receiver at all, as well as how effectively the information is communicated to and accepted by the receiver. Therefore, the relationship between the person providing the innovation and the person considering the innovation is crucial to whether or not the idea will be accepted by the receiver. In terms of health care research, the stakeholders sharing new ideas and communicating with one another would be researchers and clinical practitioners. In order to improve effective knowledge

translation methods, a positive information-exchanging relationship between researchers and clinical practitioners is important. If there is a negative relationship or no relationship at all when exchanging information, then knowledge translation may not occur effectively. For a positive information-exchanging relationship to occur between researchers and practitioners, there needs to be effective and direct communication, such as through in-person information exchange or direct virtual communication.

**Jargon.** The first overall barrier listed in the visual model that is theorized to influence research utilization in practice is Communication Skills (See Figure 2.1). The visual model further hypothesizes that researchers impact communication skills with their use of scientific jargon. Prior studies have noted that researchers contribute to school professionals' limited use of evidence-based practice through the use of jargon (Glenton, Nilsen, & Carlsen, 2006; Zeng & Tse, 2006). The discrepancy between the terminology used by researchers and the terminology understood by practitioners can negatively impact knowledge translation between the two professions.

DOI theory explains that one of the main elements that impacts the diffusion of information is complexity (Rogers, 1983; Sanson-Fisher, 2004). An innovation, or a new idea, is more likely to be adopted into practice if it is simple, easy to understand, and has relatively low complexity (Sanson-Fisher, 2004). However, health care professionals tend to use more complex words and ideas when compared to the everyday terminology laypersons use. Laypersons and health care professionals have a tendency to not use the same type of vocabulary as each other (Zeng & Tse, 2006). This difference in terminology can negatively impact effective communication between the two

stakeholders and can hinder a person's ability to make informed decisions about their healthcare (Zeng & Tse, 2006). This barrier to effective communication may also be true for academic researchers and school professionals. While it is possible that one could have a professional background in both clinical school practice and academic research, these two roles tend to represent two separate career paths. Academic research and clinical school practice are two different professions with two very different sets of vocabulary that relate to their respective setting and therefore, the professionals may have trouble effectively communicating new ideas to one another. School professionals consist of a diverse group of specialists, such as teachers, teaching assistants, occupational therapists, physical therapists, school administrators, etc. While some of these professionals may have had exposure to and experience with health research in their professional training, some careers are less science-based. Professionals who have less of a background in science, may have less familiarity with health literature, and therefore, may not understand the jargon that researchers use.

**Health literacy.** The visual model in *Figure 2.1* further hypothesizes that there are also potential barriers that school professionals face that limit their abilities to incorporate evidence into clinical practice. The first barrier listed under clinician barriers that impacts communication skills is the varying levels of health literacy between potential stakeholders.

When it comes to school-based occupational therapy, there are several stakeholders involved. There are occupational therapists that work in schools, there are general education teachers with students receiving services in their classrooms, there are

special education teachers who work with students receiving occupational therapy services, there are parents whose children receive therapy services, and there are the students themselves. These are all people with whom researchers that are gathering data about evidence-based school practice may need to share their findings. Some of these stakeholders, such as occupational therapists, may have experience with health research in their professional training. However, other professionals, such as general education teachers, may not be as familiar with health literature. Having many different stakeholders involved, all with various levels of health literacy, can make it challenging for researchers to simplify their research information in a way that is accessible for all involved stakeholders.

**Appropriate school vocabulary/terminology.** The last barrier listed in the visual model in *Figure 2.1* that clinicians face relating to communication skills is the lack of an established school-based health vocabulary. Studies have shown that medical terminology is difficult for laypeople to understand; however, research has not provided alternative words or phrases to use that stakeholders are likely to understand or recognize (Zeng & Tse, 2006). Some researchers may use jargon terms from their research when disseminating findings, which is acceptable if one is trying to introduce the term to practitioners who are unfamiliar with the subject matter. However, consumers should not be required to know technical terminology in order to find research that is relevant to them (Zeng & Tse, 2006). Consumers, such as school-based professionals, need to be exposed to the terms and then taught what they mean in order to establish an appropriate consumer health vocabulary that can help define terms that are relevant to their own

practice. Glenton et al. (2006) found that laypeople want jargon terms explained to them rather than substituted so they can become familiar with medical terms. If school professionals gain exposure to and are taught the meaning of terms used by researchers, they can increase their health literacy and establish a school-based health vocabulary that is relevant to their practice.

### **Institutional Barriers**

In his description of DOI theory, Rogers (1983) described a social system as “a set of interrelated units that are engaged in joint problem solving to accomplish a common goal” (p. 24). The members of this social system may consist of a very specific, small group of professionals or the group may have a variety of stakeholders. In terms of health care research, a social system may be an interdisciplinary group of practitioners, containing several individuals from various professions. School-based professionals are made up of a multi-disciplinary team, as school professionals may include general education teachers, special education teachers, teaching assistants, occupational therapists, physical therapists, speech language pathologists, and various administrative staff. In addition, for the topic of knowledge translation, the individuals who performed the research may be incorporated into the social system as well. Therefore, when discussing institutional barriers impacting research utilization in practice, one must consider institutional barriers faced by all stakeholders involved; in this case, the research team and the school.

In addition to the communication barriers related to knowledge dissemination, there are institutional barriers that make the translation of information difficult as well.



Therefore, the next main barrier hypothesized in the visual model of the knowledge dissemination gap is Institutional Barriers. For researchers, there are academic pressures to publish their work in scholarly journals, which takes the focus off of communicating findings directly to those who may use it most in clinical practice. Researchers and those in academia may feel the pressure to publish in scholarly journals because research publications can impact decisions regarding tenure and promotions, about grants and funding awards, and can impact the ranking of higher learning institutions where research is taking place (Gutman, 2010). By publishing their research in journals, researchers are making it harder for school professionals to access information. For school professionals or for laypeople not directly involved in research, issues arise with the relevance and feasibility of applying research information to their clinical setting and an overall resistance to change. Glenton et al. (2006) found that participants using research-based healthcare information from an online website reported challenges with applying the research results to themselves. In addition, Glenton et al. (2006) specifically found that the reasons the participants, who were people who had chronic back pain, were resistant to change were (a) the wavering nature of research results as the results tend to change over time; (b) variable research results amongst multiple articles, with some research supporting an intervention and other research reporting its ineffectiveness; (c) a lack of trust in researchers in general as sometimes research is constructed to serve particular interests, such as the interests of the researcher and not of the consumer. In order to better communicate research findings to other professionals, the information has to be presented in a way that is relevant to the consumer and feasible for the consumer to

implement.

In addition to complexity which was mentioned earlier with respect to communication skills, there are four other elements of innovation within DOI theory that impact the diffusion of new information: relative advantage, compatibility, trialability, and observability (Rogers, 1983; Sanson-Fisher, 2004). These four elements relate to the institutional barriers that are present due to the relevance and feasibility, or lack thereof, of information. When clinicians receive new information about an evidence-based intervention, they have to see the new practice as more advantageous than the interventions they were using before in their practice (Sanson-Fisher, 2004). In addition, the information has to be compatible with the practitioners' existing values and experiences, the information has to be easy to trial in practice, and the results of the innovation need to be observable (Rogers, 1983; Sanson-Fisher, 2004). All of these factors impact whether or not new information will be utilized in clinical practice. If new information is not perceived as relevant or compatible to the receiver and their environment, then they are less likely to adopt the new practice (Sanson-Fisher, 2004). For example, if a school-based professional does not see the compatibility of an evidence-based intervention with their own place of work, then they are less likely to attempt to utilize that intervention in their own clinical practice.

### **Lack of Time**

As seen in the visual model, another barrier that potentially influences the lack of research utilization in clinical practice is the issue of time constraints. Time can also impact how quickly an idea is adopted into, rejected from, or put into practice (Rogers,

1983). According to DOI Theory, innovations are adopted gradually over time (Rogers, 1983). Few people adopt the idea at first and then more and more people eventually begin to accept the idea. In health care related work, there is a short amount of time allotted to make decisions; however, it takes a long time to generate new evidence and synthesize existing evidence, which creates a difficult window of opportunity (Andermann, Pang, Newton, Davis, and Panisset, 2016). Clinicians or school-based professionals may not have time to locate and search through all the available research evidence in order to find the best treatment method. In fact, when participants from the Glenton et al. (2006) study were too tired to search for evidence-based information, they turned towards friends and neighbors for opinions and personal experiences and tended to see this information as more relevant than research. A first step towards ensuring that evidence is used to improve a population's health is to make sure evidence is available at the right time and in the right format and language, which will help users take the evidence into consideration (Andermann et al., 2016).

### **Limited Research in Schools**

In addition to the time it takes to locate relevant articles, research utilization in clinical practice may be limited by the actual amount of relevant research that has been completed in schools or is relevant to schools. Therefore, limited school-based research is the next barrier listed in the visual model.

Based on a review of several online journal databases including the American Journal of Occupational Therapy (AJOT), Cumulative Index of Nursing and Allied Health Literature (CINAHL), and Education Resources Information Center (ERIC),

performed in January 2017, there is a limited amount of research that relates to occupational therapy and schools when compared to broader OT research. For example, when searching AJOT, the terms “school based problems and intervention” yielded 303 results. The terms “occupational therapy OR occupational therapist OR ot” yielded 6,929 results. The terms “occupational therapy OR occupational therapist OR ot AND schools” yielded 140 results. That is  $140/6,929$  or about 2% of available OT research relates to school settings. Not only does this suggest a need for more research, but the research that has been conducted needs to be disseminated to school professionals. Limited research presents a challenge for school professionals because it may be hard for school professionals to access or find articles that are relevant to their own practice. Therefore, when research is being done in schools, it is important that the results are appropriately presented to school professionals in a timely manner.

### **Lack of Research Utilization in Practice**

The final factor, and ultimately the main problem addressed by the visual model, is the lack of research utilization in practice. Andermann et al. (2016) explain that there is a phenomenon known as the know-do gap, which is a gap between what is known to work based on research evidence and what is being done in practice. This gap between evidence-based practice and clinical practice is caused by many intertwined barriers, such as communication skills, lack of time, limited research availability, and other institutional barriers. Differing communication skills by researchers and school professionals influence and are affected by the institutional barriers seen within schools and research programs. DOI theory highlights the importance of communication skills between

various stakeholders in order to spread new information. When there are communication issues present, such as a lack of a common vocabulary between researchers and practitioners; use of jargon; or low levels of health literacy, communication will be hindered and new information may not get translated properly to the receiving individual. Institutional barriers also impact the amount of time allotted for knowledge dissemination and the type and amount of research being done in schools. Time and amount of available research both then impact how research is used in clinical practice. Additionally, relevance of innovation is crucial to the adoption of new practices. If practitioners do not see the advantages and relevance to using a new evidence-based practice, then they will not implement the research into their clinical practice. In order to close this gap, these barriers must be acknowledged and addressed.

### **Evaluation of Quality of Evidence and Impact of Limitations**

Since knowledge translation and knowledge dissemination are newer topics in health care research, there are few randomized control trials or high-quality studies that are applicable. Of all the available research information used to provide the support for this doctoral project, most articles were related to more medical based health care issues and therefore may be of limited relevance to a school setting. While occupational therapy is a health care profession, professionals in the school setting may not always be exposed to or work with students that have medical complexities. However, for the purpose of this doctoral project, studies that were more medically based were utilized to assess how knowledge dissemination is relevant to clinical practitioners in order to identify general barriers with knowledge dissemination. In addition, due to the limited

availability of research, several articles included in this review are over ten years old and may not contain the most updated information. As knowledge dissemination continues to become a more prevalent topic of interest for researchers within occupational therapy, more up-to-date and relevant articles and research studies may become available.

### **Summary of Previous Attempts to Address the Problem**

Knowledge translation interventions that include the use of multiple strategies; provide follow-up support; include opportunities for discussion, practice, and feedback; and promote a collaborative learning environment are the most successful at increasing evidence-based practice (EBP) skills (Anaby, Korner-Bitensky, Law, & Cormier, 2015; Cahill, Egan, Wallingford, Huber-Lee, and Dess-McGuire, 2015; Thomas & Law, 2013). Cahill et al. (2015) recommend that those who value or want to improve evidence-based practice in clinical practice “should consider...offer[ing] a series of professional development activities targeted at increasing practitioners’ EBP knowledge and skills” (p. 5). Cahill et al. (2015) found that having a brainstorming session where the practitioners have an opportunity to have a say in the activities (or the practitioners’ perspectives are considered when determining activities), small group work, online self-study modules, development workshops, and technical assistance when needed were the multiple strategies needed to improve EBP. Cahill et al. (2015) suggest that if all of these activities are used together in combination and are provided to OT practitioners, then those practitioners will demonstrate an increase in EBP knowledge and skills. Additionally, Anaby et al. (2015) found that a series of in-person, evidence-based learning groups that focused on case studies with guided questions and group discussions

was an effective way to use multiple strategies in order to promote confidence in clinicians' abilities to integrate research knowledge into a clinical setting. Both Anaby et al. (2015) and Cahill et al. (2015)'s interventions provide opportunities for discussion and practice, in the form of group work, as well as feedback from instructors leading the respective interventions. Therefore, group discussions and group work as well as feedback from instructors are key features to effective knowledge translation interventions.

For knowledge translation interventions to be effective, they should be at least 6 weeks long, although having a more long-term option can be beneficial (Anaby et al., 2015; Cahill et al., 2015). Cahill et al. (2015) mention, "length of time of the initiative (17 mo) and the support from the organization's administration are two key factors that also likely encouraged positive results" (p. 4). A more long-term, 17-month intervention was effective at increasing EBP skills in practitioners when paired with a supportive work environment (Cahill et al., 2015). However, Anaby et al.'s (2015) intervention for knowledge dissemination consisted of six, 1.5-hour sessions that occurred about once a week, and the authors found a positive change in professionals' thinking and intention to change in regard to the implementation of evidence into clinical practice. Therefore, a knowledge translation intervention should last at least 6 weeks long but may benefit from more time if possible.

The knowledge-to-action process is a concept that examines the interchanging relationship between knowledge creation and knowledge action or application (Graham et al., 2006; Straus, Tetroe, & Graham, 2009). In this process, knowledge producers, or

researchers, must work collaboratively with knowledge implementers – or the users of the information, throughout the entire knowledge exchange process (Graham et al., 2006). By doing so, this will help decrease the gap between the research that is proven to be effective and what is being utilized in clinical practice. For knowledge translation to be effective, knowledge users should be included in order to “ensure that the knowledge and its subsequent implementation are relevant to their needs” (Straus, Tetroe, & Graham, 2009, p. 166). Consumers, or knowledge implementers, should play an active role in the knowledge exchange process because research findings are going to impact their clinical practice the most.

This collaboration between researchers and users is a key aspect of effective knowledge dissemination interventions (Anaby, Korner-Bitensky, Law, & Cormier, 2015; Cahill et al., 2015; Pittman & Lawdis, 2017). In the study by Cahill et al. (2015), researchers used a brainstorming session with OT practitioners and after collaborating, developed a timeline and series of activities that were “based on the practitioners’ preferences,” (p. 2). In this case, practitioners had the opportunity to share their thoughts and ideas to further develop how they wanted to receive information. Pittman and Lawdis (2017) also found that a training intervention that gave practitioners more of a say in the type of information they were receiving was successful at increasing confidence and competence with clinically applying evidence-based interventions. The resulting intervention allowed practitioners to go at their own pace, review information as they pleased, and reference information in a way that complemented their own learning style (Pittman & Lawdis, 2017). Therefore, researchers should consider the perspectives of the



practitioners that are directly involved in order to identify the most relevant needs for that setting. In addition, information should be provided in various forms in order to cater to individuals' different learning styles. Anaby et al. (2015) found that when clinicians are included in the knowledge translation process, they feel more empowered and have an increased sense of ownership over the learned material, which promoted knowledge uptake. If the researchers brainstorm together with the consumers and consider the perspectives of the practitioners that are directly involved, then they will be able to identify the most relevant needs for that setting. If the researchers can identify the most relevant needs of the specific practice setting involved, then the professional development activities will address the most relevant needs and increase EBP knowledge and skills by making the intervention relevant to the practitioners. Therefore, clinical practitioners should be involved in the process of designing how evidence-based practice gets communicated to them.

Decision-makers and knowledge consumers include other stakeholders in addition to researchers and the practitioners, such as local universities that help fund the research being done or other professionals who work with children in schools. These users are important to collaborate with as well (Anaby et al., 2015; Cahill et al., 2015, Thomas & Law, 2013). Cahill et al. (2015) recommend that when creating a knowledge dissemination program, it is beneficial to "[collaborate] with local universities" to construct the series of professional development activities (p. 5). Thomas and Law (2013) agreed that research utilization and evidence-based practice are strengthened by partnerships between clinicians and local universities. Anaby et al. (2015) found that

knowledge uptake was increased when an inter-disciplinary pediatric rehabilitation team was used, which included occupational therapists, physical therapists, psychologists, speech language pathologists, and those with a background in special education. If there is collaboration with local universities and other stakeholders from various professions when creating the series of professional development activities used for knowledge dissemination, there should be positive effects on EBP knowledge and skills and professionals may be more likely to use that knowledge in their own practice.

### **Strengths and Weaknesses of Research**

It is important to consider the strengths and weaknesses of prior research focused on knowledge translation and knowledge dissemination practices. The study by Anaby et al. (2015) consisted of an intervention that targeted one group of professionals and stakeholders located at one rehabilitation center. Therefore, these findings may not be able to be generalized to professionals who work outside of that rehabilitation center or to those that work in a school. However, the group of participants in the study by Anaby et al. (2015) consisted of occupational therapists, physical therapists, psychologists, speech language pathologists, and those with a background in special education; these are all professions that also work in schools. Additionally, Anaby et al. (2015) focused on communicating knowledge about children and youth, which is the same population with which school professionals work. The study by Anaby et al. (2015) can be considered a level III qualitative study with a low strength of recommendation due to the narrow scope of the study's population. However, the qualitative nature of the Anaby et al. (2015) study provides a useful perspective into the experiences that participants had in a

knowledge translation workshop.

Cahill et al. (2015) examined knowledge uptake directly in school-based professionals, which is the population that the proposed doctorate program aims to serve. However, Cahill et al. (2015) only tested “practitioners from one special education cooperative in the Chicago metropolitan area” (p. 2); therefore, the authors’ results may not be able to be generalized to all school settings. Cahill et al. (2015) is a Level IV study design with only one group pre/post test, which is a weaker research design. Anaby et al. (2015) and Cahill et al. (2015) both describe key aspects of their knowledge translation interventions; however, neither provides specific examples or modules of how the intervention took place and in what order the multiple strategies were used. Therefore, neither intervention can be re-created through use of the publications only.

The research base for knowledge translation and dissemination interventions is further limited by the small number of available research studies and the weakness of the research designs of the articles. The majority of the available articles used did not report on studies that included randomization; also, most did not include a control group. None of the articles were systematic reviews either, which are considered to represent the highest strength of recommendation.

## **CHAPTER THREE – Description of Proposed Course**

### **Program Overview**

The online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*, will be developed in order to address the gap between the current knowledge translation process and clinical practice and to improve research utilization in occupational therapy in school settings in particular. The overall objectives of this course are: 1) to develop and maintain school practitioners' abilities to access, synthesize, and apply relevant research to their settings and 2) to improve researchers' ability to disseminate research findings to the appropriate professionals. The course also aims to support occupational therapists and school professionals' use of research utilization in school-based practice. The course supports the American Occupational Therapy Association's 2025 Vision where occupational therapy is described as a profession that uses effective, or evidence-based, solutions to improve the lives of others (AOTA, 2019a).

### **Methods and Process of Delivery**

The course will utilize an online learning environment in order to increase accessibility of information to school professionals. The online nature of the course will also lessen the burden associated with traveling to in-person sites as participants can access the course from anywhere that has Internet access. In addition, the online aspect of the course will allow for a self-paced environment in order to promote participant success. It is expected that most participants will have part time or full time jobs while being enrolled in this course; therefore, the online learning environment will provide a

flexible and accessible course that users can complete at a time that is convenient to them. Initially, course delivery will focus on independent, self-paced learning, where participants access course materials on their own time in order to maximize the participant's control over their own learning. However, throughout course delivery, in order to promote learning and to provide participants with the opportunity to receive real time feedback as well as experience live interaction with other course participants, there will be the opportunity for virtual classroom meetings.

A long-term goal will be for this online course to eventually become a course where rehabilitation therapists, such as occupational therapists, will be eligible to receive continuing education credit upon completion of the course. However, in order for therapists to receive continuing education credit, this course must be submitted for approval by the American Occupational Therapy Association. In order to ease feasibility of creation for the program developer, the course will serve as an independent, self-published course at this time.

The course will utilize a private delivery platform, such as teachable.com. Teachable was chosen for delivery of program content as it allows for an unlimited number of course participants, supports the use of multi-modal learning, and provides professional templates for course formatting (Teachable, 2019). This online delivery platform also provides the necessary tools and will provide ample opportunity for group discussions, which was effective in promoting clinician's confidence in using research knowledge in clinical practice (Anaby et al., 2015). Multi-modal learning is an important component of intervention to have as practitioners may have a variety of different

learning styles. Teachable provides unlimited bandwidth which allows for unlimited course content in the forms of videos, PowerPoints, PDFs, etc., which gives course developers the ability to use many different tools to promote learning for course participants. The use of an online delivery platform will provide the opportunity for course participants to access information in a way that complements their learning styles and will allow practitioners to proceed at their own pace, both of which are important components of intervention to promote knowledge uptake (Pittman & Lawdis, 2017). Online self-study modules, such as those provided by an online course, were used in the study by Cahill et al. (2015), and were found to improve EBP knowledge and skills in OT practitioners.

The costs associated with the online delivery platform, Teachable, will be detailed in Chapter 5. The cost of course participation will be free to all those enrolled, pending compatibility with the online delivery platform. The only requirement to access course information will be formal enrollment in the course through the Teachable website.

### **Intended Recipients**

The course will be open to all interested school-based professionals. Intended recipients may include, but are not limited to, general education teachers, special education teachers, teaching assistants, occupational therapists, occupational therapy assistants, physical therapists, physical therapy assistants, and speech language pathologists. While enrollment is open to all professionals, content will primarily focus on occupational therapy in school settings. As most occupational therapy educational programs require the learning of evidence-based practice as a requirement for graduation,

this course will not teach all necessary skills required to analyze and to utilize evidence in practice. However, since there is the potential for the attendance of school professionals at the course and these professionals may not have had exposure to evidence based practice (EBP) in their own education programs, the basic principles of EBP and the opportunity to practice research analysis and apply research interventions to clinical practice will be provided for those of all levels of familiarity with EBP.

Additionally, course enrollment will be open for occupational therapy research professionals who are conducting research studies based on occupational therapy in a school setting. Including this professional population will provide the opportunity to hear a different perspective on evidence-based practice and will facilitate discussion on research topics.

There will be no limit on the number of participants eligible to participate and register for the course, as the goal is to grow the success of knowledge translation and to improve research utilization in clinical practice. However, smaller groups can improve group dynamics and make the course easier to manage overall. Additionally, it is recommended that small learning groups, groups of 6 to 8 participants, be used for effective learning in problem-based learning curriculums (Anaby et al., 2015; Dolmans, Snellen-Balendong, & van der Vleuten, 1997). Therefore, the program should consist of small group and small discussion work based on relevant case studies in order to facilitate learning. If there are more than eleven participants, then the course will divide into sections that consist of groups of 6-8 people or sections will be split as evenly as possible.

### **Personnel**

The program implementation team, or the team that will create program content, should consist of a multi-disciplinary team. Utilizing a multi-disciplinary team will help establish communication between various stakeholders and can help each professional identify where clarification may be needed. For example, if a researcher is using jargon that is unfamiliar for the school professional, the school professional can ask for clarification and the team can collaboratively come up with a vocabulary that is accessible to all stakeholders involved.

On the team, there should be at least one researcher who is familiar with research being done in schools, one school-based professional who is familiar with services provided in schools, and a knowledge broker who is an experienced rehabilitation professional (Anaby et al., 2015). A member of a research team or at least one researcher who has participated in a study that examines school-based interventions should be directly involved in developing each session's agenda and the overall course content for this program in order to communicate the findings of their research and related school-based research effectively (Anaby et al., 2015). The researcher should also be someone who is associated with a university with funded research; thereby creating a network and collaboration with local universities. Establishing collaboration with local universities is important when developing professional development activities to enhance research utilization in clinical practice (Cahill et al., 2015; Thomas & Law, 2013). This researcher will also be responsible for recruiting other occupational therapy researchers to participate in the course.



In addition, there should be an experienced clinical leader from a local school site involved in recruiting school professionals to participate in the program (Anaby et al., 2015). The clinical leader position helps to establish a liaison between the research team and the school professionals. This individual will explain the program and the time commitment needed to participate and gather consent from professionals that are interested in participating (Anaby et al., 2015).

The program should also include a knowledge broker, which is someone who will help facilitate sessions and will work closely with the research leader and the clinical leader via ongoing meetings throughout the program as based on the role described in the knowledge translation intervention in Anaby et al. (2015). The knowledge broker is not someone who was directly involved in conducting research studies, but is someone who is experienced in a rehabilitation profession, such as an occupational therapist. By having this rehabilitation experience, the knowledge broker will be informed about the practice that was the topic of the research and can therefore help facilitate the integration of research information into clinical practice. These three individuals should be established prior to program implementation and will need to work very closely together throughout the duration of the course.

### **Course Features and Activities**

Course content will be provided in a series of six modules that take about 1.5 hours each to complete, which is based on the Anaby et al. (2015) knowledge translation intervention. Additionally, six weeks is an achievable amount of time for professionals to commit to without burdening too much of their time. For the purpose of the structure

of the course, each module will represent a weeks' worth of material. However, since the course is self-paced, learners may choose to take longer or less time on each module based on their comfort and confidence with the content. All content must be completed by the end of six weeks; however, participants can determine the speed and pace of their completion of the course. Course content must be completed within the six-week timeframe for course evaluation to occur. The evaluation of the course will be further described in Chapter 4. Course content, such as research articles, discussion boards, videos, PowerPoints, case studies, etc. will be available to course participants on the course website after six-weeks; however, no new course content will be added after that time and feedback from the implementation team will be delayed after that time.

Course activities will include multiple professional development activities, such as online discussion work, case studies, and problem-based learning as these are proven methods to effectively promote confidence with integrating research into clinical practice (Anaby et al., 2015; Cahill et al., 2015). Homework assignments will also be assigned and will consist of practitioner-specific and researcher-specific prompts in order to keep activities relevant to each professional. Researcher-specific prompts will require researchers to disseminate research findings to their practitioner course classmates and will provide researchers the opportunity to practice directly sharing research results with clinicians. Practitioner course participants will also be required to respond to their researcher peers, asking questions about intervention implementation or discussing any barriers to clinical implementation. Practitioner-specific prompts will ask practitioners to summarize research findings and to practice applying research studies to clinical

scenarios. Researcher participants will be required to respond to their practitioner peers, providing alternative suggestions or discussing the main takeaways from the research findings. These homework and discussion exchanges will promote direct communication between researchers and practitioners and will have both professions practicing sharing and analyzing research findings with one another (See Appendix A for more information regarding weekly course activities).

Small, online discussion work will be achieved using discussion boards on the online course website. This will also provide participants with the opportunity to interact with other course participants, creating a supportive learning environment with other relevant professionals. Discussion topics will be targeted towards both school professionals and researchers in order to promote dialogue between the two professions. Additionally, participants will be provided with relevant case studies to which they can practice the application of research findings. Both practitioners and researchers will be asked to make clinical recommendations for the case studies based off of research evidence. Both practitioners and researchers will then respond to each other's posts by discussing suggestions for or potential barriers to clinical implementation. Reynolds (2010) included the following case study in an evidence-based practice distance education course for occupational therapy doctoral students in order to facilitate the examination of clinical evidence (see Figure 3.1). The case study in *Figure 3.1* will be used to prompt evidence-based literature reviews and to practice applying evidence-based principles to clinical cases in the *Closing the Gap* online course.

“Rachel is an occupational therapist assistant who has worked in the public school system in Northern Virginia for 12 years. Rachel works closely with her supervising occupational therapist, and she has established competency in performing evaluations related to visual perception, visual motor and handwriting skills. The school system that she is working for has been using the Motor Free Test of Visual Perception (MVPT) since 1987. At a recent handwriting workshop, Rachel heard from another OT professional that they preferred using the Developmental Test of Visual Perception for school aged children with handwriting deficits. Rachel now wants to know, if the MVPT or the DTVP is a more valid and reliable assessment of visual perceptual skills for school aged children with handwriting problems.” (Reynolds, 2010, p. 62)

*Figure 3.1: Example of a case study that will be used in the online course*

In order to gain exposure to research itself and to practice applying the findings, participants will also be provided with the opportunity to review relevant literature that pertains to rehabilitation therapy in school settings. In order to address different learning styles, information will be provided in the form of written materials, visual presentations and PowerPoints, and audio recordings. This approach is consistent with DOI theory’s element of compatibility and complexity, where information should be easy to learn and compatible with participants’ experiences (Rogers, 1983).

The online course modules will be presented in sequential order on a weekly basis (See Table 3.1). Modules will be self-paced by the course participants within the week and modules will open up to course participants on a week-to-week basis. This weekly scheduling will allow course participants the opportunity to go at their own pace as much as possible, yet will also help keep course participants on a general schedule as some assignments, such as discussion responses, rely on the completion of discussion posts by their peers. Week One of the program will focus on the practitioners’ identification of barriers to research utilization within their area of practice. Researchers will focus on identifying barriers to knowledge dissemination to school professionals. This will

provide practitioners and researchers the opportunity to voice their concerns and opinions and to help create a course of action for the program that best fits their own needs, which Cahill et al. (2015) attributed to increased use of EBP in school practitioners. This collaborative brainstorming session also supports the recommendations by Anaby et al. (2015) for the first session of the program to focus on determining the group's needs and any underlying issues regarding evidence-based practice. It is during this first session that initial information regarding research concepts and access to research articles will be shared to practitioners. Once exposed to school-based occupational therapy research literature, practitioners can pose questions, set learning goals, and identify what they are or are not familiar with regarding the topic. During the first module, participants will determine goals for the course, identifying what they want to personally achieve and what they expect to gain from the course. By the end of the first module, all group and individual goals will be identified by each participant and documented by posting their goals to the online course discussion board located on the Teachable course website. Additionally during the first week, participants will identify their preferred methods and styles of learning through an online quiz provided on the course website. The results of the quiz will then be used to inform program content so that the professionals' learning styles can be accommodated throughout the subsequent sessions.

*Table 3.1: List of Sequential Weekly Modules in the Proposed Online Course*

Week	Topic
1	Identifying Clinical Problems in the School Setting and Goal Setting for the Course
2	Introduction to Knowledge Translation and Dissemination
3	A Review of Conducting Literature Searches, Accessing Research Articles, and Forming Clinical Questions
4	Identifying Research Jargon and Creating a School-Based Health Vocabulary
5	Applying Research Evidence to Clinical Situations Practice
6	Applying Research Evidence Cont'd, Wrap up, and Conclude

Week Two will serve as an introduction to the topic of knowledge translation as this is the main topic for the entire course. The basic principles of knowledge translation and knowledge dissemination will be explained, relevant articles will be provided, and the topic of knowledge translation and dissemination will be discussed. Participants will discuss online via the discussion boards on the Teachable course website about knowledge translation methods currently used in their practice as well as the effectiveness of the methods. This discussion will provide the opportunity for school professionals and occupational therapy researchers to discuss barriers to and problem solve potential solutions for knowledge translation with one another.

The first two weeks of the course focus on introducing course participants to one another and to the course topic of knowledge translation and dissemination. Week Three of the course will focus on reviewing how to conduct research literature searches, accessing research articles, and forming clinical questions. Since the course will focus on occupational therapy topics, it is expected that participants will be familiar with

Evidence-Based Practice methods because several EBP courses are required to obtain an Occupational Therapy degree. However, since the course is open to all school professionals, other professionals, such as teachers and teaching aides, may not be familiar with EBP techniques, such as creating PICO questions and analyzing research articles. Therefore, a review of basic EBP strategies will be covered in the third week of the course. EBP review will take place in the third week, as this is the week of the program that will begin to focus more on research analysis and searching for relevant research literature. In addition, the program implementation team will be available to meet virtually to assist with EBP information and to practice with professionals who are less familiar or less comfortable with EBP analyses throughout the course. These virtual meetings can be setup by emailing the program implementation team in order to establish a time where all parties are available to meet. Since researchers may be the most familiar with these literature review strategies, this third week of the course will focus on reflecting on the search terms they used for their own research articles. Researchers will be prompted to consider the terms they chose and to discuss whether or not the terms are consistent with the words the practitioners chose.

Weeks Three through Six will focus on identifying and analyzing relevant research articles and applying the knowledge in clinical practice based on various case studies as case studies and a problem-based learning approach are what was used in the Anaby et al. (2015) study to effectively promote knowledge uptake in clinicians. Case-based learning will occur through reading and discussing the main takeaways of research articles and discussing implementation strategies within one's professional setting.

Participants will discuss strengths and barriers to intervention implementation and participants will be required to participate in the discussion by commenting on each other's posts and providing constructive feedback. All course discussions will occur online via the Teachable website. Each module will have its own section on the course website with links to all materials, articles, and discussion boards for that week. Each case study within each module will have its own respective discussion board for participants to post. There will also be the option to comment on other participants' posts in order to promote participant interaction and group learning. For further details regarding the specific content and activities of each weekly module, see *Appendix A*.

### **Desired outcomes**

The short-term immediate outcomes of this course are: 1) to increase research knowledge in school-based professionals, 2) to raise awareness about the need for improved knowledge dissemination methods by researchers, and 3) to increase the number of research articles school professionals that participated in the course have read that apply to and can be used towards their clinical setting. The intermediate outcomes for this course are: 1) to increase the use of evidence-based practice interventions within school-based professionals who participated in the online course and 2) to increase confidence in school-based professionals' ability to review research evidence. The overall long-term outcome for the course is to increase evidence-based practice in school practice.

### **Barriers and Challenges to Implementation**

One potential barrier to the success of this course is difficulty predicting the



relevant nature of research topics for school professionals. Without knowing the school professionals' specific backgrounds beforehand, it may be difficult to develop the relevant course content. Additional literature, a pre-course survey for registered course participants, and/or focus groups may be needed before the start of the course in order to assist with developing specific and relevant course content. The availability of the course to all school professionals will be helpful to create an interdisciplinary team and to bring multiple perspectives to the group course format. However, the diversity of the course participants increases the difficulty needed on behalf of the course developers to create course content that is relevant and easy to learn for all those involved.

With an online course format, accessibility of the course is limited to those with Internet access and those who have the means to afford or find access to a computer. In addition, participants must be able to financially afford the course, which may limit the socio-economic diversity of participants.

It is important to note, as mentioned in Chapter 2, there is a lack of available research pertaining to occupational therapy in schools. Therefore, there may be limited relevant research offered that can be utilized in the course. However, the articles that are found to be relevant are allowed to be utilized for educational purposes under the fair use doctrine (K. Silfen, personal communication, December 3, 2019; The University of Chicago, n.d.). When using articles for educational purposes, the fair use doctrine applies and should allow for access to articles without copyright permission as long as the articles are being used for educational purposes; however, certain restrictions may apply (K. Silfen, personal communication, December 3, 2019; The University of Chicago, n.d.).

## **CHAPTER FOUR – Evaluation Plan**

### **Overall Vision**

The American Occupational Therapy Association (AOTA) created a centennial vision that emphasizes the goal for occupational therapy to be a “science-driven” and “evidence-based profession” (AOTA, 2018, para. 1). In order to achieve this vision, research on occupational therapy needs to be conducted and the information gained from research then needs to be put into practice. The proposed doctoral project that is the subject of this evaluation will consist of an online course that is made for: 1) school-based professionals in order to help provide access to relevant research findings and to further develop research analysis skills in preparation for using research interventions in clinical practice, and 2) research personnel, in order to help facilitate the dissemination of research findings to school-based professionals. This online course will ideally promote evidence-based practice in school-based occupational therapy clinical practice.

For this proposed program evaluation, it is important to know how effective the course is at promoting the uptake of evidence-based practice by school professionals and at teaching researchers how to share information with school professionals. Therefore, there are two intended audiences for program evaluation. The first intended audience is school-based professionals, as it will be important to determine if the course is effective in promoting EBP in school-based clinical practice. The second audience is research personnel who are conducting research about occupational therapy in schools, as they are the individuals who have relevant research knowledge to disseminate. Therefore, both researchers and school professionals will be intended users of the information collected.

The evaluation process will consist of both formative and summative evaluation. In terms of formative evaluation and gathering information that will be used to help shape and inform the program, it is vital to know what strategies for knowledge dissemination worked or did not work in the past. It would be helpful to know what methods researchers have used in the past, such as lectures, workshops, handouts, online materials, published articles, etc. It is also important to find out what tools or resources, if any, school professionals have access to in order to learn about research being done in schools. Whether or not they have access to research literature and information is important to know when designing the course. This will help provide information about which methods may be useful to utilize and the barriers that need to be addressed in the course. This type of information will be gathered before the course is implemented and throughout the implementation of the course. Additionally, at the end of the course, information about the feasibility for school professionals and researchers to implement the course's information will need to be assessed and adapted for future course offerings according to responses.

Summative evaluation will provide information regarding overall effectiveness of the course, such as whether it achieved its intended outcomes. It will be important to assess the course's effectiveness at communicating information to the school professionals and to researchers. The perceived strengths and weaknesses of the course will also need to be evaluated. This type of evaluation will take place after the completion of the course in various intervals.

## Logic Model – See Figure 4.1.

Program Title: **Closing the Gap: The Development of a Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals**

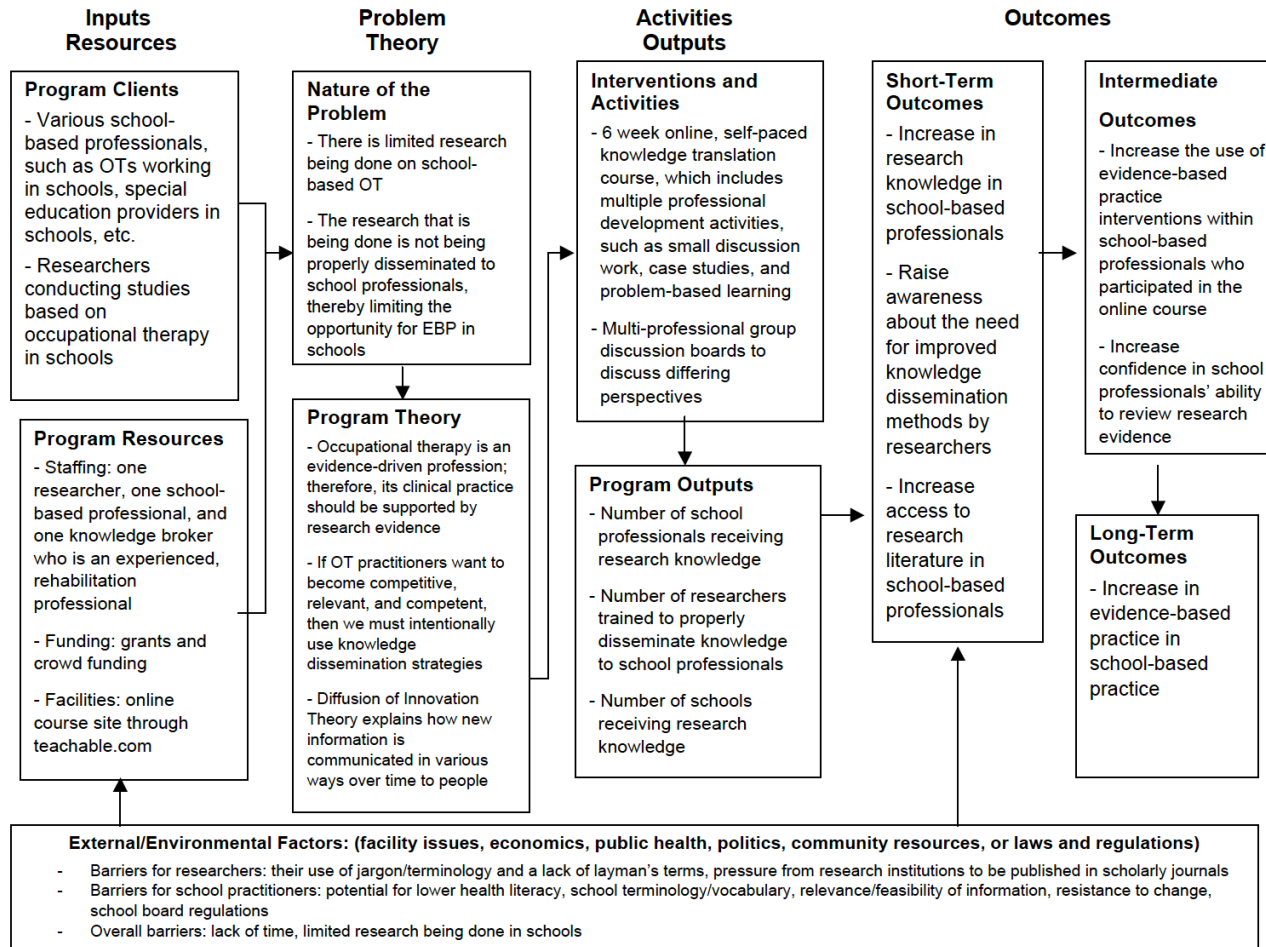


Figure 4.1: Logic model for the evaluation of the Closing the Gap course

### **Plan for Evaluability Assessment**

Stakeholders included as part of the evaluability assessment (EA) team will consist of researchers who are conducting studies in school settings (2-3), general education teachers (at least 1), special education teachers (at least 1), PTs/OTs/SLPs in schools (at least 1 OT), and parents of children who are receiving school-based services (at least 1). Other stakeholders who would be invited to join the EA team are school principals, PTA members, school board members, members of Autism support groups, self-advocates, and university research personnel. A logic model (see *Figure 4.1*) will be used to communicate the envisioned program with stakeholders. This model will help provide clarity to all involved parties and will show stakeholders what inputs and resources are needed, what outputs are expected, and what the short and long-term goals are for the course. Other supporting documentation provided will include relevant research articles that address how knowledge has been disseminated in the past and address the strengths and barriers of strategies used. Emphasis will be on articles that address the barriers to school-based knowledge dissemination in order to discuss the relevance of the strategies used and barriers listed in the article and examine their relevance to the program. Although not all the research is solely related to school-based practices, it would be useful to share information about how other fields use knowledge dissemination and assess its practicality in the field of school-based OT. Any information gathered from a needs assessment will also be provided.

In order to gather a consensus among all stakeholders involved, interdisciplinary small group discussions will be used. These groups will include members from the

different fields between the groups in order to provide stakeholders the opportunities to talk about program goals and what is important to them and their professions' goals. Ideally, this use of small groups will give everyone the chance to be heard and give everyone the opportunity to share their opinion, thereby creating an open environment. There will also be the opportunity for private sharing if some are uncomfortable sharing in a group format. Group members will also have the opportunity to gather together to hear OTs, who have used EBP in clinical practice specifically after reviewing the literature, share a testimony of their experience. An OT's personal experience would provide a real-life example for stakeholders to hear about in order to increase buy-in and to show that the outcomes are achievable.

### **Core Purpose**

The core purpose of the program evaluation is descriptive. The formative stage of the program evaluation will examine what worked and what needed improvement. In the descriptive phase, evaluation will pay attention to number of participants (or number of course participants enrolling in the course to learn about knowledge dissemination) and their satisfaction with the information they received. Course participants will also be asked strengths and weaknesses of the course, and suggestions for change. Then farther down the line after course completion, in order to evaluate the extent to which evidence is being disseminated and integrated, the number of school professionals using EBP in clinical practice and the number of school professionals to which the researchers disseminated their knowledge will need to be assessed.

The summative evaluation is relational and will examine the extent to which the course relates to knowledge dissemination to school professionals. The questions we look to answer are: 1) Are school professionals who completed the course integrating the use of evidence into their clinical practice? and 2) Are researchers who completed the course disseminating their findings to school professionals? If so, are school professionals who received the knowledge dissemination using the information to inform their practice? Are the two related?

### **Scope of Evaluation**

#### **Time**

Evaluation will take place over the course of one year. It will start with the focus groups and creating the EA team. Then, it will take about 3 months to gather and condense the information gained from the groups and incorporate it into the course design. The course will then be offered to take place 3 months after the focus groups and formative evaluations. Post-course assessments will take place directly after the course completion, on the online course website, on the same day that the course officially ends. Follow up assessments will be administered 3 months and 6 months after course completion (or 6 months and 9 months after the beginning of the evaluation plan as a whole). These follow up assessments will be given to all course participants; however, if researchers report that they have engaged in knowledge dissemination practices, then the professionals that they disseminated knowledge to will also receive a survey if they agree. This will take place 3 months after the researchers report disseminating the

information.

### **Place**

Data collection will take place online on the same website as the course in order to reduce burden and to increase accessibility and ease of completion for course participants.

### **Number of Course Evaluation Participants**

To start, it would be ideal to have at least 5-7 participants with the minimum being 2 and the maximum being 10. Five to seven participants is a manageable number for first starting out. With a lower number of staff organizing and implementing this evaluation in addition to the need to track participants over time for follow-up assessment, it will be easier to keep in contact with a lower number of individuals. However, 5-7 participants are still enough to obtain valuable data and potential various perspectives.

### **Inclusion and Exclusion Criteria**

The inclusion criterion is school-based professionals who have worked with an occupational therapist in a school setting (the type of school as well as specific profession will be gathered as descriptive data for participant characteristics). Additionally, for researchers, the only inclusion criterion is researchers who are specifically conducting occupational therapy research in any type of school in the United States (the type of



school will also be gathered as descriptive data for participant characteristics). That is a specific population, so in order to gather the most possible data, no further criteria will be used to rule out any candidates.

### **Evaluation Questions**

The questions that the course evaluation is looking to answer are as follows:

- How many people registered for the online course?
- How many people completed the online course in full?
- What is the level of participant satisfaction immediately post course completion?
- Does a multi-disciplinary online knowledge translation course increase the use of evidence-based practice in schools?
  - This may be measured by:
    - Did school-based professionals gain confidence in their ability to use EBP in their clinical practice?
    - How many research articles from the course were you able to use in your clinical practice?
- Does a multi-disciplinary online knowledge translation course increase the number of research professionals communicating their findings to school professionals?
  - This may be measured by:
    - How many schools did researchers disseminate knowledge to after the completion of the course?

- Did researchers learn something new about the process of knowledge dissemination?
- Does a multi-disciplinary online knowledge translation course increase research access to schools and school professionals?
  - This may be measured by:
    - How many new research articles were you exposed to in this course?
    - How many new search strategies for locating research evidence did you learn while in the course?

See *Figure 4.2* for sample questions from the satisfaction survey that will be provided immediately post-course completion.

1. Are you satisfied with your experience in this course?
2. What did you like about the course specifically?
3. Did you like the format of the online course?
4. Are you satisfied with the course content that was covered?
5. Do you feel like the course content was relevant to your area of practice?

*Figure 4.2:* Sample questions from the course participant satisfaction survey

### **Research Design and Implementation Evaluation Methods**

This is a pre-post test interrupted timeseries design. Participants will be used as their own controls, as there will be no comparative control group that consciously does

not receive intervention due to the ethical questions this would raise. Aspects of an interrupted time series design will be incorporated in order to assess more long-term outcomes from the program. Pre-intervention baseline data and formative data (for any update on course content) will be gathered 3 months prior to the start of the course. Data will then be collected online on the spot at the conclusion of the course as the post-test data. This will include qualitative and quantitative data, such as multiple-choice surveys, Likert scale surveys, and open-ended questions. Follow-up data will also be collected 3 months, 6 months, and 1 year post-intervention in order to assess the intermediate and long-term outcomes. The follow-up data collection will consist of surveys that can be done online or through telephone interviews in order to increase the likelihood of follow through.

### **Planned Approach to Gathering Qualitative and Quantitative Data**

In order to evaluate the effectiveness of the proposed course, a survey will be the main approach used to assess the short-term outcomes of the course, such as increased research knowledge in school-based professionals. The purpose of the survey is to understand the strengths and weaknesses of the course in terms of what barriers remain in disseminating research knowledge to school professionals. The survey will assess the school-based professionals' confidence with analyzing and applying research findings into their clinical practice and what barriers remain to research utilization. Additionally, the survey will assess researchers' ability to recognize barriers related to knowledge dissemination and what strategies they can use to overcome said barriers. These are

topics that will be addressed or discussed throughout the duration of the course. By attending and being an active participant in the course, school-based professionals should be able to discuss applying evidence-based practice to clinical practice as well as analytical research skills. In addition, researchers in attendance should be able to discuss barriers and strategies for knowledge dissemination of research findings. If participants are unable to identify these topics, then the course content and structure will need to be adjusted in order to better share the information. Therefore, this survey is a summative evaluation survey.

As a pre-test, the survey will be administered to research and school professionals who express interest in attending the knowledge translation course and as a post-test, school and researcher professionals who attended the knowledge translation course. These are school professionals who have at least had exposure to occupational therapists in a school setting or researchers who are currently or have recently conducted research related to occupational therapy in schools or those who have done so in the past. Since the population is already so narrow and specific, a convenience sample will be used in attempt to reach as many eligible participants as possible.

The general content of the survey will evaluate the strengths and weaknesses of the multi-disciplinary online knowledge translation course. Overall impressions of the course, content, style of content presentation, and appropriateness and relevance of information are some key themes that will be covered. In addition, accessibility of information implementation will also be an important theme as it helps provide an idea of how easy the information is to use and put into practice when disseminating knowledge

to school professionals. Information gathered from the survey done pre-course will be used as formative data to help adjust the course to be relevant and to best meet the needs of the participants before it takes place. The survey conducted post-course will be used as a summative evaluation in order to assess the effectiveness of the course overall and which aspects may need to be altered for better results in the future.

Survey questions will contain a mixture of both open-ended and fixed choice questions. Participants will have the opportunity to rate their experience on a 1-10 scale and answer questions about perceived effectiveness and relevance to their practice on a Likert scale, as well as share specific opinions through open-ended questions. Questions about overall attitude about the course and its effectiveness will use 1-10 ratings and 5-point Likert scales respectively. Open-ended questions will be more related to the specific strengths and barriers, as well as recommendations for improvement.

The survey will be conducted online, on the course website, directly upon completion of the knowledge translation course. This will provide information about immediate attitudes about the course. A follow-up survey will be sent via email and will be conducted online about 3 months post-course in order to assess any implementation of the information gathered from the course and any changes in attitudes after the course.

### **Data Analysis and Reporting**

Qualitative data will be used to identify and categorize recurring themes in the open-ended survey questions. Each theme will be assigned a code or a label to further classify the information. From the themes, recurring categories will be identified. The

qualitative data gained from the open-ended survey questions will be counted in order to identify frequency of responses. Counting the frequency of responses will highlight the most identified strengths and barriers participants listed. Also if participants frequently rate satisfaction or dissatisfaction with the course experience, that can be very telling of the quality of the course. Since there are a lower number of participants expected, this information can be further analyzed with word processing and spreadsheet software, such as Excel. This type of software is helpful for minimizing time and budget (Rogers & Goodrick, 2015). Text from the open-ended answers is put into cells and each cell is given a label, then “the data can then be sorted and the coding checked for consistency,” (Rogers & Goodrick, 2015, pg. 586).

### **Data Management Plan**

Pre-program data will be gathered via online surveys. Data will be collected and analyzed by the program instructors: the researcher, the experienced clinical leader, and the knowledge broker. Occupational therapy researchers, who are participating in the course, will be asked to fill out a survey, which assesses their typical methods and familiarity with knowledge dissemination practices and whether they would be willing to participate in an interview. School-based professionals will be asked to fill out a survey, which assesses their typical use of evidence-based practice in clinical practice and whether they would be willing to participate in an interview. This same survey will be administered immediately upon completion of the course. Follow-up surveys (3 months, 6 months, and 1 year) will be sent via email to course participants with weekly reminders

until completed. Paper copies of the surveys will be stored in large durable envelopes.

Electronic copies of each survey will be saved onto a USB flash drive as a backup.

Information gathered from interviews and other qualitative methods will be analyzed for recurring themes. These themes will then be coded, assessed for frequency, and charted. The coding process will be done by both occupational therapists and additional research staff (graduate students, volunteers) as needed. The data will be stored in an Excel spreadsheet and backed up on a USB flash drive.

## **CHAPTER FIVE – Funding Plan**

### **Program Description**

In order to be an effective and science-driven health care profession, occupational therapy must be based on research evidence to support the use of interventions. However, due to several personal, social, and institutional barriers, there is a gap between evidence-based practices as supported by research and the interventions used in clinical practice. An online course titled *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals* is proposed to address this gap and to help improve knowledge dissemination between researchers and school-based professionals. This six-week online course will provide access to research articles as well as relevant case studies and will provide a supportive, online learning environment through discussion boards, where school-based professionals and occupational therapist researchers can collaborate and discuss evidence-based practice and its implementation into clinical practice. The following chapter outlines the financial resources needed to make this program accessible to the target population.

### **Program Costs**

The creation and implementation of an online course on knowledge translation requires support from a variety of resources. The startup phase and first year of course development and implementation is expected to be more expensive than following years due to the time and need associated with the development of course content, designing the course, and initial implementation of the course. Subsequent years will focus on maintaining, evaluating, and updating course material.



**Personnel**

Several personnel will be involved in the creation of the online course, specifically the program implementation team which includes one occupational therapy researcher, an experienced clinical school professional, and a knowledge broker/experienced rehabilitation professional. The program implementation team is responsible for creating course content and adapting material to fit the needs of the participants; therefore, they will need to be compensated for their time and effort. These three individuals must meet regularly to discuss course content and must work collaboratively to provide a multi-disciplinary perspective of course material. Due to the development of all course content needed in year 1, the program implementation team's responsibilities for that year include reviewing existing research evidence, reviewing current school-based interventions and practices, evaluating and identifying participant needs and goals, and designing the course format and layout on an online platform. The team will also be responsible for facilitating course discussion and providing feedback to course participants. In year 2 and beyond, the program implementation team will be responsible for maintaining the course curriculum, evaluating the relevance of course content, and adapting course material as needed. The program implementation team will also be tasked with recruiting course participants and advertising the course to the appropriate professionals. As this is a collaborative team approach, it is assumed that all responsibilities will be evenly distributed amongst the three members of the program implementation team. If the team mutually decides to redistribute the roles and responsibilities so that one professional takes on more responsibility, then compensation

will be reconsidered and redistributed to reflect the acquisition or loss of responsibilities. The program implementation team should be compensated in a manner that is equivalent to the per diem rate of an occupational therapist as most team members will be rehabilitation professionals. Therefore, the team should be compensated at a rate of about \$50 per hour. Due to the nature and time associated with course development, it is estimated that the program implementation team will work for about 50 hours in the first year, and about 25 hours in years 2 and beyond.

### **Supplies and Equipment**

It is assumed that the program implementation team will have access to existing technology, such as Internet access and a desktop or laptop computer. The team can perform all course duties online and only require an email address to communicate with program participants. It is assumed the implementation team has access to all these items already at no additional cost to the budget.

### **Technology**

Implementation of the course will take place on the online delivery platform, Teachable. Teachable charges \$79 per month, billed one time per year (Teachable, 2019). With this package, Teachable includes unlimited students, graded quizzes, course completion certificates, and priority product support (Teachable, 2019). There is also a free plan that allows professionals to test out Teachable to determine if the website is a good fit for course material (Teachable, 2019). In order to minimize program costs, it is recommended to utilize the free plan in year 1. If Teachable is compatible with course content and receives positive reviews from the program implementation team as well as

course participants, then the course will be upgraded to the \$79/month package. *Table*

*5.1* includes the summary of the program expenses.

*Table 5.1: Summary of Program Expenses -*

	ITEM	COST	YEAR 1	YEAR 2	RATIONALE
Personnel	Occupational therapy researcher	\$50 per hour	\$2,500 (50 hours)	\$1,250 (25 hours)	Member of program implementation team that meets weekly, develops course content, monitor and facilitate course discussion, modify course content according to participant needs and feedback
	Experienced clinical school professional	\$50 per hour	\$2,500 (50 hours)	\$1,250 (25 hours)	Member of program implementation team that meets weekly, develops course content, monitor and facilitate course discussion, modify course content according to participant needs and feedback
	Knowledge broker (experienced rehabilitation professional)	\$50 per hour	\$2,500 (50 hours)	\$1,250 (25 hours)	Member of program implementation team that meets weekly, develops course content, monitor and facilitate course discussion, modify course content according to participant needs and feedback
Technology	Teachable.com	\$79 per month	FREE (free plan available as a trial)	\$948	Course website and online content, provides unlimited video, quizzes, unlimited number of students
Dissemination Expenses	Program Dissemination expenses as outlined in Chapter 6	See Chapter 6	\$2,101.99	\$2,101.99	Funding needed to disseminate the program purpose and structure to the target audiences of school-based professionals and occupational therapy researchers
	TOTAL EXPENSES		\$9,601.99	\$6,799.99	Anticipate subsequent years after Year 2 to equal the total expenses of Year 2

### Potential Funding Sources

The primary author of this doctoral project can contribute to some of the funding for the program; however, substantial funding will also need to be sought out from outside foundations; local, state, and federal grants; as well as gifts. *Table 5.2* provides a summary of potential funding sources.

*Table 5.2: Potential Funding Sources -*

Funding Source	Amount	Description and Requirements
Agency for Healthcare and Research Quality (AHRQ)  Title: "AHRQ Grants for Health Services Research Dissertation Program (R36)"	Up to \$40,000	This grant provides funding to students pursuing a doctorate degree in a healthcare profession in order to support healthcare research as it aligns with the mission of AHRQ, which aims to produce evidence that makes health care more accessible, affordable, and higher quality.  <a href="https://www.ahrq.gov/funding/training-grants/r36.html">https://www.ahrq.gov/funding/training-grants/r36.html</a>
American Occupational Therapy Foundation (AOTF)  Title: "Implementation Research Grant"	Not specified	This grant provides funding to those who are examining barriers to research implementation and studying methods to more efficiently deliver evidence-based practice to those in clinical settings in order to advance the field of occupational therapy.  The principal investigator (PI) must have a commitment from an experienced research mentor with established grant funding.  <a href="https://www.aotf.org/Grants/Implementation-Research-Grant">https://www.aotf.org/Grants/Implementation-Research-Grant</a>
Boston University: College of Health & Rehabilitation Sciences: Sargent College  Title: "Dudley Allen Sargent Research Fund"	Up to \$5,000	This grant provides up to \$5,000 to students at Sargent College in order to assist with the timely completion and quality of one's doctoral/research project.  <a href="https://www.bu.edu/sargent/research/research-funding-administration/dudley-allen-sargent-research-fund/">https://www.bu.edu/sargent/research/research-funding-administration/dudley-allen-sargent-research-fund/</a>

Crowd funding	Not specified	Crowd funding uses various platforms to reach a large number of unrelated donors who can contribute money based on personal interest in the subject matter.  <a href="http://www.gofundme.com">www.gofundme.com</a> ; <a href="http://www.kickstarter.com">www.kickstarter.com</a>
Teachable.com	Not specified	Teachable.com charges a fee to those who register as course participants. This cost will be used to help pay for budget items, such as implementation team salaries and payments for use of the online delivery platform.  <a href="http://www.teachable.com">www.teachable.com</a>

### Conclusion

An online course platform was chosen in order to save instructor and course participants time, provide accessibility to course content, promote interdisciplinary learning, and to reduce costs associated with physical space. The majority of program expenses are associated with compensating the necessary professionals needed to develop and implement course content and the use of an online delivery platform in year 2 and beyond. Funding from foundations, such as AOTF, or the sponsoring school, Boston University Sargent College, as well as crowd funding, may be important to pursue in order to meet the budget needs for creating an online course.

## **CHAPTER SIX – Dissemination Plan**

### **Description of Proposed Program**

The proposed online course titled *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals* is designed to address the gap between the knowledge shown to be effective by research and the interventions used in clinical practice. It is important to bridge this gap through the development of this course in order to promote occupational therapy as an effective, science-driven and evidence-based profession. This six-week online course will provide access to research articles as well as relevant case studies and will provide a supportive, online learning environment through discussion boards, where school-based professionals and occupational therapists researchers can collaborate and discuss evidence-based practice and its implementation into clinical practice. The purpose of the following chapter is to discuss the dissemination plan for the course, which includes identifying the target audiences, outlining key messages to encourage course participation, and outlining the logistics of disseminating key messages, such as the materials needed and the platforms that will be used.

### **Dissemination Long- and Short-term Goals**

The dissemination plan has one long-term goal and three short-term goals as outlined below.

#### **Long-Term Goal**

- School-based professionals will demonstrate an increase in utilization of evidence-based interventions in their clinical practice.

**Short-Term Goals**

- To disseminate information about the program to the primary audience, which will lead to an increase in the number of school professionals enrolled in the *Closing the Gap* course.
- To disseminate information about the program to the secondary audience, which will lead to an increase in the number of occupational therapy researchers enrolled in the *Closing the Gap* course.
- To disseminate information about the program to the primary and secondary audiences, which will lead to an increase in communication between school professionals and occupational therapy researchers in order to establish more formal research dissemination methods to school professionals.

**Target Audiences**

The primary audience will be school-based professionals who work with students receiving occupational therapy services. Current school-based practitioners engage in clinical practice everyday and are the ones in charge of determining what interventions they will use on a daily basis. These professionals are the individuals who will benefit most from the course and therefore, should be the main audience when sharing the results of the course.

The secondary audience targeted will be occupational therapy researchers. Researchers who study occupational therapy are the professionals who develop the evidence that will, ideally, be used in clinical practice. Therefore, it would be beneficial

to include researchers in the dissemination process in order to inform them of the ways their research can be used and ways they can facilitate the use of their research.

### **Key Messages**

#### **Key Messages to the Primary Audience**

The key messages for the primary audience of school-based professionals includes the following:

- Knowledge translation interventions that include the use of multiple strategies; provide follow-up support; include opportunities for discussion, practice, and feedback; and promote a collaborative learning environment are the most successful at increasing EBP skills (Anaby et al., 2015; Cahill et al., 2015; Thomas & Law, 2013).
- The online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*, provides school-based practitioners with access to research articles and a supportive online learning community via discussion boards to facilitate the uptake of research knowledge for clinical use.
- The proposed online course provides the opportunity for clinical practitioners and researchers to collaborate and discuss the implementation of research findings in order to promote research utilization in practice.

#### **Key Messages to the Secondary Audience**

The key messages for the secondary audience of occupational therapy researchers includes the following:



- Collaboration between researchers and the users of research information is a key aspect of effective knowledge dissemination interventions (Anaby et al., 2015; Cahill et al., 2015; Pittman & Lawdis, 2017).
- The online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*, provides the opportunity for clinical practitioners and researchers to collaborate and discuss the implementation of research findings in order to promote research utilization in practice.

### **Sources/Messengers**

The primary messenger to both the primary and secondary audience will be Samantha Anscher, MS, OTR/L, who is the creator of the online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*. As the developer and creator of the course, the aforementioned author will be a spokesperson to spread the key messages of the program. Ms. Anscher is a clinical occupational therapist and provides the perspective of a clinician when considering research utilization in practice.

The secondary messenger for the secondary audience of occupational therapy researchers will be Gael Orsmond, PhD, who is the academic mentor to Samantha Anscher in the creation of the online course. Dr. Orsmond is a developmental and clinical psychologist who has also participated in conducting occupational therapy research. She provides a unique perspective as she has both clinical and formal research experience.

Six months or more into the dissemination efforts, it would be beneficial to have 1–2 past course participants share their personal testimonies, success stories, and how the course has positively impacted their clinical practice.

### **Dissemination Activities**

The next section will discuss the dissemination process that will be used to share program findings with the target audiences, which includes the school-based professionals and occupational therapy researchers. Dissemination strategies will include written information, electronic media, and person-to-person contact.

#### **School-Based Professionals**

**Person-to-person contact.** The top dissemination strategy will be person-to-person contact and will be achieved through the submission of a poster presentation at the American Occupational Therapy Association (AOTA) Annual Conference. This conference will provide the opportunity to engage in real life conversations with occupational therapists working in schools in order to discuss the benefits of course participation, pose and answer questions about the course, and discuss barriers to knowledge dissemination in schools. The author will also participate in the District of Columbia Occupational Therapy Association (DCOTA) annual conference through a poster presentation. Presentations will also be given at local DC schools and in the surrounding DMV area in order to spread awareness about the course to school professionals.

**Written information.** A poster will be created for use at state and national conferences as well as at local presentations. The poster will serve as a visual aid during

presentations to discuss the barriers to research utilization in clinical practice as well as introduce the *Closing the Gap* course goals, structure, and benefits to improving evidence-based clinical practice. Informational brochures about the course will also be available to those who attend the poster presentations and to local DC and DMV area schools once person-to-person presentations are given.

**Electronic media.** The social media sites, Facebook and LinkedIn, will be informally used to promote education about the benefits of the *Closing the Gap* course. Currently, Facebook and LinkedIn utilize bidding to price controlled advertisements as it is based on the popularity of one's target audience. However, at this time, the amount of money needed to make an impact via the formal advertisements does not seem worth the investment due to the small size of the target audience. Therefore, the *Closing the Gap* course will make an informational page on Facebook and LinkedIn that occupational therapists can "like" and choose to follow online. The Facebook and LinkedIn pages will provide the link to the course site and will post information discussing the need for and benefits of the course. Each post will utilize occupational therapy related hashtags, such as #occupationaltherapy, #occupationaltherapyresearch, #schoolOT, etc. in order to increase the number of views on the posts. The *Closing the Gap* course account will also follow other OT related pages in the hopes to gain followers in return.

### **Occupational Therapy Researchers**

**Person-to-person contact.** The top dissemination strategy will be person-to-person contact and will be achieved through the submission of a poster presentation at the AOTA Annual Conference. This conference will provide the opportunity to engage in

real life conversations with researchers who are conducting research related to occupational therapy in a school setting. The poster presentation will allow for the chance to discuss the benefits of course participation, pose and answer questions about the course, and discuss barriers to knowledge dissemination in schools. The author will also participate in the District of Columbia Occupational Therapy Association (DCOTA) annual conference through a poster presentation. Presentations will also be given at occupational therapy graduate programs in the surrounding DMV area in order to spread awareness about the course to occupational therapy researchers associated with the local universities.

**Written information.** A poster will be created for use at state and national conferences as well as at local presentations. The poster will serve as a visual aid during presentations to discuss the barriers to research utilization in clinical practice as well as introduce the *Closing the Gap* course goals, structure, and benefits to improving evidence-based clinical practice. Informational brochures about the course will also be available to those who attend the poster presentations and to the DMV area OT graduate program faculty once person-to-person presentations are given.

**Electronic media.** The social media sites, Facebook and LinkedIn, will be informally used to promote education about the benefits of the *Closing the Gap* course. Currently, Facebook and LinkedIn utilize bidding to price controlled advertisements as it is based on the popularity of one's target audience. However, at this time, the amount of money needed to make an impact via the formal advertisements does not seem worth the investment due to the small size of the target audience. Therefore, the *Closing the Gap*

course will make an informational page on Facebook and LinkedIn that occupational therapists can “like” and choose to follow online. The Facebook/LinkedIn page will provide the link to the course site and will post information discussing the need for and benefits of the course. Each post will utilize occupational therapy related hashtags, such as #occupationaltherapy, #occupationaltherapyresearch, #schoolOT, etc. in order to increase the number of views on the posts. The *Closing the Gap* course account will also follow other OT related pages in the hopes to gain followers in return.

### **Dissemination Budget**

Funding will be needed in order to accomplish the above-mentioned dissemination efforts. The dissemination budget is outlined in Table 6.1.

Table 6.1: Closing the Gap Dissemination Budget

Item	Place/Date	Cost	Total
AOTA Conference Registration	April 8-11, 2021 San Diego, California	\$451 Early Full Conference Registration for AOTA Members (AOTA, 2019b)	\$451
Travel and Lodging for AOTA Conference	See above	Travel: ~ \$700 per Google Flights Lodging: ~\$175 per night per hotels.com, 4 night stay	\$1,400
DCOTA Conference Registration	Date unannounced for 2020 Washington, DC	\$75 Early Bird Registration (DCOTA, 2019)	\$75
Travel and Lodging for DCOTA Conference	See above	\$0, conference is local to author	\$0
Poster	N/A	\$95 for 36x48 GlareGuard Lamination poster; good for long term use, reduces glare, fingerprints, scratches, etc. (PosterPresentation.com, 2019)	\$95
Local Presentations	DMV area	\$0	\$0
Informational Brochures	Local Staples store	\$80.99 for 100 color copies	\$80.99
Facebook and LinkedIn promotional pages	N/A	\$0	\$0
<b>Total Dissemination Cost</b>			<b>\$2,101.99/year</b>

### Dissemination Evaluation

To measure and evaluate the effectiveness of the dissemination methods mentioned above, the following criteria will be recorded: the number of *Closing the Gap* course participants, the number of individuals who attend the AOTA poster presentation, the number of individuals who attend the DCOTA poster presentation, and the amount of social media “likes” or “followers” on the *Closing the Gap* Facebook and LinkedIn

pages. These measures will be used to continually assess the success of dissemination efforts and to make future adjustments in order to continue the program's success. These measures will determine whether or not the dissemination methods are reaching a wide OT practitioner audience and gaining interest and participation in the course.

### **Conclusion**

The dissemination efforts outlined in this chapter are aimed at communicating the core purpose and evidence-based background of the online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*, to the target audiences of school-based professionals and occupational therapy researchers. The overall goal is to increase the number of course participants, which will ideally lead to improved research utilization in clinical school-based practice. In addition, dissemination methods strive to promote awareness about the need for collaboration between the two target audiences and to create more opportunities for direct interactions between the school-based professionals and occupational therapy researchers.

## CHAPTER SEVEN - Conclusion

Knowledge translation includes the steps of researching and establishing best practices, communicating those findings to stakeholders and consumers, and then using that information effectively in practice (Straus et al., 2009). However, decision-makers, such as clinicians, patients, policy makers, managers, and others, encounter challenges related to accessing research evidence, understanding and applying research evidence, the high volume of research evidence produced, and the time needed to read articles and the skills to analyze research evidence (Straus et al., 2009). Additionally, effective communication between researchers and consumers is negatively impacted by institutional barriers, different career structures between the two professions, barriers for researchers with the process of publishing in academic journals, and issues related to consumers expressing a lack of trust in research evidence (Crosswaite & Curtice, 1994). These barriers aim to be addressed in the online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*.

The *Closing the Gap* course is a six-week online course that is theory-driven and evidence-based. The course is based on knowledge translation interventions that include the use of multiple strategies; provide follow-up support; include opportunities for discussion, practice, and feedback; and promote a collaborative learning environment, as these are the most successful aspects of intervention that can increase EBP skills (Anaby et al., 2015; Cahill et al., 2015; Thomas & Law, 2013). In addition, the course will address the current knowledge gap between evidence-based practice and clinical practice



and aims to improve research utilization in occupational therapy in school settings in particular. The overall objectives of this course are: 1) to develop and maintain school practitioners' abilities to access, synthesize, and apply relevant research to their settings and 2) to improve researchers' ability to disseminate research findings to the appropriate professionals. The proposed course is unique in that it will provide the opportunity for school-based professionals and occupational therapy researchers to discuss barriers and specific research evidence with one another through an online discussion forum. By having occupational therapy researchers and school professionals directly communicate with one another, the goal of the course is to improve knowledge translation methods between those involved in conducting and producing research and those utilizing research evidence.

The proposed course is also important in furthering the field of occupational therapy as an "evidence-based, client-centered, and cost-effective" profession (AOTA, 2019a, para. 2). In order to enact effective occupational therapy services, an occupational therapist should incorporate evidence, or treatments indicated to be effective by research, into practice. The hope is that with this course, school-based professionals and occupational therapists working in schools can better inform their clinical practice through the use of research evidence, thereby solidifying occupational therapy as a scientifically supported profession.

## **APPENDIX A – Outline of Sequential Weekly Modules in the Proposed Online Course**

### **Week 1: Identifying Clinical Problems in the School Setting and Goal Setting for the Course**

- a. Online discussion introductions: Share your name, where you're from, profession, setting/field you work in, a fun fact about yourself
- b. Discussion identifying barriers to research implementation in school practice:
  - a. Clinical Practitioners: Discuss what you believe are the barriers to utilizing research evidence in schools. Please provide at least 2-3 reasons.
  - b. Researchers: Discuss what you believe are the barriers to knowledge dissemination to school professionals. Please provide at least 2-3 reasons.
- c. Discussion board response: Respond to at least 2 peers' posts and discuss the barriers they mentioned. Are you familiar with those barriers? Have you ever experienced those barriers? What did you do, if anything, to address the barriers?
- d. Additional resources and readings
- e. Learning Styles quiz
  - a. <http://vark-learn.com/the-vark-questionnaire/> (VARK Learn Limited, 2019)
- f. Identify group and individual goals: Identify 1 personal goal and 1 group goal that you would like to achieve from this online course

### **Week 2: Introduction to Knowledge Translation and Dissemination**

- a. What is Knowledge Translation?
- b. Current Knowledge Translation Used in Clinical Practice Discussion: Discuss how research evidence is currently shared with you or how you currently share research evidence to relevant stakeholders.
- c. Discussion board response: Respond to at least 2 peers' posts and discuss the methods they shared. Are they similar or different to the ones you mentioned in your own post? Please explain.
- d. Additional resources
- e. Learning quiz

### **Week 3: A Review of Conducting Literature Searches, Accessing Research Articles, and Forming Clinical Questions**

- a. Review of Conducting Literature Searches: identifying search terms and developing PICO questions
  - a. Clinical Practitioners: Practice identifying search terms and developing PICO questions
  - b. Researchers: Reflect on the search terms you used in one of your research articles. Would your peers be able to locate your article easily given their search terms and PICO questions? Why or why not? Are the terms you

chose different from the terms the practitioners chose? If so, why might that be?

- b. Case Study Analysis
- c. Discussion board: Identify and share 1-2 research articles addressing the case study and summarize the evidence
- d. Discussion board response: Respond to at least 2 peers' posts and discuss the strengths and weaknesses of the article(s) they shared
- e. Homework:
  - a. Clinical Practitioners: Begin to search for a research article that examines an intervention you would use in your clinical practice.
  - b. Researchers: Begin to brainstorm/locate a research article that you were involved in that examined a school-based intervention.

#### Week 4: Identifying Research Jargon and Creating a School-Based Health Vocabulary

- a. What are Consumer Health Vocabularies?
- b. Discussion identifying and defining research jargon terms found in relevant research articles
- c. Discussion board: Identify 2-3 new terms you found in research articles, define the terms and discuss how they relate to your area of practice.
- d. Discussion board response: Respond to at least 2 peers' posts and comment on whether their identified terms apply to your area of practice. Did you find any similar terms?
- e. Homework:
  - a. Practitioners: Share and post your article regarding a school-based intervention that you would like to use in your clinical practice. Please include a short summary of the results and implications for clinical practice.
  - b. Researchers: Share and post your article regarding a school-based intervention. Please share the results of your study and your recommendations for clinical practice.

#### Week 5: Applying Research Evidence to Clinical Situations Practice

- a. Case Study Analysis regarding knowledge translation
- b. Discussion post: Identify and share 1-2 research articles addressing the case study and summarize the evidence
- c. Discussion board response: Respond to at least 2 peers' posts and discuss the strength and weaknesses of the articles they shared
- d. Homework:
  - a. Practitioners: Please comment on 1-2 articles posted by your peers who are researchers. Please pose any questions you may have regarding implementation of their evidence-based intervention and please discuss any barriers to implementation.

- b. Researchers: Please respond to the clinical practitioners comments with 1-2 alternative suggestions for implementation. If unable to provide solutions, please discuss the main takeaways of the research article that could be universal to clinical practice.

Week 6: Applying Research Evidence Cont'd, Wrap up, and Conclude

- a. Final thoughts regarding importance of Knowledge Translation and Dissemination
- b. Identify 1–2 new interventions that participants will take with them into their practice
- c. Review of all topics
- d. Address any common themes or questions

## **EXECUTIVE SUMMARY**

### **Closing the Gap: The Development of a Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals**

#### **Introduction**

The Canadian Institutes of Health Research defines knowledge translation as “a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health... provide more effective health services and products, and strengthen the health care system” (Canadian Institute of Health Research [CIHR], 2018, para. 1). Knowledge translation includes the steps of researching and establishing best practices, communicating those findings to stakeholders and consumers, and then using that information effectively in practice (Straus, Tetroe, & Graham, 2009). However, decision-makers face a variety of barriers related to personal factors, such as insufficient skills to analyze and understand what the research evidence suggests, as well as institutional barriers, such as overwhelming amounts of information and available research to sift through in order to find relevant research articles, limited access to the relevant research, and time constraints limiting one’s ability to sort through all the information (Straus et al., 2009). These barriers not only make it difficult for clinicians to access evidence-based research, but also make the research very difficult to implement into clinical practice.

#### **Theory**

Diffusion of Innovation (DOI) theory examines communication in order “to explain how, over time, an idea or product gains momentum and diffuses (or spreads)

through a specific population or social system,” (LaMorte, 2019, para. 1). DOI theory is used in a variety of social science fields to examine the transfer of knowledge between populations to explain how new information is spread (Green, Ottoson, Garcia, & Hiatt, 2009). It is for these reasons that DOI theory will be used to explain why there is a gap between what information is indicated by research to be effective and the interventions used in clinical practice.

E.M. Rogers, who developed DOI theory, explained that diffusion takes place when new information is communicated in various ways over time to people (Rogers, 1983). Rogers (1983) further states that the four main elements of Diffusion of Innovation Theory, or the four elements needed to spread information effectively, are “innovation, communication channels, time, and the social system” (p. 10). Therefore, communication skills, institutional barriers, and time should all be considered when designing an intervention that targets knowledge translation between two or more parties.

### **Program Overview**

The online course, *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals*, will be developed in order to address the current gap between knowledge translation and clinical practice; and to improve research utilization in occupational therapy in school settings in particular. The overall objectives of this course are: 1) to develop and maintain school practitioners’ abilities to access, synthesize, and apply relevant research to their settings and 2) to improve researchers’ ability to disseminate research findings to the appropriate professionals. The course also aims to support occupational therapists and school

professionals' use of research utilization in school-based practice. The course supports the American Occupational Therapy Association's 2025 Vision where occupational therapy is described as a profession that uses effective, or evidence-based, solutions to improve the lives of others (AOTA, 2019).

This six-week course utilizes an online learning environment through teachable.com in order to increase accessibility of information to course participants and allows for weekly self-paced learning to promote participant success. The course will include multiple professional development activities, such as small discussion work through an online discussion board, case studies, and problem-based learning as these are proven methods to effectively promote confidence with integrating research into clinical practice (Anaby, Korner-Bitensky, Law, & Cormier, 2015; Cahill, Egan, Wallingford, Huber-Lee, and Dess-McGuire, 2015). Intended course participants include, but are not limited to, general education teachers, special education teachers, teaching assistants, occupational therapists, occupational therapy assistants, physical therapists, physical therapy assistants, and speech language pathologists. Additionally, course enrollment will be open for occupational therapy research professionals who are conducting research studies based on occupational therapy in a school setting. The six-week course will follow a sequential order of themes based on the following: 1) identifying clinical problems in the school setting; 2) introduction to knowledge translation and dissemination; 3) a review of conducting literature searches, accessing research articles, and forming clinical questions; 4) identifying research jargon and creating a school-based health vocabulary, and 5) applying research evidence to clinical situations.

**Evaluation Plan**

In order to evaluate the effectiveness of the proposed course, a survey will be the main approach used to assess the short-term and long-term outcomes of the course. The survey will consist of both pre- and post-test measures. As a pre-test, the survey will be administered to research and school professionals who express interest in attending or are pre-registered for the knowledge translation course. As a post-test, the survey will assess school and research professionals who attended the knowledge translation course.

The survey will include questions to evaluate the strengths and weaknesses of the interprofessional online knowledge translation course. Overall impressions of the course, content, style of content presentation, and appropriateness and relevance of information are key themes that will be covered. In addition, accessibility of information implementation will also be an important theme as it helps provide an idea of how easy the information is to use and to put into practice when disseminating knowledge to school professionals. Information gathered from the pre-course completion survey will be used as formative data to help adjust the course to be relevant and to best meet the needs of the participants before it takes place. The survey conducted after the course takes place will be used as a summative evaluation in order to assess the effectiveness of the course overall and which aspects may need to be altered for better results in the future.

Survey questions will contain a mixture of both open-ended and fixed choice questions, allowing participants the opportunity to rate their experience as well as provide more specific feedback. The survey will be conducted online, on the course website, directly upon completion of the knowledge translation course. This will provide



information about immediate attitudes about the course. A follow-up survey will be sent via email and will be conducted online about three months post-course in order to assess any implementation of the information gathered from the course and any changes in attitudes after the course.

### **Funding Plan**

The creation and implementation of an online course on knowledge translation requires support from a variety of resources. The startup phase and first year of course development and implementation is expected to be more expensive than following years due to the time and need associated with the development of course content, designing the course, and initial implementation of the course. Subsequent years will focus on maintaining, evaluating, and updating course material.

Most expenses in both the first and second year are personnel costs. Several personnel will be involved in the creation of the online course, specifically the program implementation team which includes one occupational therapy researcher, an experienced clinical school professional, and a knowledge broker/experienced rehabilitation professional. These three professionals will be responsible for meeting weekly, developing course content, monitoring and facilitating course discussion, and modifying course content according to participant needs and feedback. Therefore, these three individuals must be compensated properly for work required for the position.

Other associated expenses include technology and dissemination expenses. For technology, there is a fee associated with using the Teachable course website. However, the first year is free as a trial. Therefore, there are only fees associated with the second

year when using the Teachable website. For dissemination expenses, funding will be needed to disseminate the program purpose and structure to the target audiences of school-based professionals and occupational therapy researchers. These dissemination methods include local and national conferences, poster presentations, as well as informational brochures to be distributed to interested parties. Overall, first year costs are expected to reach \$9,601.99 and second-year costs \$6,799.99. It is for this reason that funding from outside grants and crowd funding may need to be sought out in order to facilitate the implementation of this online course.

## **Conclusion**

Creating a course that provides both school professionals and occupational therapy researchers the opportunity to discuss research and research utilization in clinical practice is important for knowledge translation. The online course described above aims to improve evidence-based clinical practice in school settings by increasing direct communication between the school professionals and researchers, by having school professionals practice applying research to relevant clinical cases, and by having researchers practice communicating research findings to other professionals. This online course is critically needed in order to make knowledge translation more intentional, to improve evidence-based clinical practice, and to achieve AOTA's 2025 Vision of being an effective and evidence-based profession.

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## FACT SHEET



**Closing the Gap: The Development of a Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals**

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**Introduction to the Problem**

- Researchers typically disseminate their findings through systematic reviews and other articles published in academic journals (Straus, Tetroe, & Graham, 2009). These knowledge dissemination activities do not guarantee that research will actually be used in clinical practice (Straus et al., 2009). This doctoral project aims to address this knowledge translation (KT) gap experienced by both occupational therapy researchers and school professionals.
- KT is different from evidence-based practice (EBP) in that KT includes a range of stakeholders to which information needs to be disseminated while EBP focuses on one individual practitioner (Salbach, 2010). KT is the process in which scientific research is disseminated to and used by various stakeholders within health care services (Salbach, 2010). Whereas EBP focuses on how a specific practitioner makes decisions about the needs for a specific client based on scientific evidence, KT focuses on how researchers disseminate their findings and how accessible that information is to practitioners (Salbach, 2010). The fact that KT has a wide and potentially diverse audience of stakeholders makes it difficult to communicate findings appropriately to all necessary parties at the same time.

**What is Knowledge Translation (KT)?**

KT is the practice of researchers assessing clinical interventions and establishing best practices, communicating research findings and recommendations for practice to stakeholders and consumers, and then consumers using that information effectively in practice (Straus et al., 2009).

Barriers to knowledge translation faced by		
<b>Researchers:</b>	<b>Clinicians:</b>	<b>Both:</b>
<ul style="list-style-type: none"> <li>- The use of scientific jargon</li> <li>- Academic pressure to publish in scholarly journals</li> </ul>	<ul style="list-style-type: none"> <li>- Insufficient skills to analyze evidence</li> <li>- Difficulty accessing relevant research articles</li> </ul>	<ul style="list-style-type: none"> <li>- Limited communication skills</li> <li>- Institutional barriers</li> <li>- Lack of time</li> <li>- Limited research in schools</li> <li>- All of which lead to a lack of research utilization in practice</li> </ul>

**Introduction to the Solution**

- *Closing the Gap: A Knowledge Translation Course Designed to Improve Evidence-Based Clinical Practice for School Professionals* is a theory-driven and evidence-based online course designed to address the current gap between knowledge translation and clinical practice and to improve research utilization in occupational therapy in school settings in particular.
- The proposed course is innovative in that it will provide the opportunity for school-based professionals and occupational therapy researchers to discuss barriers and specific research evidence with one another through an online discussion forum.
- By having occupational therapy researchers and school professionals directly communicate with one another, the goal of the course is to improve KT methods between those involved in conducting and producing research and those utilizing research evidence.

### Summary of the Course

- Six-week online course that will utilize a collaborative learning environment through online discussion boards, practice with research analysis, case studies, problem-based learning, and instructor/peer feedback.
- Online learning environment increases accessibility of information to course participants and allows for weekly self-paced learning to promote participant success.
- Intended course participants include school-based professionals and occupational therapy researchers.

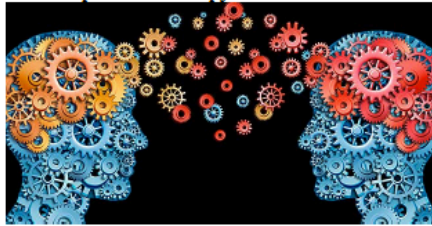


Photo:  
<http://www.cheos.ubc.ca/our-research/knowledge-translation/>

### Weekly Modules:

**Week 1:** Identifying Clinical Problems in the School Setting and Goal Setting for the Course

**Week 2:** Introduction to Knowledge Translation and Dissemination

**Week 3:** A Review of Conducting Literature Searches, Accessing Research Articles, and Forming Clinical Questions

**Week 4:** Identifying Research Jargon and Creating a School-Based Health Vocabulary

**Week 5:** Applying Research Evidence to Clinical Situations Practice

**Week 6:** Applying Research Evidence Cont'd, Wrap up, and Conclude

### Impact on Future Occupational Therapy Practice

- The proposed course is unique in that it will provide the opportunity for school-based professionals and occupational therapy researchers to discuss barriers and specific research evidence with one another through an online discussion forum.
- In order to positively impact further OT practice, the hope is that course participants will share their experience with their colleagues and will show how KT can occur effectively in clinical practice.
- The proposed course is also important in furthering the field of occupational therapy as an "evidence-based, client-centered, and cost-effective" profession and thereby helping to promote the American Occupational Therapy Association's 2025 Vision (AOTA, 2019, para. 2).

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For additional information regarding the course, please contact Samantha Anscher, [sanscher@bu.edu](mailto:sanscher@bu.edu)

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**CURRICULUM VITAE**

